# Excess control, Corporate Governance, and Implied Cost of Equity: An International Evidence

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**Abstract**

Recent research shows that public firms, outside the U.S., have controlling shareholders who tend to use different mechanisms (e.g., pyramidal and cross-holdings, multiple class shares) to enhance the separation between ownership and control rights, providing them with strong incentives and power to expropriate minority shareholders. However, this potential for expropriation can be costly to controlling shareholders and firms in terms of capital-raising costs according to prior research. In this paper, we investigate whether excess control (i.e., the wedge between voting and cash flow rights of the ultimate owner) is associated with increased cost of equity, and whether legal institutions effectively serve a corporate governance role by reducing agency costs embedded in ultimate ownership structures evident in firms' cost of equity. We use a panel of 1,335 firms from eight Asian and thirteen Western European countries and estimate the cost of equity implied by analyst earnings forecasts and growth rate. As predicted by theory, we find robust evidence that the implied cost of equity is increasing in excess control. Consistent with recent empirical literature on the cost of equity capital, we find evidence that firms from countries with strong legal systems and enforcement have lower implied cost of equity. Finally, we find strong evidence that the implied cost of equity is lower for firms with higher market to book ratio, higher analyst coverage, lower price volatility, lower variance of analyst forecasts and lower leverage.



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## 1. Introduction

The separation of ownership and control is widely documented in the modern literature on corporate governance. In a seminal study, La Porta, Lopez-de-Silanes, and Shleifer (1999) investigate the control pattern and ultimate ownership of companies and find that most firms around the world have concentrated ownership structures. These firms are predominantly controlled by a single large shareholder who often exercises ultimate control despite owning little cash flow rights.[1] This separation between ultimate ownership and control (excess control) provides large controlling shareholders with incentives to derive private benefits that benefit themselves at the expense of other shareholders (e.g., Shleifer and Vishny, 1997; Bebchuk, Kraakman, and Triantis, 2000). More importantly, the extraction of private benefits can have serious cost of equity and value implications for the controlling shareholders and firms according to prior research (e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2002; Durnev and Kim, 2005). According to Dyck and Zingales (2004, p. 52), the potential extraction of private benefits by controlling shareholders "…reduces what minority shareholders are willing to pay for shares, lowering the value of all companies where such behavior represents a real possibility. And by raising the cost of finance, it limits the ability of such firms to fund attractive investment projects."

A growing empirical evidence suggests that excess control is negatively associated with firm value, consistent with the entrenchment effect (e.g., Claessens, Djankov, Fan, and Lang, 2002; Mitton, 2002; La Porta, Lopez-de-Silanes, and Shleifer, 2002; Lemmon and Lins, 2003; and Baek, Kang, and Park, 2004).[2] However, to our knowledge, none of the studies have focused on the *direct* effect of excess control on the cost of equity. Indeed, excess control could have value implications from two sources. First, the analysts may take into account the negative impact of

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[1] There are several other studies that corroborate this finding: Shleifer and Vishny (1986) on the US, Zingales (1994) on Italy, Becht and Roell (1999) and Faccio and Lang (2002) on Continental Europe, Khanna and Palepu (1999) on India, Claessens et al. (2000) on East Asian countries, Attig et al. (2006) and Morck et al. (2000) on Canada, Wiwattanakantang (2001) on Thailand, Yeh et al. (2001) on Taiwan, Joh (2003) on South Korea, and Cronqvist and Nilsson (2003) on Sweden.

[2] Consistent with the entrenchment effect view, recent research finds that excess control explains the firm's dividend and debt policies (Faccio et al., 2001, 2005), the informativeness of firm's reported earnings and auditor's choice in Asia (Fan and Wong, 2002, 2005), the extent of income management by firms in Asian and European countries (Haw et al., 2004), and the likelihood of cross-listing in the US (Doidge et al., 2005).

excess control in predicting future cash flows and adjust them accordingly. In such case, and if market trusts that analysts adjust future cash flows optimally, then the market is likely to discount these cash flows at a usual discount rate. Second, if the market believes that analysts cannot or do not take into account negative effect of excess control optimally, then the market may adjust the firm's cost of capital and discount firm's cash flows at a higher rate. Therefore, if a part or all of the value impact of expropriation risk comes from the market's adjustment of the discount rate, excess control would cause a firm's cost of equity to increase. Consistent with this explanation, Hail and Leuz (2006, p. 486) argue that "It is possible that the valuation effects primarily reflect differences in the level of expropriation and firms' growth opportunities. But effective legal institutions may also reduce the risk premium demanded by investors, and hence firms' cost of capital." In this paper, we take an alternative approach which explores the channel through which excess control affects firm value, by examining whether excess control is associated with increased cost of equity capital.

To investigate the effects of the agency problems embedded in ultimate ownership structures on firms' implied cost of equity, we use a panel of 1,335 listed corporations from eight East Asian and thirteen Western European countries derived from Claessens et al. (2000) and Faccio and Lang (2002), the largest existing multinational databases on ownership and control structures of ultimate owners. Essential to our study, the merged database is unique in that it documents the ownership (cash flow rights) and control (voting rights) structures of ultimate owners, allowing to examine the equity financing costs of the divergence between ownership and control rights of the largest ultimate owner. We then compute the implied cost of equity using analyst earnings forecasts and share price data available from I/B/E/S. In estimating the firms' cost of equity, we employ four widely used models in recent literature: two of these models are based on Edward-Bell-Ohlson residual income valuation model as implemented in Gebhardt, Lee, and Swaminathan (2001), and Claus and Thomas (2001), while the other two models are based on abnormal earnings growth model as in Ohlson and Juettner-Nauroth (2000), and Easton (2004). Unlike the capital assets pricing model-based estimation approach, these implied cost of equity models do not require long time series of historical data, hence, it is possible to compute the cost of equity for any firm that has the price and forecasted earnings data available for at least one point in time.

After controlling for firm-level and other country-level determinants of the cost of equity capital, we find strong, robust evidence that excess control is significantly positively associated with the implied cost of equity, consistent with the negative firm value impact and the entrenchment effect associated with excess control. To highlight the economic importance of this finding, our basic regression indicates that a one standard deviation increase in excess control translates into approximately 22 basis point increase in the cost of equity. We also find that legal institutional variables (consistent with Hail and Leuz, 2006), country credit ratings (consistent with Erb et al., 1996) and other firm and industry characteristics (consistent with Gebhardt et al., 2001; Gode and Mohanram, 2003, among others) are significantly associated with the implied cost of equity. Our findings are robust to various estimation methods of the cost of equity. Collectively, our findings reflects the scope for opportunism by the controlling shareholder when they hold a lower portion of cash flow rights relative to voting rights and when legal institutions are weak.

Our study is closely related to Claessens et al. (2002) who examine firm value implications of excess control, but differs by focusing primarily on the cost of equity capital. We extend their analysis by showing that excess control increases the cost of equity capital, consistent with their finding of a negative effect on firm value. Our empirical analysis also adds to recent contributions in the cost of capital literature, specifically Hail and Leuz (2006). Similar to Hail and Leuz, we use discounted cash flow valuation models, and we study the determinants of cost of equity capital in a sample involving a large number of countries. Our study extends their country-level findings by showing that ultimate ownership and control structures, in addition to legal institutions, explain differences in firms' cost of equity capital.

The rest of the paper proceeds as follows. Section 2 reviews the relevant literature and discusses the determinant of a firm's cost of capital. Section 3 describes the sample, defines the cost of equity estimates, and reports descriptive statistics. Section 4 presents the empirical findings, and section 5 concludes the study.

## 2. Literature Review

This paper builds on two strands of the finance literature, the ownership structure literature and the cost of capital literature. Both of these literatures are large, diversified and still growing. Although theoretically acknowledged, the empirical relationship between excess control and the implied cost of capital has not been researched to the best of our knowledge. In this section, we present a brief review of the literature closely related to the tenor of our study. Specifically, we review (i) the ownership structure literature related to excess control and its implications for firm value, (ii) the cost of capital literature related to the estimation of the implied cost of equity, and (iii) the cost of capital literature related to firm, industry, and cross-country determinants of the (implied) cost of capital.

*2.1 Excess Control, the Potential Expropriation of Minority Shareholders, and Value Implications*

The literature on the separation between ownership and control is relatively new and growing. The Berle and Means' (1932) view of the modern corporation has been challenged by the recent evidence that dispersed ownership is far from being the prevalent structure around the world. As recently shown by La Porta et al. (1999), firms in wealthy countries tend to have controlling shareholders, normally a family, with significant control rights in excess of their cash flow rights and extensive managerial involvement.[3] In addition, corroborating evidence on the separation between ownership and control comes from two key geographical regions: East Asia and Western Europe. For instance, Claessens et al. (2000) find that not only are more than two-thirds of East Asian firms controlled by a single shareholder, but excess control is also mostly pronounced in family-controlled and small firms. In a follow-up study on Western European countries, Faccio and Lang (2002) document that while single-controlling shareholding is as common as in East Asia, excess control, or more precisely the ratio of control to ownership, is comparatively much lower.

More importantly, ultimate ownership structures, hence excess control, induce significant agency problems between controlling owners and minority shareholders. By holding a lower portion of cash flow rights relative to voting rights, controlling shareholders will not feel any incentive to maximize minority shareholders' wealth. Their position provides them,

[3] According to Bebchuk et al. (2000), three basic mechanisms permit a company's controller to retain only a minority of cash flow rights attached to the firm's equity: differential voting rights structures, pyramid structures, and cross-ownership structures. The pyramiding and cross-ownership structures used by groups are documented in La Porta et al. (1999) for a sample of 27 rich countries, in Claessens et al. (2000) for 9 Asian countries, and in Faccio and Lang (2002) for 13 European countries. A detailed description of these mechanisms is provided in Appendix A.1.

instead, with the opportunity and the ability to extract private benefits from minority shareholders, creating an entrenchment problem; one immediate implication emphasized in this literature is that excess control should lower firm value and raise the cost of finance from controlling shareholders. According to Fan and Wong (2005, p. 2), "This entrenchment problem can come at a price to the controlling owners and their firms: outside investors anticipate the problem; hence, they discount the share prices … and raise the difficulty for the firms to issue equities in the future." In this regard, Claessens et al. (2002) find that firm value in Asian countries decreases with the level of excess control, consistent with the entrenchment effect. Similarly, La Porta et al. (2002) model and test the value effects of expropriation by the controlling shareholder, and show that higher cash flow ownership (i.e., lower excess control) is associated with less expropriation of minority shareholders and higher valuation of firms in 27 wealthy economies. More recently, Durnev and Kim (2005) present a comparable model that predicts less expropriation and better internal corporate governance when controlling shareholders own higher cash flow rights and when investor protection is stronger, resulting in higher valuation.

Collectively, this review indicates that the separation of ownership and control is widespread, provides controlling shareholders with power and incentives to extract private benefits of control, and can be *ex ante* costly to controlling shareholders and firms in terms of capital-raising costs and equity value. Next, we discuss the literature related to the cost of capital.

*2.2 Models of Implied Cost of Equity Capital*

Several models have been advanced in the literature to estimate the cost of equity, though there is no consensus among academics about the robustness of their estimates. Historically, realized average returns have been used to approximate the cost of equity capital. However, the cost of equity capital estimates based on beta and realized returns have been widely criticized in recent years. For example, Botosan (1997) states that "Average realized returns provide an extremely noisy measure of cost of equity capital". Additionally, Fama and French (1997), and a large chunk of literature in finance, have difficulty establishing an association between beta and realized returns.[4] Fama and French (1997) further argue that the standard errors of industry cost of capital estimates by both single-factor and three-factor CAPM are too high. In their own words (p. 153) "Estimates of the cost of equity for industries are imprecise. … Estimates of the cost of equity for firms and projects are surely less precise."

Although the debate on the ability of beta to infer firm's risk has continued in recent years besides recent research shows that the CAPM is widely used by U.S. corporations (e.g., Graham and Harvey, 2001), the cost of equity implied by discounted cash flow method is gaining popularity in empirical work. Indeed, many studies have been using several variations of Edward-Bell-Ohlson residual income valuation model, and abnormal growth models in generating implied cost of equity estimates used in cross-sectional analysis. For example, Easton and Monahan (2005) present a comparison of seven different models that estimate the cost of equity based on the price and forecasted earnings. Yet, four models are widely used in the literature. Two of these four models are based on abnormal growth, which are Ohlson and Juettner-Nauroth (2000 OJ) and Easton (2004 ES), while the other two are based on the residual income valuation, originally implemented in Gebhardt, Lee, and Swaminathan (2001 GLS) and Claus and Thomas (2001 CT).[5] Prior studies use one or a combination of these four models in generating the cost of equity capital. Among the studies that generate the cost of equity using a single model, Lee et al. (2004) use GLS model, while Mishra and O'Brien (2005) use CT model. Other studies use combinations of two or more models of the implied cost of equity. For example, Gode and Mohanram (2003) use CT, GLS, and OJ models, while Hail and Leuz (2006) employ the above four models (CT, ES, GLS, and OJ) to estimate firms' implied cost of equity capital.

The list of studies proposing, testing and using implied cost of equity models is quite extensive. However, two common attributes of these studies emerge. First, they concur that the analyst forecasts are sluggish and noisy; therefore, a maximum care should be exercised in their

[4] Fama and French (2004) outline several drawbacks associated with the CAPM. In this study, we do not attempt to discuss the theoretical or empirical flaws of CAPM.

[5] The GLS model uses industry growth rate (more specifically, return on investment) to capture the earnings growth beyond three year analyst forecast horizon, whereas CT model uses inflation premium to proxy the long term growth rate beyond five years. We note that only the OJ model (as implemented in Gode and Mohanram (2003)) provides a closed form equation to estimate the implied cost of equity.

use when estimating the cost of equity capital. Second, they concur that all models provide the cost of equity estimates that have somewhat similar value in cross-sectional regressions (e.g., Gode and Mohanram, 2003; Botosan and Plumlee, 2005; Easton and Monahan, 2005).

In this study, we chose to use CT, ES, GLS, and OJ models after Hail and Leuz (2006). Several reasons motivate our choice. First, our sample comprises firms from twenty one different countries; we expect that the combined cost of equity estimates in aggregate will capture differences in clean surplus relations across countries. Chen, Jogerson and Yoo (2004) report that the cost of equity estimates based on residual income valuation model (e.g., CT and GLS models) perform better in the countries where the clean surplus relations are not violated. While, the cost of equity estimates of abnormal growth models (particularly, OJ model) is more reliable in the countries where deviations from clean surplus are more common. In fact, ES model is closer to OJ model as both of them are based on the abnormal growth valuation principal, while CT and GLS models are based on residual income valuation. Second, in tests of the implied cost of equity, these models involve loadings with major risk factors as predicted by theory, and consistent with other models. Finally, these models make assumptions about the long term growth beyond forecast horizon that are somehow different. For example, CT and OJ models proxy it as an inflation premium, GLS model incorporate growth based on industry and firm's return on investment (ROI), and ES model generate growth using two years of earnings forecast and dividend payout ratio. The detailed implementation of these models follows in the next section and the appendix. Importantly, one of the common and important features of the implied cost of equity models is that the cost of capital for a firm/year can be estimated without relying on historical data for several years. Hence, even for a new firm that does not have historical realized returns, the cost of equity can still be computed without relying on a pure play.

*2.3 The Determinants of the Implied Cost of Capital*

In recent years, researchers have been focusing on the determinants of implied required returns (implied cost of equity), instead of realized historical returns. The notable studies that used the implied cost of equity in cross-sectional analysis are Gebhardt et al. (2001), Gode and Mohanram (2003), Chen et al. (2004), Lee et al. (2004), Botosan and Plumlee (2005), and Hail and Leuz (2005).

Gebhardt et al. (2001) employ the implied cost of equity estimated using industry growth based residual income valuation model in isolating cross sectional determinants of the implied cost of equity. They present four major determinants of the implied cost of equity, namely, book to market ratio, firm's industry membership, forecasted long term growth rate, and dispersion in analyst forecasts. Gode and Mohanram (2003), compute the implied cost of equity using OJ model, along with GLS and CT models. Gode and Mohanram show that the implied cost of equity is positively associated with beta, unsystematic risk, earnings variability, and leverage, and negatively associated with firm size. Further, Botosan and Plumlee (2005) show that like GLS, CT and OJ models, the cost of equity implied by target price method of Botosan and Plumlee (2002 BP) and Gordon and Gordon (1997 GG) is significantly associated with beta, leverage, size, price to book ratio, and growth.

There is also a growing body of literature that examines the cross-country determinants of the implied cost of capital. Lee et al. (2004) estimate the implied risk premium following Gebhardt et al. (2001) and find that the return volatility, size, book to market ratio, lagged industry/country risk premia, and analyst growth forecasts explain cost of equity across G7 countries. Consistent with Gebhardt et al. (2001), the study finds beta as the poor proxy for risk has little explanatory power in cross-sections of the implied cost of equity. More recently, Hail and Leuz (2006) find that legal institutions and disclosure requirements significantly explain cross-country differences in the implied cost of equity capital. In a firm-level regression, they also find that country, firm, and industry specific factors affect the implied cost of equity, consistent with the firm-level analysis in Gode and Mohanram (2003) and Gebhardt et al. (2001). Specifically, country's inflation, firm size, return variability, book to market ratio, volatility of earnings forecasts, and forecast bias exhibit significant loadings. It is important to note that Hail and Leuz's study estimates the implied cost of capital in local currency, while most other studies estimate it in US dollar (e.g., Harvey, 1995; Lee et al., 2004; and Mishra and O'Brien, 2005).

Based on the above studies, the following summarizes firm-, industry-, and country-related determinants of the implied cost of capital, and discusses the theoretical predictions and empirical findings on the cost of capital implications of these determinants.

**Price Volatility** *(Volatility)*: The CAPM regards beta as the only measure of market risk. However, in the tests that use realized returns (e.g., Fama and French, 1992; 1997), the cost of equity computed using beta is found to be imprecise. Similarly, recent empirical studies (e.g., Gebhardt et al., 2001; Lee et al., 2004) show that beta exhibits little or no association with the implied cost of capital. Surprisingly, Gebhardt et al. (2001) find a negative loading for beta. Accordingly, Hail and Leuz (2006) argue that beta is less important than return variability in explaining cross-country differences in the cost of equity capital. Moreover, the authors exclude the beta from the cross-country regression on the grounds that beta presumes capital market integration, while the degree of capital market integration is poorly known (e.g., Stulz, 1999; Bekaert and Harvey, 1995). Furthermore, other studies have found that the return volatility is a better proxy for firm's market risk (e.g., Lee et al., 2004; Mishra and O'Brien, 2005). In the same vein, Gode and Mohanram, (2003) find unsystematic risk, estimated as the volatility of residuals from CAPM regression, matters in explaining the implied cost of equity. Price (or return) volatility includes total risk, that is expected to include both systematic variability and unsystematic variability. Consequently, we use price volatility and expect a positive association between price volatility and the cost of equity capital.

**Long-term Growth Rate** *(Av_Growth)*: Empirical literature draws two different predictions about the association between the implied cost of capital and earnings growth rate. On the one hand, Gebhardt et al. (2001) predict a negative association based on La Porta's (1996) evidence that higher long term growth firms earn lower subsequent returns, and vice versa for lower long term growth firms. Thus, a high long-term growth creates a downward pressure on the expected cost of capital. On the other hand, Gode and Mohanram (2003) and Lee et al. (2004) perceive high growth firms to be riskier than low growth firms. Indeed, Gode and Mohanram (2003) argue that any errors in the estimation of the growth rate will have substantial impact in the value of the firm; hence, market perceives such firms risky. A common feature of the above studies is that they measure the long term growth rate by the five-year earnings growth rate available in *I/B/E/S* and, generally document a positive association between growth rate and the implied cost of equity capital. Consequently, we expect a positive association between the cost of equity capital and earnings growth rate.

**Market to Book Ratio** *(Market to Book):* Higher book to market firms are expected to earn higher *ex-post* returns (e.g., Fama and French, 1992), implying a negative relationship between the *Market to Book* and the cost of equity capital. Additionally, in corporate hedging literature (e.g., Géczy et al., 1997), *Market to Book* has been used as a proxy for expected investment opportunities. Firms with high investment opportunities tend to have a higher price, which leads to higher market to book ratio. High investment opportunities are expected to produce a higher long-term growth in earnings and cash flows, leading one to anticipate a lower cost of equity for a higher *Market to Book* firm. Corroborating empirical evidence suggests a negative and significant relationship between the implied cost of equity and *Market to Book* (e.g., Gebhardt et al., 2001; Gode and Mohanram, 2003; Botosan and Plumlee, 2005; Hail and Leuz, 2006).[6] Accordingly, we expect a negative association between the cost of equity capital and *Market to Book*.

**Dispersion of Analyst Forecasts** *(Var_Analyst Coverage):* A higher dispersion in earnings forecasts implies a greater disagreement among analysts, thus, greater uncertainty about the forecasted earnings per share. Gode and Mohanram (2003) report a positive association between earnings volatility and the implied cost of equity, while Gebhardt et al. (2001) report a negative association. Although, Botosan and Plumlee (2005) use a slightly different proxy for earnings variability, they also report a positive association of the earnings variability with the implied cost of equity capital. Therefore, we expect a positive association between the cost of equity capital and *Var_Analyst Coverage*.

**Industry Membership** *(Industry Cost of Capital):* Gebhardt et al. (2001) find evidence that a firm's implied cost of equity is positively and significantly associated with its industry membership. Much of the empirical literature using the implied cost of equity corroborates this finding (e.g., Gode and Mohanram, 2003; Hail and Leuz, 2006). A similar finding was also documented in relation to the CAPM in Fama and French (1997). Therefore, we expect the cost of equity capital to be positively associated with the *Industry Cost of Capital*.

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[6] With the exception of Lee et al. (2004), all of these studies used book to market ratio rather than market to book ratio.

**Analyst Coverage** *(Analyst Coverage):* Analyst coverage warrants a negative association with the cost of equity capital from two different sources. First, analyst coverage is a proxy for firm size. Larger sized firms are more likely to have greater analyst coverage. Second, when the number of analysts following a firm's stock is large, there is a greater likelihood of more reliable average earnings forecast, thus fairer valuation of the firm's stock. Given that the literature predicts a negative relationship between the cost of equity and firm size (e.g., Fama and French, 1992), analyst coverage is expected to exhibit a negative association with the cost of equity. Gebhardt et al. (2001) use both firm size and analyst coverage as proxies for information availability. However, they do not report the analyst coverage in their final regression as it is highly correlated with firm size (a correlation of more than 80%). In separate regressions, Gebhardt et al. (2001) find a negative association between the implied cost of equity and analyst coverage. In the cross-country analysis, we argue that it is more important to control for analyst coverage due to the expected differences in coverage practices across countries (e.g., Hail and Leuz, 2006). We expect a negative association between the cost of equity capital and *Analyst Coverage*.

**Leverage** *(Leverage):* Modigliani and Miller (1958) demonstrated that the cost of equity of a firm is an increasing function of its debt ratio. This is further illustrated in Hamada (1969), and also empirically supported by Fama and French (1992). Obviously, higher leverage is associated with higher risk, and hence, a higher implied cost of equity capital. Consistent with this prediction, Gode and Mohanram (2003) and Boston and Plumlee (2005) find evidence that leverage is significantly positively associated with the implied cost of equity. Accordingly, we expect the cost of equity capital be positively associated with *Leverage*.

**Legal Institutions Variables***:* Prior corporate governance studies emphasize the importance of legal institutions in limiting the potential expropriation of minority shareholders by controlling shareholders. Consequently, firms in more protective countries should have higher valuation and lower financing costs; La Porta et al., 1997 and Hail and Leuz, 2006, among others. To proxy for the quality of the legal system, we rely on the following traditional constructs derived from La Porta et al. (1998): the level of minority shareholders' protection against managers or controlling shareholders (*Rights*); efficiency of the judiciary system (*Judicial*), an assessment of the strength of law and order (*Rule*), and an assessment of the quality of disclosure requirements (*Disclosure*). We expect a negative association between the cost of equity and these legal institutions variables.

## 3. Data and Cost of Equity Capital Estimates

### *3.1 The Sample*

This study uses ultimate ownership data for twenty one countries represented in two prominent studies Claessens et al. (2000), excluding Japan for East Asia and (Faccio and Lang, 2002) from Western Europe.[7] These studies provide the voting rights and cash flow rights of the ultimate owner estimated in 1996 for East Asia and 1996 to 1999 for Western Europe. We chose to analyze a panel of the cost of equity for the years surrounding 1996 in a sample involving both regions. For these firms we download all information available in Worldscope database. We also downloaded summary earnings statistics and pricing information from I/B/E/S for the firms with i) a non-negative first year average earnings forecast, ii) a non-negative second year average earnings forecast, iii) third year average earnings forecast or long term growth rate, iv) forecasts recorded in I/B/E/S between 1995 to 1997, v) price per share available for the statistics release date vi) forecasts recorded by at least two analysts, for which the statistics period is explicitly preceded the forecast period, and vii) non-negative book value in Worldscope. We match these two datasets, which returns 1,423 firms with 3,245 firm year data in the dataset. We further exclude the firms for which the cost of equity models (particularly, OJ and CT model), as shown in the Appendix A.2 do not converge, are within 1% outliers in the model with the most dispersed estimates (CT model). Easton and Monahan (2005) report that the cost of equity estimates of the residual income valuation model are sensitive to growth rate and their reliability decreases with larger and sluggish growth forecasts. They further find that the Claus and Thomas's (2001) model provides a fairly reliable estimate for the firms with relatively lower consensus growth forecasts. Therefore, we exclude all firm/years with a

[7] Following Claessens et al. (2002) we exclude Japan from our sample. Japanese firms are required by law to provide future earnings forecasts on their own firm. Although the forecasts provided by the firms are not included in estimating consensus forecasts (that we use in this study), the forecasts given by analysts are likely to be affected by the firms own forecasts (See I/B/E/S glossary for details).

growth forecast exceeding 2.0 times (approximately 200% growth rate); we lose trivial number of firms in doing so. The final dataset contains 1,335 firms and 2,926 firm-year data.[8]

For these firms, we also extract data on different control variables, for example, number of analysts providing earnings forecasts (*Analyst Coverage*), variance of first year analyst forecasts divided by mean earnings forecasts (*Var_Analyst Coverage*), and five year long-term growth rate as obtained above (*Av_Growth*) from I/B/E/S. We further obtain, US$ total sales, US$ total assets, annual market to book value ratio (*Market to Book*), two digit industry codes, total debt to capital ratio (*Leverage*) from Worldscope. As a robustness check, we also measure the firm size as the average of *LnAssets* (natural log of US$ total assets) and *LnSales* (natural log of US$ total sales). We create the industry cost of capital as the average of the cost of equity estimates at two digit industry codes (*Industry Cost of Capital*). Using the four year annual prices from Worldscope, we estimate the price volatility (*Volatility*) as the standard deviation of price divided by average price.

Similarly, we collect country specific and legal institutions variables, *Rights*, *Judicial*, *Rule,* and *Disclosure* from La Porta et al. (1998), and country credit ratings from Institutional Investor magazine. The Institutional Investor magazine reports country credit ratings in two different occasions, one during autumn (usually in March) and one during fall (usually in September), we collect ratings for the month of September for each year.

It is a common practice to convert prices and returns to a common currency, particularly the US dollar in cross-country studies (e.g., Harvey, 1995; Erb et al., 1996; Bekaert and Harvey, 1995; Mishra and O'Brien, 2005). Furthermore, since our sample includes firm-level cost of equity estimates, we believe it is important that the cost of equity estimates be denominated in common currency for multivariate analysis. Accordingly, we convert earnings forecasts, book value, and stock prices into the US dollar using the exchange rate for the date on which forecasts were recorded. We extract daily exchange rates from pacific exchange rate service maintained by the University of British Columbia.

[8] The growth rate of the next firm excluded was about 220%

Analysts forecasts are blamed for being sluggish and inaccurate (Guay et al., 2005), especially because there are systematic differences in forecasting behavior among analysts. Every analyst that follows a firm may not provide forecasts every month. This is one of the limitations of analyst forecast data. However, an advantage of analyst earnings forecasts is that they allow one to estimate a firm's cost of equity without requiring several years of historical data unlike the case for the CAPM. We make every effort to incorporate quality forecasts, for example, we exclude the firm/years which show high discrepancy between reported growth rate and the growth rate implied by forecasted earnings and the firm/years that do not fully converge. Table 2 provides descriptive statistics of all explanatory variables (Panel A) and presents Pearson's correlation coefficients between these variables (Panel B). We generally report low pairwise correlations coefficients among the control variables and especially between our key test variable (*Expropriation*) and other determinants of the cost of equity capital, suggesting that multicolineraity is not a serious concern that would materially affect our multivariate regressions results.

*3.2 Ex-ante Cost of Equity Estimates*

For each year, we choose a forecast that is made farthest (back) from the forecast period. For example, if a firm's forecasts for the year end (December) are recorded three times in a particular year, say, February, March and April, we select the forecast made in February.[9] I/B/E/S reports earnings forecasts and prices in local currency, which we convert to the US dollar.[10] We estimate the cost of equity using four different models CT, GLS, OJ and ES; the detailed description of these models is given in Appendix A.2. As described in the appendix, the implied cost of equity estimates of CT model (KCT), GLS model (KGLS), OJ model (KOJ) and ES model (KES) make different assumptions about the growth rate, forecast horizon, and clean surplus relationship. Our estimate of the firms implied cost of capital (KAVE) is the

[9] For some firms, the first forecast of earnings is not exactly one year apart. The actual price for such firm/year is simultaneously discounted the beginning of the period while estimating the implied cost of equity that makes estimated present value of future residual earnings equal to current price.. For example, if the statistics period for a forecast made for December, 1995 is May, 1995, we discount the price for five months back to January 1995.

[10] For a trivial number of firms forecasts were recorded in the US dollar, and for some other Euro region firms forecasts were recorded in Euro.

average of the cost of capital estimates of above four models. Importantly, our KAVE estimate most closely resembles the firms' cost of capital estimate of Hail and Leuz, as both studies estimate it as the average of the cost of equity estimates of OJ, ES, CT and GLS models. The only difference is that Hail and Leuz's estimates are based on local currency of each country, while our estimates are in a common currency- the U.S. dollar. Table 3 provides descriptive statistics for these implied costs of equity estimates.

Panel A presents a descriptive statistics of the implied cost of equity estimates of four different models and our proxy for the firm's implied cost of equity capital. Consistent with Hail and Leuz (2006), the implied cost of equity estimates of abnormal growth models (KOJ and KES) are in the higher side compared to the residual income valuation models (KCT and KGLS). Moreover, the averages of the cost of equity estimates of these four models follow exactly the same order as in Hail and Leuz.[11] Further KGLS provides the lowest estimate, consistent with Gode and Mohanram (2003) and Hail and Leuz (2006), among others. Therefore, we consider that the KOJ is the upper bound and KGLS is the lower bound of our cost of equity estimates. KAVE is the ultimate cost of equity capital estimate. The mean KAVE is 12.1% with a standard deviation of 4.9%.

Panel B of the Table 3 present correlation coefficients between the costs of equity estimates. The cost of equity estimates of each model exhibit pairwise correlations between 75.31% (KGLS) to 91.61% (KES) with KAVE, which we consider reasonably high, and are consistent with the ranges of 74.7% to 95.9% in Hail and Leuz (2006). One may note that Hail and Leuz present correlations based on country-year averages, while we present them based on firm-year observations. Panel C presents the cross country differences in the implied cost of equity capital (KAVE). The average implied cost of equity capital ranges from 9.4% (Malaysia) to 16.6% (Finland). Finland also shows the highest average cost of equity capital estimate in Hail and Leuz. The correlation coefficient between Hail and Leuz estimates and our estimates of the country average implied cost of equity capital is about 71.19%.

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[11] The mean of the cost of equity capital estimates for 40 countries in Hail and Leuz (2006) for the models KOJ, KES, KCT, and KGLS are 14.59%, 13.96%, 12.17%, and 9.25% respectively. Our estimates of the average cost of equity capital, not only have the same ordering across models, but also are very close in magnitude.

We believe that our ultimate measure of the firm's implied cost of equity capital (KAVE) captures the information contained in the estimates of two major streams of the implied cost of equity models, namely the residual income valuation model and the abnormal earnings growth model. Based on the statistical properties of our cost of equity estimates as described above, which are similar to those of Hail and Leuz, and their association with the standard determinants of implied cost of equity reported in existing literature as discussed in the next section, we are confident that our estimates are fairly representative of the firms true cost of equity capital. However, we understand that, these estimates suffer from limitations of earnings forecasts and growth rate assumptions, common in these kinds of studies.

## 4. Empirical Evidence

Recent corporate governance research emphasizes the equity financing costs of accumulating control power in excess of cash flow rights by controlling shareholders. We contribute to this literature by empirically examining whether excess control is associated with an increased cost of equity capital, while controlling for other factors that are know to affect the cost of equity capital. We estimate several specifications of the following cross-sectional, time-series model:

$$\begin{aligned} KAVE_{it} = {} & \alpha_0 + \alpha_1 \mathit{Expropriation}_{it} + \alpha_2\, \mathit{Analyst\ Coverage}_{it} + \alpha_3\, \mathit{Market\ to\ Book}_{it} \\ & + \alpha_4\, \mathit{Var\_Analyst\ Coverage}_{it} + \alpha_5\, \mathit{Volatility}_{it} + \alpha_6\, \mathit{Leverage}_{it} + \alpha_7 \mathit{Av\_Growth}_{it} \\ & + \alpha_8\, \mathit{Industry\ Cost\ of\ Capital}_{it} + \alpha_9 \mathit{Rights}_{it} + \alpha_{10} \mathit{Judicial}_{it} + \alpha_{11} \mathit{Rule}_{it} + \alpha_{12} \mathit{Disclosure}_{it} \\ & + \mathit{Fixed\ effects\ for\ years\ and\ industries} + \varepsilon_{it} \qquad (1) \end{aligned}$$

Table 4 reports the regressions results of the impact of excess control and other firm- and country-level determinants on the cost of equity capital for the pooled sample period 1995-1997. We note that together these factors explain slightly over 26% variation in the firm-level cost of equity capital across countries, which is close to what Hail and Leuz (2006) reported in their firm-level analysis. In models 1 and 2—our basic regressions, we include our key test variable (*Expropriation*) along with the firm-level controls discussed above. To control for industry-specific effects, Model 1 includes industry dummies, while Model 2 includes the average industry cost of equity capital (*Industry Cost of Capital*). The coefficient for *Expropriation* is positive and statistically significant at 1% level (in both models), consistent with the prediction that the cost of equity financing increases with excess control. Economically, the estimated coefficient based on Model 1 implies that a one standard deviation increase in excess control yields approximately 22 basis point increase in the cost of equity. This evidence reflects the significance of agency problems between minority and controlling shareholders, who have more scope for entrenchment when they hold a lower portion of cash flow rights relative to voting rights. We interpret the positive effect of excess control on the cost of equity as providing empirical support for the argument that minority shareholders anticipate these agency problems and discount the share prices, hence raising the cost of equity finance and the ability of firms to fund their investments; e.g., Claessens et al., 2002; La Porta et al., 2002; and Dyck and Zingales (2004), among others.

In models (3) through (6), we include separately the legal institutions controls based on recent evidence in Hail and Leuz (2006) that the quality of the legal environment explains much of the cross-country variation in the cost of equity capital. With the exception of *Rights*, we find that the coefficients for *Judicial*, *Rule*, and *Disclosure* are negative and statistically significant at the 1% level, suggesting that the quality of the legal environment is perceived by minority shareholders to be effective in restraining any potential expropriation by insiders. This finding is consistent with previous research (e.g., La Porta et al., 2002) documenting that firms in countries with more effective legal systems enjoy higher equity valuations. In model (7), we include all of the legal institutions controls, and we find that only *Rule* and *Disclosure* continue to have negative and statistically significant coefficients, suggesting that these proxies may better capture the quality of the legal environment. In particular, the robust finding that the cost of equity is decreasing with the quality of disclosure standards (*Disclosure*) is consistent with cross-country evidence in Hail and Leuz (2006) that the firms in countries with more extensive disclosure requirements enjoy significantly lower cost of capital. More importantly, after controlling for the impact of legal institutions, we continue to estimate a positive and statistically significant relation between the cost of equity capital and our key test variable *Expropriation*.

Turning to other firm-specific control variables, we note that all variables have the expected sign and are significant across all models. We find that the coefficient for *Analyst Coverage* –our proxy for firm size and information availability—is negative and statistically significant at the 1% level in all specifications, consistent with Fama and French (1992) and Gebhardt et al. (2001). This finding also lends support to Bowen et al. (2006) and Easley and O'Hara (2004) who show that the level of analyst coverage reduces information asymmetry and thus the cost of raising equity capital. Similarly, the coefficient for *Var_Analyst Coverage* is positive and statistically significant at the 1% level in all specifications, reflecting the sensitivity of investors to the greater uncertainty among analysts about the firm's long-term forecasted earnings, consistent with recent studies on the cost of capital; e.g., Gode and Mohanram (2003).

Consistent with extant studies on the cost of capital (e.g., Gode and Mohanram, 2003; Botosan and Plumlee, 2005; Hail and Leuz, (2006), the coefficient for *Market to Book* is negative and significant at the 1% level across all specifications, suggesting that higher *Market to Book* firms involve lower expected returns, thus, have lower expected cost of equity capital.[12] Alternatively, this finding is also consistent with the explanation that firms with higher unexploited investment opportunities tend to have higher *Market to Book,* thus lower cost of equity capital. *Market to Book* (conversely book to market) ratio has been one of the most widely used instruments in asset pricing tests. The negative and highly significant coefficient on *Market to Book* is also consistent with Fama and French (1992) and Berk et al. (1999), who find that the book to market ratio explains much of the variation in expected returns.

The coefficient for *Volatility* is positive and statistically significant at the 1% level across all specifications, consistent with prior literature.[13] While beta has been used as the instrument

[12] One may note that by construction of our hypothesis, both *Market to Book* ratio and cost of equity capital are functions of *Expropriation*, our principal test variable. Higher risk of expropriation is expected to result in negative value, thus, lower *Market to Book*. At the same time, the expropriation risk is expected to increase discount rate. Note that the increase in discount rate and decrease in *Market to Book* ratio could be due to the same effect from the same source (e.g., *Expropriation*). However, in our tests this is not a concern as the correlation between *Expropriation* and *Market to Book* ratio is negative as expected but insignificant ($\rho = -0.03$). We understand that the cost of equity implication of expropriation reflected in *Market to Book* ratio is not quite straightforward to interpret. The positive coefficient of expropriation after controlling for *Market to Book* ratio, however, indicates that the expropriation risk associated with excess control is substantially priced through the firm's cost of equity capital.

[13] We also used beta reported in Worldscope as explanatory variable in a smaller sample of firms as we are unable to compute beta for all these firms. We find poor and insignificant explanatory power of beta. Hence, in line with the recent literature on the implied cost of capital we, instead, choose to use price (return) volatility.

to capture such volatility, much of the existing literature finds that the beta does not explain the variation in the cost of equity capital significantly (Gebhardt et al., 2001; Lee et al., 2004). Moreover, Hail and Leuz (2006) report return volatility (as apposed to beta) to capture greater variation in cross-country cost of equity capital. *Volatility* captures both systematic and unsystematic variation in returns. Therefore, the significant coefficient for volatility also captures the variation associated the "unsystematic risk" as in Gode and Mohanram (2003). Moreover, our sample also includes several countries which supposedly do not fall within the definitions of integrated markets, for such countries *Volatility* has greater importance in asset pricing (e.g., Mishra and O'Brien, 2005). Furthermore, Bansal and Dahlquist (2002) interpret the factor involving stock's volatility as a component of political risk, based on the likelihood that the political reasons may cause the market for the investment to close, while Bekaert et al. (2003) interpret it as a liquidity factor. One may also argue that for a relatively smaller and less integrated capital market, volatility also captures some degree of individual stock's political risk exposure.

The loadings for *Leverage* are also consistent with our predictions and existing literature. While *Volatility* is expected to capture part of the differences in *Leverage* (as firms with greater leverage involve greater risk, as in Hamada (1969)), in all regressions the coefficient for *Leverage* is positive and significant, consistent with Gode and Mohanram (2003). The Pearson's coefficient of correlation between *Leverage* and *Volatility* is positive and significant as expected ($\rho = 0.19$). However, the significance of the coefficients on these variables in the regression tests remains practically unaffected by this correlation. In other words, this correlation is not sufficiently instrumental in triggering multicollinearity. Our results show that *Leverage* positively affects the implied cost of equity capital even after controlling for *Volatility*, consistent with Gode and Mohanram (2003), who show that *Leverage* is significant even after including both beta and unsystematic variability in the regression tests.

The coefficient for *Av_Growth* is positive and highly significant. We recall that *Av_Growth* is the proxy for the firm's long term growth, and represents average of all consensus analyst estimates of the growth for a firm year. The finding of a positive coefficient on the firm's long term growth proxy is consistent with extant empirical evidence (e.g., Gebhardt et al., 2001; Gode and Mohanram, 2003). We interpret this evidence of a positive and significant coefficient on *Av_Growth* as implying that the market perceives high growth firms riskier, consistent with asset pricing theory. We also consider other proxies for the firm's long term growth, specifically the average of the annual change in the earnings forecasts for five years and the five year analyst growth as used in CT model. In unreported results, both of these proxies exhibit positive and highly significant coefficients.

In models 2 through 7, we control for industry effects by including industry differences in the cost of capital rather than industry dummies (Model 1). We estimate the *Industry Cost of Capital* based on the cost of equity estimates of OJ and CT model for each industry-year at the two digit industry classification. As expected, the coefficient of *Industry Cost of Capital* is positive and significant, consistent with extant studies (e.g., Gebhardt et al., 2001; Gode and Mohanram, 2003).

The upshot of this section is that the separation between ownership and control comes at a price to controlling shareholders: an increased equity financing cost reflecting the anticipated expropriation of minority investors. Prior related research suggests that excess control is negatively associated with firm value (e.g., Claessens et al., 2002; La Porta et al., 2002; Lemmon and Lins, 2003). By showing a strong impact on the cost of equity, the evidence in this paper helps explain the channel through which excess control affects equity valuation.

## 5. Robustness Checks

We perform extensive sensitivity tests to ensure the robustness of our results. The results from some of these tests are reported in Table 5. First, our evidence may be driven by country specific risk, especially that the sample has substantial representation of emerging market firms. Bansal and Dahlquist (2002) report a strong empirical relationship between mean realized returns on emerging market indexes and various measures of country political risk rating. Similarly, Erb et al. (1996) and Harvey (2000) find that country credit ratings are significantly associated with the cost of capital. Mishra and O'Brien (2005) argue that such ratings may be useful when using equity market indices; however, when using individual stocks, they simply serve as country specific controls. Country credit ratings obviously are expected to be correlated with country institutional variables. Since we control for several country-level institutional variables in our main regressions reported in Table 4, we could not include country credit ratings in these regressions. In order to determine if our results are driven by country specific risk, we control for country risk ratings measured as the natural logarithm of 100 *minus* Institutional Investor country ratings (*Ln(100-Country Rating))*. Model 1 of Table 5 reports these results. Consistent with Erb, Harvey, Viskanta, (1996) the coefficients for *Ln(100-Country Rating)* is positive and statistically significant at the 1% level, suggesting that the country risk is an important factor affecting firm's implied cost of equity capital. Although both *Volatility* and *Leverage* remain statistically significant, we note that the magnitude of the volatility effect substantially declines after including country credit ratings in the regression. One potential explanation highlighted above is that *Volatility* may captures country specific risk of a firm as illustrated in Mishra and O'Brien (2005) and Bansal and Dahlquist (2002). Most importantly, the magnitude and significance of our test variable, *Expropriation,* is not sensitive to including this control.

Second, the forecast bias captures earnings variability (Gebhardt et al., 2001) and firm's tendency to provide forecasts that surprise the market. Moreover, Mikhail, Walther, and Willis (2004) argue that the firms reporting large and repeated earnings surprises involve higher cost of capital. Therefore, our cost of equity capital estimates may be driven by forecast bias. Moreover, our sample includes firms around the world, forecasting behavior and tendency of forecasters to provide optimistic/pessimistic forecasts is likely to vary across countries. In model 2, we control for *Forecast bias* - measured as the absolute value of one year ahead analyst earnings forecasts and corresponding actual earnings per share. The coefficient for *Forecast bias* is positive and statistically significant at the 5% level, consistent with Hail and Leuz (2006). The coefficient of our main test variable remains unaffected after including *Forecast bias*. While *Var_Analyst Coverage* is also expected to capture some of the effects captured in forecast bias (or earnings surprises), the coefficient of *Var_Analyst Coverage* remains practically unaffected after including *Forecast Bias.*

Third, a concern in our empirical analysis is that the main test variable – *Expropriation* – is zero for about 64.5% of the sample observations. Therefore, we test our basic model (Model 2 in Table 4) using the sub-sample of firms with strictly positive excess control. The results of this test reported in Model 3 of Table 5 indicate that the coefficient for *Expropriation* is positive and becomes highly significant, increasing also the explanatory power of the regression.

Forth, another concern relates to the presence of outliers in *Expropriation,* which may be conceived as driving the results. For example, if we restrict *Expropriation* at less than 50%, we lose three observations and at less than 40%, we lose eleven observations. We perform all tests tabulated in Tables 4 and 5, after excluding these extreme observations (at 40% and 50%) for *Expropriation*, and we find that our predictions remain unaffected.

Fifth, most cross-country studies (e.g., Beakert and Harvey, 1995; Harvey, 1995; Lee, Ng, Swaminathan, 2004) normally estimate cost of equity in U.S. dollars, in the same way as we do. However, these and most other studies (e.g., Claus and Thomas, 2001; Gebhardt et al., 2001; Gode and Mohanram, 2003) use the excess of cost of equity over the risk free rate (defined here as *Risk Premium*) as the dependent variable, unlike our study and Hail and Leuz (2006). The primary reason for using *Risk Premium* is to isolate time series variation in the risk free rates (thus the cost of equity capital).[14] Although our main regressions reported in Table 4 control for year fixed effects to account for the time series variation in the cost of equity capital, we also examine the sensitivity of our results to using the *Risk Premium (RP)* as the proxy for the cost of equity capital in Models 4 through 7 of Table 5. We note that none of the results reported in Table 4 are qualitatively affected to using *Risk Premium (RP)* as our depended variable, including that the *Expropriation* is significantly associated with increased cost of equity capital.

Sixth, in our main regressions *Analyst Coverage* serves the purpose of information variable in addition to capturing firm size. Indeed, larger firms are expected to involve lesser informational asymmetry as more analysts are expected to follow such firms. In an unreported test for brevity, we also control for firm size measured as the average of the natural logarithm of total sales and the natural logarithm of total assets. As expected, we find that the coefficient for firm size is negative and significant, however, consistent with Gebhardt et al. (2001) explanatory

[14] In cross-country studies, the use of *Risk Premium* also serves as a control for the effect of inflation differences across countries (e.g., Hail and Leuz, 2006). However, inflation differences are not a concern in our analysis as we estimate the cost of equity capital in a common currency (U.S. dollar). In using this approach, for simplicity, we assume that exchange rates reflect cross-country differences in inflation premium.

power of *Analyst Coverage* exceeds that of firm size. Importantly, the previous evidence on *Expropriation* remains unaffected by controlling for firm size.

Seventh, the corporate ownership literature argues that the firm's ownership structure is endogenously determined by its contracting environment in ways consistent with value maximization (e.g., Demsetz and Lehn, 1985; Himmelberg et al., 1999; Guedhami and Pittman, 2006). La Porta et al. (1999, p. 512) note that "the existing ownership structures are primarily an equilibrium response to the domestic legal environments that companies operate in." This concern is partly alleviated since we are using excess control as our key test variable instead of ownership or control rights held by the controlling shareholder. Additionally, extant studies use the instrumental variable approach to address the endogeneity of firm's ownership structure. Another important issue in using this approach is to find exogenous instruments that are highly correlated with the ownership variable but not with the dependent variable (i.e., cost of equity estimates). In determining the potential instruments, we follow these studies and consider firm size (natural logarithm of total sales and total assets), profitability (return on assets), economic growth (GDP growth), and legal origin (dummy for English legal origin) as (e.g., Fang and Wong, 2005; Hail and Leuz, 2006). However, when we verify the validity of these instruments, we find that the Pearson's correlation coefficient between *Expropriation* and each of these instruments is less than 0.04 for each pair. Even when we regress *Expropriation* on these four instruments, we find that altogether they explain less than 3% of the variation in *Expropriation*.

Finally, in unreported robustness tests, we perform regressions using the cost of equity estimates based on the individual models and find greater explanatory power of CT and GLS model compared to OJ and ES models.[15] Additionally, combining ES with GLS or CT estimates to obtain our dependent variable (average cost of equity capital) provides similar results to combining OJ with GLS or CT to generate our dependent variable.

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[15] This finding is consistent with Gode and Mohanram (2003), who show that the explanatory power of residual income valuation models (CT and GLS) is greater than that of OJ model.

## 6. Conclusion

Recent research shows that public firms, outside the U.S., have controlling shareholders who tend to use different mechanisms (e.g., pyramidal and cross-holdings, multiple class shares) to enhance the separation between ownership and control rights, providing them with strong incentives and power to expropriate minority shareholders. We investigate whether excess control (i.e., the discrepancy between voting and cash flow rights of the ultimate owner) is positively related to the implied cost of equity capital, and whether legal institutions effectively serve a corporate governance role.

We use a sample of 2,926 firm-years of data for 1,335 firms from eight Asian and thirteen Western European countries and estimate the cost of equity capital implied by analyst earnings forecasts and growth rate. Our cost of equity estimates are based on four different models of implied cost of equity after Hail and Leuz (2006). As predicted by theory, we find robust evidence that the implied cost of equity increases in excess control. This evidence relates to Claessens et al. (2002) who document that that excess control negatively affects firm value, and suggests that the discount rate is a significant channel through which the risk of expropriation by controlling shareholders affects firm value. Additionally, consistent with the prior empirical literature, we find that the legal institutions variables have significant impact in implied cost of equity. Finally, we find strong evidence that the implied cost of equity is lower for firms with higher market to book ratio, higher analyst coverage, lower price volatility, lower variance of analyst forecasts and lower leverage.

## Appendix A.1 Mechanisms to Separate Ownership and Control

The excess control refers to the difference between the voting rights and cash flow rights of the ultimate owner. Three different structures allow shareholders to have excess control (Bebchuk, Kraakman, Triantis, 2000), which are, differential voting rights structures, pyramidal structures, cross-ownership structures. Below we present a brief description of these structures.

1. Differential voting rights

Under this structure, some shares carry more votes than other type of shares, which mostly comes through dual class shares. This is the least common structure in the modern corporate world. However, these are particularly common in Sweden and South America (Bebchuk et al., 2000). For example, Bebchuk et al. (p. 4) indicate that 'Wallenberg group of Sweden controls 40% of listed shares on Stockholm Stock Exchange through the holding company Investor. The group (family), however, owns approximately 20% shares of Investor with voting rights of about 40%. Investor holds 40% of votes at Ericsson, but owns slightly over 4% of equity capital.'

2. Pyramidal structures

Controlling shareholder holds controlling stake in a holding company, the holding company instead holds controlling stake in company X (operating company). Bebchuk et al. (2000) presents an example of pyramid structure in India from Richard Morais's 1998 Forbes story "Who needs P&G?". 'Godrej family of India, which controlled 65% of publicly traded Godrej Soaps (listed), Godrej soaps owns 65% Godrej Agrovet, and together with Godrej group 65% of Godrej Foods.' Assuming 50% stake in the original firm, if pyramids can offer 100% control with 12.5% ownership in four levels only.  Figure 1 provides an example of a pyramidal structure.

3. Cross-holdings

Cross-holdings are more complex structures. These structures are particularly popular in Asia and also in sample countries. For example, Kakani and Joshi (2006) in a case study of Tata group of India show an extensive cross-holding by this corporation. For example, in 2005, Tata sons limited owned 31.5% of Tata Investment group. In turn, Tata Investment owns 8% of Tata Chemicals and 5.46% of Tata Tea. Further, Tata Chemicals owns 15.37% of Tata Investment and 7.68% of Tata Tea, interestingly; Tata Tea owns 7.15% of Tata Chemicals and 7.53% of Tata Investments.

**Figure 1. Example of a pyramidal structure**

Z is the owner, V refers to the largest owner's control or voting rights, and D refers to dividend (cash flow) rights. A 50% steak in the firm is assumed to give full control of the management, thus voting rights in the subsidiary.

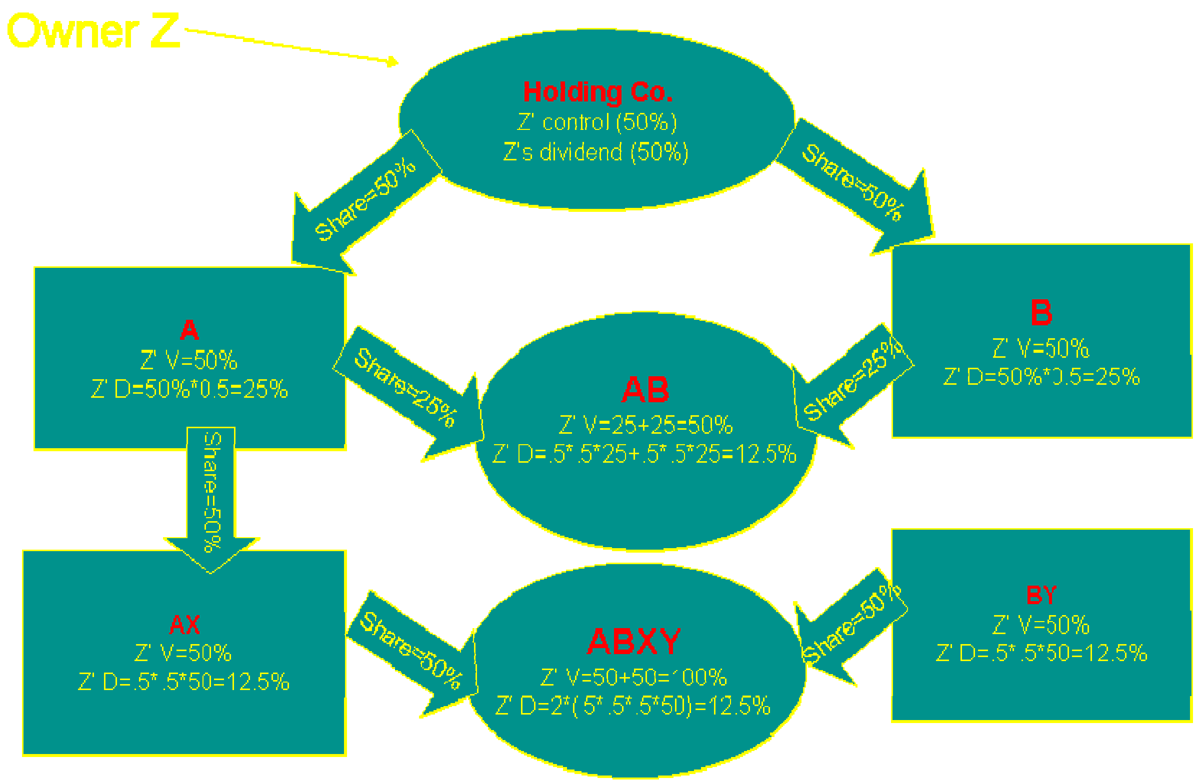
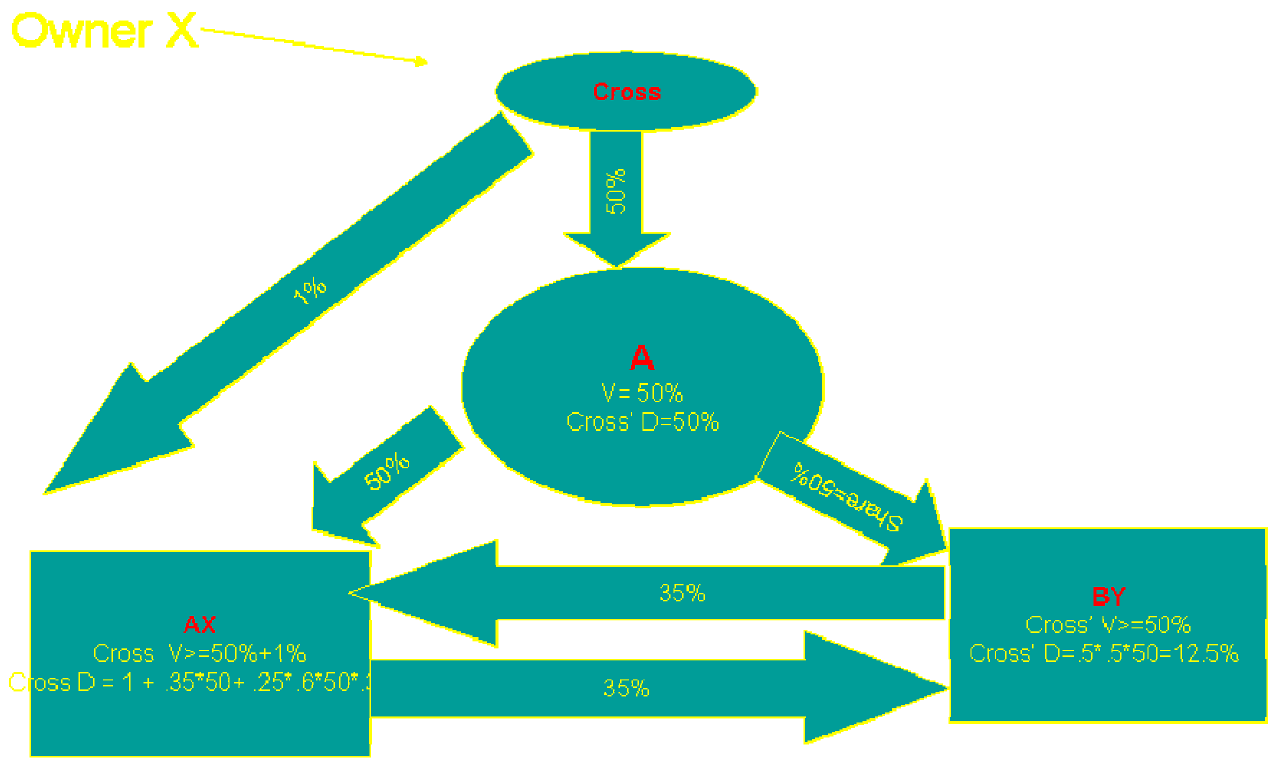


**Figure 2. Example of cross-holding**

Cross is the ultimate owner, V refers to voting rights, and D refers to dividend rights.




Excess control is equal to voting rights (V) less dividend rights (D). Refer to figure 1, excess control of owner Z in company AB is 50%-12.5%= 37.5%, while in company ABXY = 100%-12.5% = 87.5%.

## Appendix A.2 Models of Implied Cost of Equity and their Implementation

**Ohlson and Juttner-Nauroth (2000 OJ): Estimating KOJ**

OJ model, as used in Gode and Mohanram (2003), assumes that the price is a function of future earnings, short-term growth rate, long terms growth rate, and a discount rate. *OJ* model, as specified in Ohlson and Juttner-Nauroth (2000) and as used in Gode and Mohanram (2003), and Mishra (2003) is stated in equation 1.

$$K = A + \sqrt{A^2 + \frac{e_1}{p_0}\left[g_2 - (y-1)\right]}, \tag{1}$$

where, $K$ = cost of equity (denoted by KOJ in the body of the paper) ; $A = \frac{1}{2}\left((y-1) + \frac{D_1}{P_0}\right)$; $e_1$= earning per share for year 1; $e_2$= earning per share for year 2; $g_2 = \frac{e_2 - e_1}{e_1}$; $y$ = a constant which is equal to 1+ long term growth rate; long term growth rate (y-1) was fixed at inflation premium (in this case a constant 4%). Finally, we estimate $D_1$ as $e_1$*dividend payout ratio.

As we run this model, several observations do not converge. The model is sensitive to getting a negative term inside the root. The model requires that there is a substantial positive change in the earnings per share after the first year such that the term inside the root is positive. We exclude all firm/year observations that do not converge using OJ model, this leaves 3039 firm year of data for 1373 firms.

**Claus and Thomas (2001 CT): Estimating KCT**

For these 3,039 firm year observations we use Claus and Thomas (2001) implementation of the residual income valuation model to estimate the cost of equity capital. The equation 2 specifies the model, which uses price per share ($P_t$) observed in the market, current book value ($B_t$) from annual reports, forecast of future earnings per share ($EPS_{T+j}$) for five years from I/B/E/S, long term growth rate ($g_n$) beyond five years to estimate the cost of equity capital (K) that makes the right hand side of equation equal to the left hand side.

$$P_T = B_T + \frac{EPS_{T+1} - KB_T}{(1+K)} + \frac{EPS_{T+2} - KB_{T+1}}{(1+K)^2} + .. + \frac{EPS_{T+5} - KB_{T+4}}{(1+K)^5} + \frac{(EPS_{T+5} - KB_{T+4})(1+gn)}{(K-gn)(1+K)^5} \tag{2}$$

$B_t$ is the most recent book value available for a given period and $B_{(t+i)}$ is estimated using equation (2).

$$B_{T+i} = B_{T+i-1} + EPS_{T+i} - D_{T+i} \tag{3}$$

The residual earnings for each period equals to the earnings for a period less required dollar return on investment at the beginning of the year, where investment at the beginning of the year being clean surplus book value estimates based on equation (3). The summary mean forecasts for the first two years are available for each firm. The earnings beyond two years are estimated as follows: (i) actual earnings forecasts where available, (ii) based on five year growth rate, where available, and iii) otherwise, based on the growth rate estimated using the average growth in the first three years of earnings forecasts.

In implementing CT model, we assume the long term growth rate beyond five years ($g_n$), as 4%. The number 4% is approximately equal to the excess of US T-Bond yield over real risk free rate for that period. Further, we choose the firm's dividend payout ratio, where available, and a dividend payout of 50% for all other cases as in Claus and Thomas (2001) to estimate the dividend for a year ($D_{T+i}$). We understand that a 50% payout assumption across the board is strong; however, an assumption about dividend payout is necessary.

We implement equation 2 and manually search for a value of K, (denoted by KCT in the paper), that makes actual price equal to the right hand side of the equation. We also exclude 37 observations that did not converse, and 1% of lowest and highest KCT estimates. Easton and Monahan (2005) report that the CT model provides a relatively reliable cost of equity estimates for the firms'with relatively lower consensus growth forecasts. Therefore, in implementing this model, we further exclude firms/years with a five year growth rate exceeding 202% for brevity. This leaves 2,926 firm years of data for 1,335 firms.

**Gebhardt, Lee and Swaminathan (2001 GLS): Estimating KGLS**

GLS model uses the similar underlying theory of residual income valuation as in CT model. However, we implement it using actual forecasted earnings per share for up to three years. Starting fourth year up to twelfth year, earnings per share series is forecasted such that forecasted ROI gradually (linearly) converges to industry ROI in the 12th year, where industry

ROI is estimated as the average of the actual ROI from 1994 to 1998, where available in Worldscope, at 1 digit industry codes. In addition, after 12th year growth in earnings is set to zero. The terminal value at the end of 12th year is estimated as the present value of constant series of future residual earnings. The model appears in equation 4, in which we manually search for a K (known as KGLS in the body of the paper) that makes left and right hand sides equal. The variables that are not defined here are defined under CT model.

$$P_T = B_T + \frac{EPS_{T+1} - KB_T}{(1+K)} + .... + \frac{EPS_{T+i} - KB_{T+t-1}}{(1+K)^i} + ... + \frac{EPS_{T+t+1} - KB_{T+t}}{K(1+K)^i} \quad (4)$$

**Easton (2004 ES): Estimating KES**

The ES model is a special case of the OJ abnormal growth model. In implementing this model, we use actual earnings forecasts for the two years, dividend payout ratio, and current price and manually search for the cost of equity capital (K) that makes left and right hand side of the equation 5 equal.

$$P_T = \frac{EPS_{T+2} + K.D_{T+1} - EPS_{T+1}}{K^2} \quad (5)$$

Dividend in this model is estimated as $EPS_{T+1}$*dividend Payout ratio as in OJ model. In this study, ES model also converges for the cases where OJ model converges. Both of ES and OJ models place a bound on the change in earnings per share after the first year. ES model requires a positive change in forecasted earnings per share, while in the OJ model the change could be negative, but should not be too low in negative side such that the term under square root remains positive. K (denoted as KES in the paper) is manually searched.

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**Table 1**

Variables, Definitions, and Sources

| Variable | Definition | Source |
|---|---|---|
| **Panel A. Firm specific variables** | | |
| *KAVE* | Dependent variable, our estimate of the firms implied cost of capital, which is the average of the four different models of implied cost of equity as described in appendix A.2. | Authors' Estimation |
| *Expropriation* | Ultimate cash flow rights minus ultimate voting rights of the largest shareholder. | Claessens et al. (2000) and Faccio and Lang (2002) |
| *Volatility* | Covariance of annual stock prices | Worldscope / Estimated |
| *AV_Growth* | I/B/E/S five year growth rate (averaged for all available forecasts for a given firm year, estimated using three years of earnings where not available) | I/B/E/S |
| *Market to Book* | Market to book value | Worldscope |
| *Var_Analyst Coverage* | Dispersion of estimated first year earnings per share divided by average earnings forecast for the first year. | I/B/E/S |
| *Industry Cost of Capital* | Industry risk premium estimate as the average of the Implied cost of equity estimates of RIV and OJ model for each constituent of the industry | Estimated |
| *Analyst Coverage* | I/B/E/S number of analyst that provided estimate of forecasted earnings per share. | I/B/E/S |
| *Leverage* | Total book value of debt to market value of equity + book value of debt. | DISCLOSURE |
| **Panel B. Country and Legal Institutional variables** | | |
| *Rights* | This index of anti-director rights is formed by adding one when: (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to ten percent (the sample median); and (6) when shareholders have preemptive rights that can only be waived by a shareholders meeting. The range for the index is from zero to six. | La Porta et al. (1998) |
| *Judicial* | Assessment of the efficiency and integrity of the legal environment as it affects business, particularly foreign firms, produced by the country risk rating agency International Country Risk (ICR). It may be taken to represent investors' assessment of conditions in the country in question. Average between 1980 and 1983. Scale from 0 to 10, with lower scores representing lower efficiency levels. Source: International Country Risk Guide. | La Porta et al. (1998) |
| *Rule* | Assessment of the rule and order tradition in a country. | La Porta et al. (1998) |
| *Disclosure* | An assessment of disclosure requirements relating to: (1) prospectus; (2) compensation of directors and key officers; (3) ownership structure; (4) inside ownership; (5) contracts outside the ordinary course of business; and (6) transactions between the issuer and its directors, officers, and/or large shareholders. The index ranges from 0 to 1, with higher values indicating more extensive disclosure requirements. | La Porta et al. (1998) |
| *Ln(100-Country Rating)* | Natural log of (100- country credit rating). The country credit ratings measure, country's political, financial and economic risk exposure. | Institutional Investor/Estimated |

**Table 2**
Descriptive Statistics for the Explanatory Variables

*Panel A: Summary of the Variables*

| Variable | N | Mean | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| *Expropriation* | 2,926 | 4.13 | 7.80 | 0.00 | 66.98 |
| *Analyst Coverage* | 2,926 | 11.63 | 7.51 | 2.00 | 37.00 |
| *Market to book* | 2,926 | 2.80 | 6.53 | 0.00 | 183.62 |
| *Var_Analyst Coverage* | 2,926 | 0.16 | 0.34 | 0.00 | 9.76 |
| *Volatility* | 2,926 | 0.40 | 0.23 | 0.01 | 1.97 |
| *Leverage* | 2,926 | 34.89 | 22.72 | 0.00 | 98.63 |
| *Av_Growth* | 2,926 | 0.19 | 0.29 | -0.34 | 11.58 |
| *Industry* | 2,926 | 0.13 | 0.02 | 0.07 | 0.24 |
| *Rights* | 2,926 | 3.62 | 1.39 | 0.00 | 5.00 |
| *Judicial* | 2,926 | 8.57 | 2.16 | 2.50 | 10.00 |
| *Rule* | 2,926 | 8.00 | 1.75 | 2.73 | 10.00 |
| *Disclosure* | 2,926 | 0.71 | 0.23 | 0.00 | 1.00 |

*Panel B: Correlation between the Explanatory Variables*

| | *Expropriation* | *Analyst Coverage* | *Market to Book* | *Var_Analyst Coverage* | *Volatility* | *Leverage* | *Av_Growth* | *Industry COST OF CAPITAL* | *Rights* | *Judicial* | *Rule* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Analyst Coverage* | **0.07** | | | | | | | | | | |
| *Market to Book* | -0.03 | -0.01 | | | | | | | | | |
| *Var_Analyst Coverage* | 0.02 | -0.03 | -0.05 | | | | | | | | |
| *Volatility* | 0.01 | -0.05 | 0.04 | **0.07** | | | | | | | |
| *Leverage* | 0.01 | 0.00 | 0.05 | **0.10** | **0.19** | | | | | | |
| *Av_Growth* | 0.00 | **-0.08** | 0.00 | **0.22** | **0.09** | **0.07** | | | | | |
| *Industry Cost of Capital* | 0.04 | -0.05 | **-0.08** | **0.09** | **0.06** | **0.14** | **0.09** | | | | |
| *Rights* | **-0.16** | -0.04 | **0.09** | **-0.10** | **-0.10** | **-0.26** | -0.05 | **-0.12** | | | |
| *Judicial* | -0.01 | 0.06 | **0.06** | -0.05 | **-0.33** | **-0.25** | **-0.06** | **-0.09** | **0.54** | | |
| *Rule* | 0.03 | 0.03 | 0.03 | 0.02 | **-0.38** | **-0.19** | -0.02 | -0.04 | **0.14** | **0.75** | |
| *Disclosure* | **-0.08** | **0.12** | 0.04 | **-0.06** | -0.04 | **-0.16** | -0.05 | **-0.12** | **0.63** | **0.55** | **0.07** |

All variables are defined in Table 1.

**Table 3**
Summary of Implied Cost of Equity

**Panel A: Descriptive statistics of implied cost of capital estimates**

| Variable | N | Average | Standard Deviation | Min | Q1 | Q2 | Q3 | Max |
|---|---|---|---|---|---|---|---|---|
| KOJ | 2,926 | 14.6% | 5.7% | 3.1% | 11.1% | 13.5% | 16.8% | 72.7% |
| KES | 2,926 | 13.6 | 5.5 | 2.8 | 10.2 | 12.4 | 15.7 | 71.1 |
| KCT | 2,926 | 12.0 | 6.0 | 4.7 | 8.7 | 10.3 | 12.8 | 56.0 |
| KGLS | 2,926 | 8.2 | 5.6 | 0.6 | 4.2 | 6.4 | 10.3 | 40.0 |
| KAVE | 2,926 | 12.1 | 4.9 | 3.4 | 9.0 | 10.8 | 13.8 | 53.4 |

**Panel B: Pearson correlation coefficients between Implied cost of capital estimates**

| | KOJ | KES | KCT | KGLS |
|---|---|---|---|---|
| KES | 0.9930 | | | |
| KCT | 0.6288 | 0.6687 | | |
| KGLS | 0.4445 | 0.4864 | 0.6456 | |
| KAVE | 0.8918 | 0.9161 | 0.8643 | 0.7531 |

**Panel C: Implied cost of capital by country**

| Country | N | Mean | Standard Deviation | Min | Max |
|---|---|---|---|---|---|
| Austria | 38 | 12.5% | 3.9% | 7.3% | 19.7% |
| Belgium | 75 | 12.4 | 4.8 | 5.6 | 33.7 |
| Germany | 98 | 10.0 | 2.6 | 4.6 | 17.4 |
| Spain | 66 | 12.9 | 4.5 | 6.1 | 26.9 |
| France | 208 | 12.5 | 5.4 | 5.3 | 32.9 |
| Italy | 47 | 12.9 | 5.1 | 5.6 | 27.3 |
| Portugal | 57 | 13.7 | 5.6 | 6.8 | 34.9 |
| Switzerland | 90 | 12.0 | 3.7 | 7.2 | 29.8 |
| UK | 875 | 10.3 | 2.8 | 3.4 | 26.8 |
| Ireland | 21 | 10.5 | 2.1 | 7.1 | 15.0 |
| Taiwan | 35 | 10.4 | 3.2 | 6.4 | 19.4 |
| Hong Kong | 260 | 15.9 | 6.3 | 6.0 | 53.4 |
| South Korea | 157 | 15.1 | 5.9 | 5.0 | 34.6 |
| Indonesia | 90 | 14.4 | 5.7 | 7.0 | 39.6 |
| Malaysia | 204 | 9.4 | 2.6 | 4.5 | 26.9 |
| Philippines | 124 | 15.1 | 6.0 | 6.6 | 34.4 |
| Singapore | 179 | 10.2 | 3.3 | 5.2 | 26.7 |
| Thailand | 98 | 12.4 | 4.7 | 6.3 | 28.2 |
| Finland | 57 | 16.6 | 7.3 | 7.3 | 44.2 |
| Norway | 59 | 13.4 | 3.7 | 5.8 | 25.9 |
| Sweden | 88 | 13.2 | 3.7 | 7.5 | 24.1 |
| All | 2,926 | 12.1 | 4.9 | 3.4 | 53.4 |

All variables are defined in Table 1.

**Table 4**
Impact of the Separation between Ownership and Control on the Cost of Equity Capital

| Variable | Expected sign | Model (1) | Model (2) | Model (3) | Model (4) | Model (5) | Model (6) | Model (7) |
|---|---|---|---|---|---|---|---|---|
| Intercept | (?) | 0.097** | -0.006 | -0.003 | 0.010 | 0.012 | 0.008 | 0.025** |
| | | (24.31) | (-0.90) | (-0.38) | (1.23) | (1.50) | (0.99) | (2.86) |
| *Expropriation (x100)* | (+) | 0.027** | 0.026** | 0.024* | 0.026** | 0.027** | 0.022* | 0.025** |
| | | (2.61) | (2.59) | (2.39) | (2.57) | (2.74) | (2.24) | (2.53) |
| *Analyst Coverage (x10)* | (-) | -0.010** | -0.009** | -0.009** | -0.009** | -0.009** | -0.009** | -0.008** |
| | | (-9.17) | (-9.00) | (-9.04) | (-8.81) | (-8.95) | (-8.85) | (-8.01) |
| *Market to Book (x100)* | (-) | -0.082** | -0.073** | -0.072** | -0.070** | -0.071** | -0.071** | -0.071** |
| | | (-6.65) | (-6.16) | (-6.03) | (-5.84) | (-5.93) | (-5.99) | (-5.99) |
| *Var_Analyst Coverage* | (+) | 0.026** | 0.024** | 0.024** | 0.024** | 0.025** | 0.024** | 0.025** |
| | | (10.72) | (10.11) | (10.04) | (10.15) | (10.37) | (10.01) | (10.46) |
| *Volatility* | (+) | 0.028** | 0.027** | 0.027** | 0.023** | 0.021** | 0.027** | 0.023** |
| | | (8.05) | (7.87) | (7.80) | (6.41) | (5.92) | (7.92) | (6.27) |
| *Leverage(x100)* | (+) | 0.027** | 0.019** | 0.018** | 0.016** | 0.017** | 0.016** | 0.016** |
| | | (7.31) | (5.30) | (4.90) | (4.42) | (4.66) | (4.62) | (4.40) |
| *Av_Growth* | (+) | 0.030** | 0.029** | 0.028** | 0.028** | 0.029** | 0.028** | 0.029** |
| | | (10.36) | (10.21) | (10.20) | (10.17) | (10.28) | (10.17) | (10.32) |
| *Industry Cost of Capital* | (+) | | 0.863** | 0.860** | 0.859** | 0.866** | 0.846** | 0.849** |
| | | | (17.37) | (17.26) | (17.33) | (17.48) | (17.03) | (17.13) |
| *Rights* | (-) | | | -0.001 | | | | 0.001 |
| | | | | (-1.06) | | | | (1.53) |
| *Judicial* | (-) | | | | -0.001** | | | 0.002* |
| | | | | | (-3.83) | | | (2.03) |
| *Rule* | (-) | | | | | -0.002** | | -0.004** |
| | | | | | | (-4.12) | | (-3.95) |
| *Disclosure* | (-) | | | | | | -0.015** | -0.027** |
| | | | | | | | (-4.29) | (-5.03) |
| INDUSTRY CONTROLS | | YES | NO | NO | NO | NO | NO | NO |
| YEAR CONTROLS | | YES | YES | YES | YES | YES | YES | YES |
| Adj. $R^2$ | | 0.214 | 0.2676 | 0.2676 | 0.2710 | 0.2716 | 0.272 | 0.278 |
| N | | 2,926 | 2,926 | 2,926 | 2,926 | 2,926 | 2,926 | 2,926 |

**Significant at 1% level, *Significant at 5% level

The table presents regression results of implied cost of equity (KAVE) on excess control and different determinants of the implied cost of equity. All variables are defined in Table 1.

**Table 5**
Robustness Checks

| Variable | Expected sign | KAVE Model (1) | KAVE Model (2) | KAVE Model (3) | RP Model (4) | RP Model (5) | RP Model (6) | RP Model (7) |
|---|---|---|---|---|---|---|---|---|
| Intercept | (?) | -0.050** | -0.006 | 0.009 | 0.047** | -0.056** | -0.025** | -0.100** |
| | | (-6.70) | (-0.90) | (0.75) | (11.81) | (-8.37) | (-2.89) | (-13.48) |
| *Expropriation (x100)* | (+) | 0.024** | 0.025** | 0.044** | 0.027** | 0.026** | 0.025** | 0.024** |
| | | (2.50) | (2.54) | (3.04) | (2.61) | (2.59) | (2.53) | (2.50) |
| *Analyst Coverage (x10)* | (-) | -0.010** | -0.009** | -0.013** | -0.010** | -0.009** | -0.008** | -0.010** |
| | | (-10.12) | (-8.97) | (-7.51) | (-9.17) | (-9.00) | (-8.01) | (-10.12) |
| *Market to Book (x100)* | (-) | -0.059** | -0.073** | -0.063** | -0.082** | -0.073** | -0.071** | -0.059** |
| | | (-5.07) | (-6.14) | (-3.17) | (-6.65) | (-6.16) | (-5.99) | (-5.07) |
| *Var_Analyst Coverage* | (+) | 0.024** | 0.024** | 0.014** | 0.026** | 0.024** | 0.025** | 0.024** |
| | | (10.40) | (9.89) | (3.17) | (10.72) | (10.11) | (10.46) | (10.40) |
| *Volatility* | (+) | 0.012** | 0.027** | 0.028** | 0.028** | 0.027** | 0.023** | 0.012** |
| | | (3.30) | (7.81) | (4.57) | (8.05) | (7.87) | (6.27) | (3.30) |
| *Leverage(x100)* | (+) | 0.016** | 0.019** | 0.025** | 0.027** | 0.019** | 0.016** | 0.016** |
| | | (4.69) | (5.26) | (3.97) | (7.31) | (5.30) | (4.40) | (4.69) |
| *Av_Growth* | (+) | 0.027** | 0.028** | 0.093** | 0.030** | 0.029** | 0.029** | 0.027** |
| | | (10.05) | (10.08) | (10.87) | (10.36) | (10.21) | (10.32) | (10.05) |
| *Industry Cost of Capital* | (+) | 0.831** | 0.863** | 0.659** | | 0.863** | 0.849** | 0.831** |
| | | (17.15) | (17.39) | (7.87) | | (17.37) | (17.13) | (17.15) |
| *Rights* | (-) | | | | | | 0.001 | |
| | | | | | | | (1.53) | |
| *Judicial* | (-) | | | | | | 0.002* | |
| | | | | | | | (2.03) | |
| *Rule* | (-) | | | | | | -0.004** | |
| | | | | | | | (-3.95) | |
| *Disclosure* | (-) | | | | | | -0.027** | |
| | | | | | | | (-5.03) | |
| *Ln(100-Country Rating)* | (-) | 0.019** | | | | | | 0.019** |
| | | (12.62) | | | | | | (12.62) |
| *Forecast BIAS(x100)* | (+) | | 0.041* | | | | | |
| | | | (1.99) | | | | | |
| Industry Controls | | NO | NO | NO | YES | NO | NO | NO |
| Year Controls | | YES | YES | YES | YES | YES | YES | YES |
| Adj. $R^2$ | | 0.305 | 0.268 | 0.334 | 0.210 | 0.264 | 0.274 | 0.302 |
| N | | 2,926 | 2,926 | 1,036 | 2,926 | 2,926 | 2,926 | 2,926 |

**Significant at 1% level, *Significant at 5% level

The table presents results of the robustness checks. In Model 1, *Ln*(*100-country rating*) is included to control for country credit ratings. Model 2 adds *Forecast BIAS* (absolute value of one year ahead EPS forecast bias in relation to actual EPS). Model 3 is restricted to firms with strictly positive excess control. Models 3 to 7 use a Risk Premium (RP) (excess of cost of equity over risk free rate) as the dependent variable. RP is equal to KAVE *minus* Average of the 12 months of U.S. 3 month T-Bills rate. All variables are defined in Table 1.