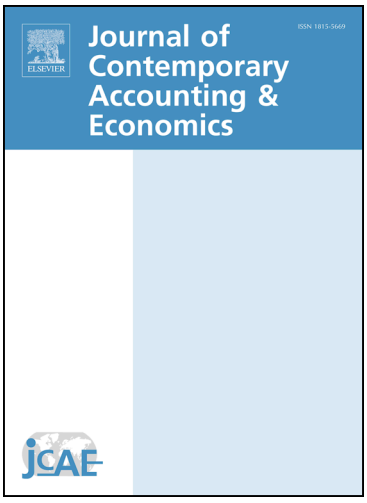

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Kartick Gupta, Chandrasekhar Krishnamurti, Alireza Tourani-Rad

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Financial Development, Corporate Governance and Cost of Equity Capital

Kartick Gupta
Centre for Applied Financial and Economics
University of South Australia
Adelaide 5000, Australia
Kartick.Gupta@unisa.edu.au

Chandrasekhar Krishnamurti
Centre for Applied Financial and Economics
University of South Australia
Adelaide 5000, Australia

Alireza Tourani-Rad
Department of Finance
Auckland University of Technology
Private Bag 92006, Auckland, New Zealand
tourani@aut.ac.nz

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Financial Development, Corporate Governance and Cost of Equity Capital

Abstract

Existing research suggests that external governance is more relevant than internal governance in affecting a firm's value. We contribute to the literature by explicitly examining the interactive role played by country-level financial development and legal institutions in influencing the impact of firm-level governance on the cost of equity capital. Using a comprehensive sample of 7,380 firm years drawn from 22 developed countries, we show that firm-level corporate governance attributes affect the cost of equity capital primarily in the Common Law countries with high levels of financial development. Our study is the first to highlight the complementary effects of legal origin, financial development and firm-level governance attributes in influencing the cost of equity capital.

Keywords: Corporate Governance; Financial Development; Legal Origin; Implied Cost of Equity Capital

JEL Classifications: G15; G34; F30

1. Introduction

What are the major factors that affect a firm's cost of equity capital? According to one strand of research, legal protection of minority shareholders is a significant factor.[1] Hail and Leuz (2006) document that firms from countries with more extensive disclosure, stronger securities regulation, and stricter enforcement mechanisms enjoy a lower cost of capital. Another strand posits that firm-level corporate governance is a crucial factor. Chen et al. (2009) show that firm-level corporate governance quality has a significantly negative effect on the cost of equity capital in emerging countries with weak legal protection of investors. Besides the country and firm-level corporate governance factors, another key factor that affects the cost of capital is the level of financial development and access to capital (Doidge et al., 2007; Aggarwal et al, 2009; Rajan and Zingales, 1998; Love, 2003). However, none of the papers explicitly investigate the role of financial development in influencing the corporate governance – cost of equity capital relationship.[2] Our study contributes to the literature by directly studying the corporate governance – cost of equity capital link by examining the level of financial development.

Arguably, the external governance environment in which a firm operates is more important than the internal governance mechanisms that a firm adheres to. This is because the quality of a country's legal institutions reflects an ongoing commitment to good governance. Often the internal governance preferences of a firm reflect self-serving choices rather than a commitment to good governance. We therefore include both features and this study is the

[1] Legal protection encompasses both rights stipulated by laws and regulations and the effectiveness of enforcement. La Porta et al. (1997, 1998, 2002) show that countries with strong legal protection of investors have better corporate governance and higher firm valuation than countries with weak legal protection of investors.

[2] Love (2003) is an exception. She examines the linkage but does not estimate the cost of equity capital directly in her study.

first one to show that internal governance and country-level financial development play complementary roles in influencing a firm's cost of equity capital.

There are a few cross-country studies that have studied both country-level institutional variables and firm-level governance. Chen et al. (2009) study a cross-country sample of firms from emerging markets and show that country-level institutional variables and firm-level corporate governance substitute for each other in affecting the cost of equity. Zhu (2014) examined a cross-country sample of developed countries and found that the association between governance practice and the cost of equity is more evident in countries characterised by strong legal protection, strict information rules, and high government quality. Therefore it appears that firm-level and country-level governance play complementary roles to each other in decreasing the cost of equity.

Overall, these results support the argument in Doidge et al. (2007) that the adoption of good internal governance is prohibitively expensive in weakly protected countries. Further, even if firms successfully commit to higher standards, the benefits of doing so in terms of access to capital markets on better terms, are limited since, in general, weakly protected countries are often associated with less financial development. However, none of the extant studies explicitly examine the interactive role of financial development with firm-level corporate governance on cost of equity.

We contribute to the literature in several ways. First, our main focus is on how financial market development facilitates a reduction in the cost of equity capital of well-governed firms. Chen et al. (2009) focussed on institutional quality in general and found that it had little emphasis on financial market development. They only used a single variable – MKDV – which is a dummy variable taking the value of one if the economy is included in MSCI's developed market index. We use two continuous variables – FININT and STKMKT – to

denote two alternate measures of financial development. As such, our measures are much more granular compared to Chen et al. (2009).

Second, our sample is more recent, covers a larger sample, and includes developed markets. We cover 22 countries, compared to 17 countries covered by Chen et al. (2009). Their study is based on a sample of 559 firm-year observations, while our sample is composed of 7380 firm-year observations. Chen et al.'s results show that country-level institutional development and firm-level corporate governance are substitutes. Their results suggest that firm-level corporate governance is less important in countries with higher institutional quality. But empirical evidence suggests that firm-level corporate governance is higher in countries with better institutional quality (Zhu, 2014).

Third, by jointly examining the effects of country-level financial development, institutional factors and firm-level corporate governance initiatives, we hope to discern the relative impact of these major factors in influencing the cost of equity capital. While prior studies have looked at financial development as a potential explanatory variable, they do not condition their tests based on the level of financial development. We partition our sample on the basis of country-level financial development. This provides us with a direct test of the relative importance of this crucial variable in determining the relationship between firm-level corporate governance and cost of equity capital.

We expect the results of our study to inform the debate regarding whether firm-level corporate governance and country-level financial development act as substitutes or in a complementary manner in affecting a firm's cost of equity capital. There is as yet no empirical work on this issue. Our paper fills this void. As such, the empirical results of our study have major implications for policy makers and firm managers especially in countries with low levels of financial development. If our empirical work supports the substitution hypothesis, then it would provide an incentive to managers of firms to follow higher

standards of corporate governance. On the other hand, if the data support complementarity hypothesis, then it is imperative for policy makers to improve the legal framework and financial development before firm-level corporate governance improvements will work.

Our empirical work is based on 7,380 firm years of data drawn from 22 countries. We combine firm-level governance scores with country-level data on financial development and legal origin. We find that firms with high corporate governance scores have significantly lower cost of equity capital. On further examination, we find that the corporate governance and cost of equity capital linkage is significant only for a) firms in Common Law countries and b) firms in countries with high levels of financial development. It appears that the legal origin effect works in a complementary manner with the financial development effect to influence the impact of firm-level corporate governance on cost of equity capital.

Prior research suggests that strong legal institutional framework in a country is an important determinant in influencing firm-level improvements in corporate governance attributes (Doidge et al., 2007; Krishnamurti et al., 2005). Previous work has also documented that institutional development is associated with higher economic growth in a country due to an increase in the level of investments (due to cost of capital reductions). Taken together, our work highlights how country-level initiatives work in tandem with firm-level improvements in governance to reduce cost of capital, thereby improving the economic growth of the country.

The rest of the paper is organised as follows. We summarise the theoretical underpinnings relevant to our empirical tests in section 2. Section 3 describes the sample selection process and measurement of key variables used in the study. Section 4 contains our empirical results and their discussions. Section 5 concludes the paper.

2. Theoretical Underpinnings

In this section we survey extant research on factors that affect a firm's cost of equity capital. We first summarise work that relates firm-level corporate governance to cost of equity capital. This is followed by work that relates financial development to a firm's external financing environment. Finally, we develop our principal hypotheses based on prior literature on substitution and complementary effects of firm-level governance and country-level financial development.

2.1. Firm-Level Corporate Governance and Cost of Equity Capital

Ashbaugh-Skaife et al. (2006) study the importance of firm-level governance attributes in determining the cost of equity capital. They find that the following four types of governance attributes are associated with cost of equity capital – financial information quality, ownership structure, shareholder rights, and board structure. Their sample covers US firms during the 1996-2002 period. Their overall finding is that strong firm-level corporate governance has a negative impact on a firm's cost of equity capital. Chen et al. (2009) study 17 emerging markets covering the 2001-2002 period. They find that firm-level corporate governance significantly influences cost of equity capital. This relationship is particularly strong in countries where legal protection of investors is weak. Zhu (2014) finds that firms with strong corporate governance have lower cost of equity and this effect is more pronounced in countries with strong legal systems, extensive disclosure practices and good government quality.

2.2. Financial Development and Cost of Equity Capital

Economists have long realised that financial development strongly influences the economic growth of a country and that this effect works through firms' abilities to access external finance. Financial development is characterised by a well-developed banking system and/or a well-functioning capital market. Levine (2002) provides empirical evidence that is consistent with the view that countries with greater degrees of financial development – as measured by

aggregate measures of bank development and market development – experience significantly higher economic growth rates. Rajan and Zingales (1998) argue that bank-based systems are better at promoting growth in countries with poor legal systems while market-based systems do better as legal systems develop. The market-based view of financial development highlights the growth-enhancing role of well-functioning capital markets. Such markets foster greater incentives for investors to research firms since it is easier to profit from trading on information in large, liquid markets (Holmstrom and Tirole, 1993). Markets enhance corporate governance by facilitating takeovers and making it easier to tie managerial compensation to firm performance (Jensen and Murphy, 1990). Markets also facilitate risk management (Levine, 1991; Obstfeld, 1994).

Rajan and Zingales (1998) posit that well developed financial markets and institutions help a firm overcome the problems of moral hazard and adverse selection, thereby reducing the cost of raising money from outsiders. Rajan and Zingales (1998) suggest that the ex-ante development of financial markets explains the ex-post growth of sectors dependent on external financing. A possible explanation for their finding is that developed financial markets and institutions reduce the cost of external finance for firms. A market oriented financial system depends on public equity markets for raising funds and is therefore conducive to firm-level information production and dissemination to a diverse group of shareholders (Francis et al., 2005). Further, they posit that higher public disclosure of information decreases information asymmetry and therefore reduces cost of equity. Hence, a higher level of disclosure is expected in countries with more market-oriented financial systems. In a similar vein, we posit that a better quality firm-level corporate governance should be expected in countries with well developed financial systems since they are likely to result in lower cost of equity.

Summing up, it appears that a firm in a country with a sound financial system will have access to capital at a lower cost than a firm in a country with weak financial development. An unexamined proposition is whether country-level financial development influences the expected negative relationship between firm-level corporate governance and cost of equity.

2.3. Substitution versus Complementary Effects

Extant work has examined complementary versus substitution effects regarding firm-level corporate governance and country-level legal institutional development. The empirical findings are however divided on the issue of complementarity versus substitutability. Research work that supports substitutability include Durnev and Kim (2005), Klapper and Love (2004), and Chen et al. (2009), while Aggarwal et al. (2009), and Doidge et al. (2007) find support for complementary effects.

Generally speaking, firms that practice better corporate governance are valued higher and/or have lower cost of capital based on the substitution hypothesis. Chen et al. (2009) find support for this relationship, especially in weaker legal regimes in emerging countries. Durnev and Kim (2005) argue that good corporate governance is driven by private incentives that alleviate the detrimental effects of ineffective legal frameworks in weaker legal regimes. They conclude that high quality governance is relatively scarce in weak legal regimes and that there is a scarcity premium for good governance. Based on the substitution hypothesis, when firms have access to international financial markets, the importance of country characteristics such as legal protection of investors and financial development could be diminished. In order to access capital in well-developed foreign capital markets, local firms have incentives to adopt good governance provisions at the firm-level. Furthermore, financial globalisation or international listings by firms enable them to "borrow" the investor protection of countries where it is higher. Thus country-level investor protection, financial development, and firm-level corporate governance could be substitutable for each other.

Complementarity hypothesis, on the other hand, supports the balancing effects of institutional development and firm-level corporate governance. Accordingly, firm-level governance is less productive in countries with poor economic development and weak investor protection, implying that firm-level governance and legal protection of investors are complementary. For instance, Aggrawal et al. (2008) suggest that firms have incentives to invest more in firm-level governance when a country becomes economically and financially developed and better protects investor rights. They find that only 13% of foreign firms have higher quality governance than US firms and that 86% of those firms come from U.K. and Canada. This finding is inconsistent with the hypothesis that investor protection and internal governance mechanisms are substitutable.[3]

Another paper that supports complementarity hypothesis is the work of Daske et al. (2008). Their work suggests that capital market effects around mandatory IFRS adoption takes place only in countries where the institutional environment offers strong incentives to firms to be transparent.[4] Doidge et al. (2007) argue that the extent to which firms choose to improve upon the investor protection granted by the state depends on the costs and benefits of doing so. They find that in countries with weak development, it is more costly to improve investor protection due to the lack of institutional infrastructure. Also, good governance has political costs. Furthermore, the benefit from improving governance is lower in underdeveloped markets since capital markets lack depth. Such countries have poor investor protection and the authors find evidence that there is complementarity between country-level investor protection and firm-level governance.

[3] Since the US is recognized to have strong investor protection compared to other countries, substitutability would imply that firms in other countries should have higher internal governance than US firms on average.

[4] They include cost of capital effects in the set of capital market effects they study.

Our work is also related to Doidge et al. (2007) who try to explain the dominant role of countries in firm-level corporate governance choices. They posit that countries matter since they influence the costs that firms incur to comply with good governance and the benefits that accrue to them from doing so. Furthermore, they claim that better governance is associated with a reduction in a firm's cost of funds if and only if investors expect a firm to be well governed after the fund have been raised. Thus, it is imperative for the firm to commit itself convincingly to potential investors that it will pursue good governance in the future. However, countries with poor investor protection or low levels of financial development could lack adequate mechanisms for guaranteeing future governance of the firm. Thus the benefit of good governance is less valuable to a firm in a country with poor financial development. Therefore, the theoretical framework of Doidge et al. (2007) implies complementarity with respect to firm-level governance and country-level financial development.

We must emphasise that prior work with the exception of Chen at al. (2009) on the substitution versus complementary effects focus mainly on valuation effects. We distinguish our work by examining cost of equity capital. A further differentiating factor is the explicit use of financial development indicators rather than legal protection.

Summing up, we have arguments for both complementarity and substitution effects involving firm-level governance and country-level financial development. There is a substantial body of work that suggests that financial development provides a channel by which firm-level governance can result in lower cost of equity capital. On the other hand, the only theoretical argument for the substitution effect stems from financial liberalisation. We expect that only very large firms will have access to capital from foreign markets and will be able to circumvent the effects of local financial development. For the vast majority of firms, we

believe that local financial development will play a role in determining the access and cost of providing equity capital to firms.

We formally state the *complementarity hypothesis* as follows:

> Firms operating in a country with a high level of financial development AND high quality firm-level corporate governance experience lower cost of equity capital, *ceteris paribus*.

As an alternative hypothesis, we formally state the *substitution hypothesis* as follows:

> Firms operating in a country with a high level of financial development OR high quality firm-level corporate governance experience lower cost of equity capital, *ceteris paribus*.

2.4. Legal Origin Effects

A large body of work also suggests that cross-country differences in legal origin help to explain cross-country differences in financial development (La Porta et al., 1998; Claessens and Laeven, 2003; Anderson and Gupta, 2009). The law and finance theory posits that two interrelated channels – political and adaptability – through which legal origin affects financial development (Beck et al., 2003). The political channel view holds that legal traditions differ in terms of the priority they give to private property rights as compared to the rights of the state. The political channel view suggests that Common Law evolved to protect private property owners against the crown (government). This legal protection enabled private property owners to transact confidently and positively influenced financial development. In contrast, the French and German civil codes were created to consolidate state power by placing the government above the law. Thus the Civil Law tradition promotes the development of institutions that advance state power with adverse implications for financial development.

The adaptability channel posits that legal traditions differ in their ability to evolve with changing conditions. Several scholars (Priest, 1977; Bailey and Rubin 1994) argue that Common Law grants substantial discretion to judges which enables them to replace inefficient rules with efficient ones. Thus Common Law countries effectively minimise the gap between the contracting needs of the economy and the capability of the legal system, thereby fostering financial development more efficiently than in other systems that are more rigid. Civil Law tradition typically rejects jurisprudence and relies exclusively on statutory law to resolve disputes. This rigidity of Civil Law systems results in lower efficiency of contracting law with negative repercussions for financial development.

In a series of articles La Porta and co-authors (La Porta et al., 1997; La Porta et al., 1998; La Porta et al., 2002; La Porta et al., 2006) show that legal origin is strongly related to institutional development variables. For instance, the quality of protection available to minority shareholders in a country is strongly related to the legal origin of the country. They conclude that countries following English Common Law tradition generally have higher levels of institutional development compared to countries that follow the Civil Law tradition. We confirm this strong linkage. In Table 1, we summarise measures of institutional development commonly used in other studies. We observe that Common Law countries, on average, have higher levels of investor protection, and public and private enforcement, compared to Civil Law countries. Although Common Law countries have higher levels of extra-legal institutions, proxied by the newspaper circulation in our study (Dyck and Zingales, 2004), the difference is not statistically significant.

[Please Insert Table 1 Here]

In addition to legal origin, regulation and investor protection are also shown to be factors that influence a firm's cost of equity capital. Hail and Leuz (2006) find evidence suggesting that

firms from countries with more extensive disclosure requirements, stronger securities regulation, and stricter enforcement mechanisms have lower cost of equity capital.

Summing up, prior work indicates that legal origin succinctly captures cross-country variations in institutional development that are expected to intermediate the relationship between firm-level corporate governance and cost of equity capital. As such, in some of our tests, we partition our sample on the basis of legal origin. Thus we are able to extend our hypotheses to include three critical independent variables of interest – firm-level corporate governance, financial development and legal origin.

3. Sample Selection and Measurement of Key Variables

3.1. Sample Selection and Country-Level Financial Development Measures

Our sample covers the period 2003 to 2007 and includes firms from major OECD countries.[5] We exclude firms listed in off-shore financial centres since the operating environment of these firms may differ from their listing environment. This data is matched with Datastream to augment our control variables and I/B/E/S analysts' forecasts which are required in our estimates of cost of capital. We follow Ince and Porter (2006) guidelines for careful cleansing of irregularities in the Datastream database.

We use financial development to characterise the quality of institutions in a given country. Following Khurana et al. (2006), we use two indicators for financial development – financial intermediary development and stock market development. The proxies for financial development are Financial Intermediary Development (FININT) and Stock Market Development (STKMKT). The data is sourced from Khurana et al. (2006) which in turn is drawn from World Bank database. STKMKT is the sum of the three variables: market

[5] We restrict our data to 2007 as the Riskmetrics database is available till 2007. In 2007 Riskmetrics acquired Institutional Shareholder Services (ISS) and changed the methodology of collecting the data. Therefore, the post-2007 data is not comparable.

capitalisation over GDP, total value traded over GDP, and total value traded over market capitalisation and standardised to have zero mean and a standard deviation of one. The sum of the ratio of liquid liabilities to GDP, and the credit going to the private sector over GDP is coded as FININT.

Our sample composition is reported in Table 2. We utilise a total of 7,380 firm years to conduct our empirical tests. We include every firm for which we are able to obtain data on firm-level corporate governance, analysts' forecasts of earnings and other fundamental data. In addition to the sample size, we also provide scores on financial development for each country. Prior research (e.g., La Porta et al., 1997; La Porta et al., 2006) demonstrates that financial development is driven by legal institutions and securities regulation. Furthermore, a rich literature on law and finance also shows that legal origin of a country plays a significant role in the development of its financial markets. Therefore, we include legal origin in our empirical analyses in addition to financial development. The legal origin, as reported by La Porta et al. (1997), is also shown in the last column.

[Please Insert Table 2 Here]

One concern is that FININT and STKMKT are alternative proxies of legal origin. However, the average FININT score of Common Law countries is 1.108 and the corresponding score for Civil Law countries is 1.225. The average STKMKT score of Common Law countries is 0.682 and score for Civil Law countries is 0.873. Thus this clearly indicates that sorting our sample countries based by legal origin and by financial development will result in different sets of countries and that the two are not alternative proxies for the same classification.

3.2. Measurement of Firm-Level Corporate Governance

Our primary source of data on corporate governance aspects is provided by Institutional Shareholder Services (ISS) of RiskMetrics. ISS compiles a firm's performance on each attribute by examining a firm's regulatory filings, its website and annual reports. ISS scores

each firm on each attribute depending on whether or not it meets a threshold level of acceptability. The attributes covered by ISS include four broad categories: Board, Audit, Anti-takeover, and Compensation and Ownership. The Board component of governance encapsulates those aspects of the functioning of the board of directors pertaining to board independence, size, composition of committees, transparency, and the conduct of work. The Audit component captures the independence of the audit committee and the role of auditors. Anti-takeover provisions include the firm's charter and bylaws, dual-class structure, role of shareholders, poison pill, and blank cheque preferred. The Compensation and Ownership component deals with executive and director compensation issues, options, stock ownership and loans.

Next, we use the raw data provided to us by RiskMetrics, and based on best practices, we score each firm on each governance attribute and construct our overall index.[6] We follow the method outlined in Aggarwal, et al. (2009) and use the raw data to create firm-level governance ratings. Appendix A contains a list of the variables used and the acceptable standards used in the scoring. An important difference is that in addition to an overall rating for a firm, we create one separate rating for each of the 4 categories of governance attributes: board composition and effectiveness (G1), anti-takeover arrangements (G2), director and executive compensation and ownership (G3), and audit practices (G4). These 4 ratings are compiled following Aggarwal et al. (2009). We then aggregate them to obtain the overall score for each firm. To be consistent with Aggarwal et al. (2009), we scale G1, G2, G3, and G4 by dividing their raw scores by 4 so that our CG score has a maximum of 1.[7] This method ensures that we give equal weights to the four categories of corporate governance.

[6] Our choice of ISS is based on its widespread use in research studies such as Aggarwal et al. (2009), Zhu (2014), Brown and Caylor (2006) and Doidge et al. (2007). Also, since ISS provides raw data on governance attributes, it enables us to create our own index.

[7] G1, G2, G3, and G4 each has a maximum of 0.25.

The number of sample firms per year ranges from 1,253 in 2003 to 1,615 in 2007. The countries with the largest numbers of sample firms are Japan, the United Kingdom and Canada. The countries with the smallest numbers of sample firms are Portugal, Ireland and New Zealand. We compute summary statistics of firm-level corporate governance scores and report results by country, year and industry grouping in Table 3. The lowest mean scores are obtained by Portugal (0.328) and the highest by the United Kingdom (0.507).[8] We obtain similar results when we use median scores. Based on legal origin, Portugal falls into the Civil Law category and is rated low on stock market development but high on financial intermediary development. The United Kingdom follows the Common Law tradition and scores high on both stock market and financial intermediary development. The average CG scores across years show an increasing pattern from 2003 until 2006, and then levels off in 2007. The summary statistics of corporate governance scores by sectors do not show significant differences across the industrial, services and financial sectors.[9]

Panel B of Table 3 displays descriptive statistics of corporate governance scores across common law and civil law countries as well as across categories of low and high FININT and STKMKT. Firms in Common law countries tend to have higher mean (and median) CG scores compared to civil law countries. However, firms in low FININT countries have higher corporate governance scores compared to high FININT countries. Firms in high STKMKT countries have higher mean and median CG scores as compared to low STKMKT countries.

[8] Out of our sample of 22 countries 16 of them are from the European Union. On the face of it, it appears as though our sample is dominated by European countries. However, on closer examination only 780 out of 1615 firms are from Europe – roughly accounting for 48% of the total firms in the 2007 sample. Furthermore, although efforts for harmonisation of accounting and reporting standards are underway, there still exist substantial differences in institutional variables across Europe (Adjaoute and Danthine, 2003). In terms of CG scores, UK firms score an average of 0.507, while Portugal is on the lower end of the spectrum with a mean score of 0.328. This fact indicates that convergence in firm-level corporate governance continues to be a work-in-progress.

[9] We do not report these results in order to conserve space. These are available from the authors upon request.

Thus, the level of stock market development seems to be associated with the level of corporate governance.

[Please Insert Table 3 Here]

3.3. Cost of Equity Capital Estimates

We compute the implied cost of equity capital using earnings forecasts reported in Institutional Brokers' Earnings System (I/B/E/S) and share prices extracted from Datastream. Our decision to use implied cost of equity capital derived from earnings forecasts is based on strong criticisms that have been forwarded against realised returns. Elton (1999) argues that realised return is a noisy and biased proxy for the cost of capital. Dhaliwal et al. (2006) point out that ex-ante estimate is more appropriate for estimating returns demanded by investors than ex post realisations. Further, as the realised returns are backward-looking measures, they cannot fully account for cash flow or discount rate shocks (Campbell, 1991; Campbell and Shiller, 1988). In fact, Fama and French (1997) allege that realised returns are "woefully imprecise estimates of the cost of equity."

To estimate the cost of equity capital, we employ four commonly used methods. The models of Gebhardt et al. (2001) and Claus and Thomas are based on Edward-Bell-Ohlson residual income valuation model while the models of Easton (2004) and Ohlson and Juettner-Nauroth (2005) are based on abnormal earnings growth[10]. These are described in detail in Appendix B.

For each year, we compute the implied cost of equity capital by using forward looking earnings forecasts provided by analysts. Our cost of equity capital estimates are backed up by numerical approximation using the Generalized Reduced Gradient Algorithm. Since there is no consensus in the literature as to which model works best, we take arithmetic averages of

[10] The interested reader is advised to refer to informative appendices of Guedhami and Mishra (2009) and Chen, Chen, and Wei (2009) for further details on these models.

the four estimates in order to mitigate potential measurement errors associated with a particular method.[11] In order to further reduce the impact of errors, we winsorise our estimates to 0% and 60%.

Table 4 contains summary statistics of our cost of equity capital estimations. The overall mean ranges from 8.16% to 11.13% for the four methods. The average cost of equity capital estimates by country ranges from 9.22% for Switzerland to 12.94% for Ireland.

[Please Insert Table 4 Here]

3.4. Control Variables

In order to isolate the impact of corporate governance, it is essential to control for other factors which are shown by prior research to have an influence on the cost of equity capital. These include firm characteristics and cross-country differences in certain critical variables. We control for beta, firm size, book-to-market, inflation, price momentum, analyst forecast error, liquidity and free float.

Fama and French (1992) show that stock returns are negatively correlated with firm size and positively related to book-to-market ratio. Size is measured by the natural logarithm of market value (MV) denominated in US dollars. Book to Market (B/M) is the ratio of book value per share to share price. Also the Capital Asset Pricing Model (CAPM) predicts that cost of equity capital is positively related to beta. Beta is calculated by regressing each firm's last 60 months or at least 24 months return on the current and lagged MSCI world market index returns. Firms with less than 24 months of historical data are excluded from the sample. Beta is winsorised to between 0 and 4 to control for outliers.

[11] See for instance Kim et al. (2014) – footnote 14. The four methods used by us are common in accounting literature (Chen et al., 2016; Dhaliwal et al., 2016). Chen et al. (2009) and Chen et al. (2014) use the average of the four methods. Chen et al. (2011) use the median of the four methods. Our results are not sensitive to the use of alternate estimates of implied cost of equity.

Following Hail and Leuz (2006), we control for inflation. The inflation rate affects cost of equity estimates since inputs such as book value of equity, stock price, and analysts' earnings forecasts are typically stated in nominal terms. Inflation is calculated by annualising country-specific one-year ahead realised monthly inflation rates. Guay et al. (2003) claim that implied cost of equity capital estimates using analysts' forecasts may be biased due to sluggishness implicit in the forecast. They suggest the inclusion of a price momentum variable to mitigate the impact of this bias. Furthermore, analysts of RiskMetrics could also be influenced by the past return performance of stocks. Momentum returns for each firm are calculated by compounding the last six months' returns. An implicit assumption of our approach is the unbiasedness of the analysts. However, if analysts underestimate the impact of corporate governance on future earnings, their forecasts will have an upward bias for firms with poor corporate governance scores. This will translate into an overestimation of the cost of equity capital, creating a spurious correlation between corporate governance scores and cost of equity capital. We use forecast error as a control variable to mitigate the effect of this spurious correlation. Forecast error is measured by the analyst forecast error computed as actual minus expected earnings scaled by the current price for the next year.

In equilibrium, expected returns are higher for illiquid stocks compared to liquid stocks[12]. Following Lesmond et al. (2005), we calculate liquidity as the ratio of non-zero trading days divided by total trading days over the last quarter. Another measure of liquidity that is used in our study is the free float. Free float is measured by the percentage of total shares in each issue that is available for trading.

4. Empirical Results

[12] See, for instance, Amihud and Mendelson (1986).

In this section, we study the validity of the substitution and complementarity hypotheses. First, we examine the role played by legal institutional variables developed by prior research, such as La Porta et al. (2006) and Dyck and Zingales (2004). Second, we repeat these tests using variables that characterise financial development. Third, we conduct robustness checks of our principal results. Finally, we discuss our results and compare them to previous work.

4.1. Investor Protection, Firm-level Governance and Cost of Equity Capital

We estimate the effect of corporate governance measures on implied cost of capital by performing the following regression:

$$R_{i,j,t} = \propto_0 + \alpha_1 CG_{i,j,t} + \sum \alpha_2 Controls + \varepsilon_{i,j,t} \quad (1)$$

where the subscripts *i*, *j*, and *t* refer to state of institutional development, firm, and time, respectively. Details of the control variables are given in section 3.4. Our estimations further include fixed effects for country, year and industry. Gormley and Matsa (2014) suggest that fixed-effect models are generally superior to other measures in controlling for unobserved heterogeneity and omitted variables issues.

We report our principal results in Table 5. Our focus is on the interactive effects of country-level legal protection of investors and firm-level corporate governance, and their impact on the cost of equity capital. We regress the average cost of equity capital on a set of control variables and CG scores. Our estimations include fixed effects for country, year and industry. Regression results are reported on the basis of partitions based on the median values of Investor Protection, Private Enforcement, Public Enforcement, and Extra-legal institutions. Investor protection is the principal component of indices of disclosure requirements, liabilities, standards, and anti-director rights, from La Porta et al. (2006). Private and Public enforcement indices are also sourced from La Porta et al. (2006). "Extra-legal" institutional variables may also affect the cost of equity capital. For instance, Dyck and Zingales (2004) show that countries with competitive product markets and diffused-newspaper circulation

have lower private benefits, which may bring down the cost of equity capital. Data on newspaper circulation is obtained from Dyck and Zingales (2004). Contrary to the findings of Chen et al. (2009) that focused on emerging markets, we find that firm-level corporate governance works best in reducing the cost of equity capital in countries that protect investors well. Similar results are found for private enforcement, public enforcement, and newspaper circulation. Our results are in line with Zhu (2014) who studied developed markets.

[Please Insert Table 5 Here]

Our evidence strongly indicates that the benefit of firm-level corporate governance is more explicit in markets that protect investors well, in environments with strong private and public enforcement of security laws, and where newspaper circulations are more diffused. It appears that the complementarity hypothesis is valid when we examine a range of institutional variables.

4.2. Financial Development, Firm-level Governance and Cost of Equity Capital

In this sub-section, we empirically examine the direct and interactive effects of legal origin, financial development and firm-level corporate governance scores on the implied cost of equity capital. The results are reported in Table 6. The results of unconditional regressions indicate that firms with high CG scores have lower cost of equity capital and this relationship is statistically significant at the 1% level. Our results on control variables are generally consistent with theory and prior research. Cost of equity capital is positively related to beta, book-to-market equity. Cost of equity capital is negatively related to analysts' forecast errors, momentum, and firm size. These findings are consistent with the work of Hail and Leuz (2006), Fama and French (1992), and Guay et al. (2003). We do not find a significant association between liquidity and cost of equity capital. Free float is sometimes significant but in the opposite direction.

[Please Insert Table 6 Here]

We then conduct regressions on sub-samples based on legal origin and financial development. Interestingly, we observe a stronger negative relationship between CG scores and cost of equity capital for the Common Law subsample. For the Civil Law subsample, there is no reliable relationship between CG scores and cost of equity capital. It appears that the legal origin of the country in which a firm is operating plays a mediating role in the relationship between corporate governance and cost of equity capital.

We use financial development to segregate the sample into two parts and repeat the regressions. Financial development is characterised by FININT and STKMKT. All firms with below median scores on FININT (STKMKT) are classified as low and the rest as high. The association between CG score and cost of equity capital holds for the subsample with high financial development. The results are robust to alternate ways of characterising financial development (FININT or STKMKT). There is no significant relationship between CG scores and cost of equity capital for the low financial development subsample.

The results of Table 6 provide certain important insights into the effect of corporate governance on cost of equity capital. First, country-level financial development plays a critical complementary role in firm-level corporate governance. Second, legal origin also plays a significant role in influencing the impact of corporate governance on cost of equity capital. Third, we provide evidence supporting the complementarity hypothesis and rejecting the substitution hypothesis.

We investigate the interactive effects of legal origin and financial development on the relationship between corporate governance and cost of equity capital by using a two-stage partition of our sample. First, we partition the sample on the basis of legal origin. Next, we divide each subsample on the basis of financial development. We rerun our regressions for each of the subsamples. The results are reported in Table 7. The CG scores have a strong

negative impact on the Common Law subsample with high financial development.[13] The results are robust to alternate methods of characterising financial development (FININT or STKMKT). CG scores have no reliable relationship to cost of equity capital for the Civil Law subsample. These results indicate that legal origin and financial development play complementary roles in influencing the impact of corporate governance on cost of equity capital. Furthermore, the effect of each factor is not subsumed by the other. Thus our evidence is clearly consistent with the complementarity hypothesis.

[Please Insert Table 7 Here]

Our study builds on recent findings in the finance literature regarding the role of legal institutions and financial sector development (Hail and Leuz, 2006; La Porta et al.; 1997, 2000, 2006; and Love, 2003). We extend this literature by jointly examining the role of financial development and firm-level corporate governance in explaining international differences in the cost of equity capital. Our study includes both features and is the first one to show that internal governance and country-level financial development play complementary roles in influencing a firm's cost of equity capital. Overall, our results, based on a comprehensive cross-country sample, show that financial development and firm-level governance choices act in a complementary fashion to affect a firm's cost of equity capital. Our results are robust to alternate ways of characterising financial development and firm-level corporate governance.

4.3. Robustness Checks

We conduct three types of robustness checks. First, we reran all our multivariate tests by using an alternate governance index. This is to address the concern that our CG index is potentially biased. We use the GOV_{44} index used in Aggarwal et al. (2009) but find

[13] Sorting by either proxy for financial development produces the same set of countries for Common Law countries. This is not true for Civil Law countries.

qualitatively similar results. The results are portrayed in Table 8. Second, we used an alternative index of financial development based on the Global Financial Centres index. The use of an alternative financial development index ensures that our results are not biased due to inaccurate estimates of financial development. The Global Financial Centres index provides ranking based on competitiveness. The scores are computed using instrumental factors and online survey. Once again, our results are qualitatively unaltered.[14] Second, it appears that the firms domiciled in Japan dominate the sample. Therefore, it may be the case that the results are primarily driven by Japanese firms. In order to negate this concern, we drop Japan from the sample. The results, however, remain qualitatively the same.

[Please Insert Table 8 Here]

Finally, we reclassify the financial development status of three of the countries in our sample – Hong Kong, Ireland, and Greece, which do not have financial development scores reported in Khurana et al. (2006). We classify Hong Kong and Ireland as high and Greece as low for the variables FININT and STKMKT. The results reported in Table 8 are qualitatively similar when we exclude firms from these three countries. We also change the ordering of the three countries. The results remain robust to these changes.

We undertake additional robustness checks to investigate whether our results are biased due to endogeneity concerns. The main challenge in undertaking an instrumental variable regression is to find a suitable instrument that is highly correlated with CG but less correlated with a firm's cost of equity capital. We refer to extant literature and use the approach of Aggarwal et al. (2009). Specifically, we use the mean CG score of other firms in the same industry, country and year as an instrument. Similar to Aggarwal et al. (2009) we argue that

[14] Due to paucity of space, we do not report these results. However, these results are available from the authors upon request.

as our model already includes an industry-level fixed effect, the instrument is less likely to be correlated with other unobserved firm-level characteristics that influence CG.

In specification 1 of Table 9, we find that the relationship between fitted CG and cost of equity is negative and statistically significant at the one percent level. This suggests that after controlling for potential endogeneity concerns, our baseline results remain strong. In specification 2, we interact fitted CG with FININT and show that an increase in CG and better financial institution quality decreases a firm's cost of equity. The results are similar in specification 3. When we interact fitted CG with STKMKT, the coefficient is -0.0528 (t-stat -4.62), suggesting improvement in CG practices and a better stock market quality decreases a firm's cost of equity. In specification 4, we test whether financial development and legal origin are both important attributes in explaining negative relationship between CG and cost of equity. Consistent with our prior findings, we show that both the financial development and the legal origin are important in explaining the negative relationship between CG and cost of equity.

In specification 5, we use the Generalized Method of Moments (GMM) proposed by Arellano and Bover (1995) and Blundell and Bond (1998). This method is preferable when finding instruments is difficult. Thus, the GMM uses the past realisations of the variables that are not strictly exogenous as instrumental variables. We find similar results in specification 5 as CG and cost of equity are negatively correlated and statistically significant.

The stock exchange (and hence country) that a firm is listed on may also drive firm-level corporate governance, since exchanges may have their own corporate governance guidelines/requirements. Therefore, the instrument of the mean corporate governance score of firms in the same industry, year and country may still be correlated with cost of equity capital. To allay this concern, we conduct change analysis. In specification 6, we report the

results. The results show that improvements in corporate governance result in lower cost of equity capital after controlling for other determinants of cost of equity.

[Please Insert Table 9 Here]

We conduct further robustness checks and report the results in Table 10. In specification 1, we use the Fama and MacBeth (1973) approach, in which we run a cross-sectional regression for each year and then report the time-series mean of the yearly outputs. One advantage of this approach is that it corrects for time trend. We again find a negative and statistically significant relationship between CG and cost of equity. In specification 2, we investigate another potential concern arising from biased standard errors. Petersen (2009) shows that standard errors in panel regression are potentially biased if not corrected for clustering by firm and time. Using a two-way clustering approach, the correlation among different firms in the same year and different years in the same firm are corrected. We therefore use Petersen's (2009) two-way clustering approach in specification 2. The CG coefficient is negative and statistically significant, suggesting that our results remain strong after adjusting for the potentially biased standard error.

In the third specification, we use an alternative modelling approach. Instead of panel regression, we use a longitudinal hierarchical model in which the data is nested in levels. This approach is suitable for our empirical analysis as we can nest firms into industries, and further, into country. Further, multiple observations of the same firm across years can be nested at the firm-level. Thus, a hierarchical model performs better in the modelling of interdependencies at various levels. This addresses the concern of uneven sample distribution across countries. We find qualitatively similar findings in specification 3.

In specification 4, we consider the impact of exogenous shock. Using data from first time disclosure of corporate governance scores, we find that CG still has a negative and statistically significant impact on cost of equity. Finally, in the last specification, we use

equity risk premium as the dependent variable following the work of Chen et al. (2011). Our results are qualitatively similar. Overall, we find that our results are unlikely to be biased due to endogeneity, inefficient standard errors or modelling approach.

[Please Insert Table 10 Here]

5. Conclusions

A strand of research documents that firm-level corporate governance attributes are associated with the cost of equity capital. Another strand of research provides evidence regarding the beneficial impact of superior legal institutions and regulations on the cost of capital. Our study jointly examines the effects of country-level financial development and firm-level governance attributes on the cost of equity capital. We provide evidence that firm-level governance attributes affect the cost of equity capital only in Common Law countries with high levels of financial development. As such, our study highlights the complementary effects of legal origin, financial development and firm-level governance attributes in influencing cost of equity capital.

Our study, based on developed markets, suggests that there is complementarity between firm-level corporate governance and country-level financial development in terms of their impact on a firm's cost of equity capital. This result is at variance with the prior work of Chen et al. (2009) who studied emerging markets. In spite of our best efforts, due to data availability and other issues, we could not replicate their results with recent emerging markets data. We leave this for future research. Further, we have tried several alternative ways to re-estimate our results to mitigate potential concerns of endogeneity. However, we acknowledge that in spite of our best efforts, there may be unresolved concerns of endogeneity. We recognise these as limitations of the current study.

After notable recent corporate governance failures, there has been an increasing tendency to mandate improvements in firm-level corporate governance. A cross-country empirical study on the economic impact of such improvements is useful, not only to policy makers and managers, but also to potential investors. Our study, focusing on cost of equity capital estimates, shows that improving firm-level corporate governance alone will not be sufficient. An essential prerequisite is the existence of a high level of financial development in the country in which the firm operates.

Appendix A
CGQ Rating Variables Summary

Acceptable Governance Standards
Board
1. All directors attended 75% of board meetings or had a valid excuse 2. CEO serves on the boards of two or fewer public companies 3. Board is controlled by more than 50% independent outside directors 4. Board size is greater than 5 but less than 16 5. CEO is not listed as having a related-party transaction 6. No former CEO on the board 7. Compensation committee composed solely of independent outsiders 8. Chairman and CEO are separated or there is a lead director 9. Nominating committee composed solely of independent outsiders 10. Governance committee exists and met in the past year 11. Shareholders vote on directors selected to fill vacancies 12. Governance guidelines are publicly disclosed 13. Annually elected board (no staggered board) 14. Policy exists on outside directorships (four or fewer boards is the limit) 15. Shareholders have cumulative voting rights 16. Shareholder approval is required to increase/decrease board size 17. Majority vote requirement to amend charter/bylaws (not supermajority) 18. Board has the express authority to hire its own advisors 19. Performance of the board is reviewed regularly 20. Board-approved succession plan in place for the CEO 21. Outside directors meet without CEO and disclose number of times met 22. Directors are required to submit resignation upon a change in job 23. Board cannot amend bylaws without shareholder approval or can do so only under limited circumstances 24. Does not ignore shareholder proposal. 25. Company has policy on mandatory retirement age or term limits for directors 26. All board members participate in accredited director education programs.
Audit
1. Consulting fees paid to auditors are less than audit fees paid to auditors 2. Audit committee composed solely of independent outsiders 3. Auditors ratified at most recent annual meeting 4. Company has policy on rotation of auditors and discloses it
Anti-takeover
1. Single class, common 2. Majority vote requirement to approve mergers (not supermajority) 3. Shareholders may call special meetings 4. Shareholder may act by written consent 5. Company either has no poison pill or a pill that was shareholder approved 6. Company is not authorized to issue blank check preferred
Compensation and Ownership
1. Directors are subject to stock ownership requirements 2. Executives are subject to stock ownership guidelines 3. No interlocks among compensation committee members 4. Directors receive all or a portion of their fees in stock 5. All stock-incentive plans adopted with shareholder approval 6. Options grants align with company performance and reasonable burn rate 7. Company expenses stock options 8. All directors with more than one year of service own stock 9. Officers' and directors' stock ownership is at least 1% but not over 30% of total shares outstanding 10. Repricing is prohibited 11. An option pricing model is used to measure the cost of all stock-based incentive plans. 12. Non-employee directors should not participate in pension plans 13. Corporate loans should not be given to participants of stock option plans.
Combination Variables
1. Board is controlled by independent outside directors and ownership by officers and directors is significant. 2. Board is controlled by independent outside directors and the board committees are composed solely of independent outside directors. 3. No unequal voting rights, no classified board, no ability on the ability to call special meetings, and

Appendix B

We employ four commonly used methods to estimate the implied cost of equity. The models of Gebhardt, Lee, and Swaminathan (2001) and Claus and Thomas are based on Edward-Bell-Ohlson residual income valuation model while the models of Easton (2004) and Ohlson and Juettner-Nauroth (2005) are based on abnormal earnings growth[15]. These are described in detail below.

We use the following abbreviations to describe each model:

P_t = Market price of a firm's stock at time *t*

BV_t = Most recent available book value per share of a firm

BV_{t+1} = Expected book value per share of a firm assuming "clean surplus" relationship holds

$FEPS_{t+i}$ = I/B/E/S analyst median forecasted EPS of a firm for the year *i* at time *t*

DPOUT = Forecasted dividends payout ratio calculated from firm-specific historical three-year median dividends payout ratio. A country-specific three-year historical median dividend payout ratio is used as a substitute whenever firm-specific dividend payout ratio is missing.

g_{lt} = Expected (perpetual or long-term) earnings growth rate. g_{lt} is calculated by annualizing country-specific one-year ahead realized monthly inflation rates.

Gebhardt, Lee and Swaminathan (2001):

$$P_t = BV_t + \sum_{i=1}^{12} \frac{FEPS_{t+i} - (R_{GLS} * BV_{t+i-1})}{(1+R_{GLS})^i} + \frac{FEPS_{t+12} - (R_{GLS} * BV_{t+11})}{R_{GLS}(1+R_{GLS})^{12}}$$

This model uses a two-stage approach to estimate the intrinsic value of the firm. Specifically, the first stage considers I/B/E/S analyst forecasts of EPS for the first three years ahead. The second stage runs from 4th year to 12th year and assumes that EPS will grow linearly to the industry-specific median ROE. Industry-specific median ROE is calculated as historical five-year industry-specific median returns where industry is classified either as industrial, financial or services. This adjustment suggests that a firm's characteristic is more representative of other firms operating in the same industry in long run. The terminal value beyond 12th year assumes zero incremental economic profits, i.e. residual income do not change. This model assumes "clean surplus" relation, e.g., $BV_{t+1} = BV_t + FEPS_{t+1} - DIV_{t+1}$. The forecasted dividend per share DIV_{t+1} is calculated as $FEPS_{t+1}$*DPOUT, where DPOUT is forecasted dividend payout ratio. Firms with negative ROE are excluded from calculation. R_{GLS} backed out from the pricing equation gives the estimate of implied cost of capital.

Claus and Thomas (2001):

$$P_t = BV_t + \sum_{i=1}^{5} \frac{FEPS_{t+i} - (R_{CT} * BV_{t+i-1})}{(1+R_{CT})^i} + \frac{FEPS_{t+5} - (R_{CT} * BV_{t+4}) * (1+g_{lt})}{(R_{CT} - g_{lt})(1+R_{CT})^5}$$

[15] The interested reader is advised to refer to informative appendices of Guedhami and Mishra (2009) and Chen, Chen, and Wei (2009) for further details on these models.

This model uses abnormal earnings, a special case of residual income approach to circumvent various problems noted in the dividend growth model. The abnormal earnings are calculated from I/B/E/S analyst earnings forecasts up to 5 years ahead. More specifically, the model uses analyst forecasts for the first 3 years ahead. The forecasts for the 4th and 5th year are calculated from the forecasted 3rd year EPS and long-term earnings growth rate. In absence of long-term earnings growth rate, it is substituted by the earnings growth derived from $FEPS_{t+2}$ and $FEPS_{t+3}$. After 5th year, it is assumed that the abnormal earnings will grow at a constant rate g_{lt}. Country-specific inflation rate is used as a proxy for long-term earnings growth rate. This model also assumes "clean surplus" relation. R_{CT} backed out from the pricing equation gives the estimate of implied cost of capital.

Ohlson and Juettner-Nauroth (2005):

$$P_t = \frac{FEPS_{t+1}}{R_{OJ}} + \frac{FEPS_{t+2} - FEPS_{t+1} - (R_{OJ} * FEPS_{t+1} * (1 - DPOUT))}{R_{OJ}(R_{OJ} - g_{lt})}$$

which can be further written as

$$R_{OJ} = A + \sqrt{A^2 + \frac{FEPS_{t+1}}{P_t}\left(\frac{FEPS_{t+2} - FEPS_{t+1}}{FEPS_{t+1}} - g_{lt}\right)}$$

where

$$A = \frac{1}{2}\left(g_{lt} + \frac{DPOUT * FEPS_{t+1}}{P_t}\right)$$

This model follows procedure outlined in Gode and Mohanram (2003). It uses short-term growth computed from one-year ahead analyst earnings forecasts which gradually declines to long-term growth rate g_{lt}. The short-term growth rate is calculated as the average between the forecasted percentage change in earnings from year *t+1* to *t+2*, while the long-term growth rate can be obtained from I/B/E/S. The model requires positive earnings for the period *t+1* and *t+2* for numerical approximation to converge. The long-term growth rate equals country-specific inflation rate.

Easton (2004):

$$P_t = \frac{FEPS_{t+2} - FEPS_{t+1} + (R_{Easton} * FEPS_{t+1} * DPOUT)}{R_{Easton}^2}$$

This model is a special case of the OJ model where the abnormal returns are assumed to exist in perpetuity after the initial period. It uses one-year and two-year ahead I/B/E/S earnings forecasts combined with dividend payout to estimate abnormal earnings. This model requires positive changes in forecasted earnings for numerical approximation to coverge.

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Table 1: Institutional Development in Common Law versus Civil Law Countries

	Common Law Mean (Median)	Civil Law Mean (Median)	*t*-test differences *t*-stat (prob)
Investor protection	0.634 (0.612)	0.374 (0.363)	4.67 (0.00)
Public enforcement	0.623 (0.675)	0.459 (0.500)	2.72 (0.01)
Private enforcement	0.678 (0.684)	0.448 (0.443)	4.19 (0.00)
Newspaper circulation	2.620 (2.200)	2.210 (1.630)	0.64 (0.52)

This Table reports mean and median score of investor protection variables sorted on the basis of Common and Civil Law. Legal origin is from La Porta et al. (1997). Investor protection is from La Porta et al. (2006). Private and Public enforcement are from La Porta el al. (2006). Newspaper circulation is from Dyck and Zingales (2004).

Table 2: Sample Across Countries and Year

Country	2003	2004	2005	2006	2007	FININT	STKMKT	Legal Origin
Australia	63	62	92	88	87	0.61	0.42	Common
Austria	17	14	16	15	17	1.26	-0.74	Civil
Belgium	21	16	22	22	23	0.62	1.03	Civil
Canada	125	126	82	117	118	0.59	0.5	Common
Denmark	18	17	18	17	17	1.02	-0.05	Civil
Finland	21	21	23	25	24	0.27	1.63	Civil
France	68	62	68	70	69	0.85	0.61	Civil
Germany	63	66	68	71	69	1.52	0.69	Civil
Greece	36	35	36	31	31	n/a	n/a	Civil
Hong Kong	41	48	93	96	91	n/a	n/a	Common
Ireland	12	13	13	14	14	n/a	n/a	Common
Italy	42	31	55	51	50	0.75	0.38	Civil
Japan	404	410	471	479	477	2.71	0.17	Civil
Netherlands	36	35	38	36	27	2.14	1.45	Civil
New Zealand	10	12	17	16	16	1.07	-0.39	Common
Norway	13	13	13	12	13	0.43	-0.1	Civil
Portugal	10	8	10	11	12	2.13	-0.28	Civil
Singapore	37	37	45	48	46	1.25	0.61	Common
Spain	39	30	42	42	41	1.36	2.25	Civil
Sweden	23	24	23	27	25	-0.05	1.87	Civil
Switzerland	40	43	46	46	45	2.14	3.31	Civil
United Kingdom	114	124	328	312	303	2.02	2.27	Common
Total	1,253	1,247	1,619	1,646	1,615			

This Table reports year-wise distribution of firms across twenty-two countries. Firms covered by Riskmetrics database are first matched with Datastream and next missing observations or firms with inadequate data required to calculate various inputs are excluded from the sample. FININT is financial intermediary development and STKMKT is stock market development score from Khurana et al. (2006). Legal origin is from La Porta et al. (1997).

Table 3: Corporate Governance Scores Across Countries, Years and Industry Groups

			Distribution				
Variable	**Mean**	**St. Dev.**	**1st**	**25th**	**50th**	**75th**	**99th**
Panel A: Summary Statistics of Corporate Governance by Country							
All countries	0.438	0.102	0.266	0.362	0.410	0.513	0.713
Australia	0.498	0.071	0.370	0.443	0.495	0.548	0.676
Austria	0.434	0.069	0.311	0.378	0.429	0.477	0.614
Belgium	0.361	0.074	0.225	0.304	0.347	0.404	0.541
Canada	0.610	0.090	0.394	0.547	0.613	0.680	0.808
Denmark	0.420	0.089	0.253	0.344	0.411	0.502	0.581
Finland	0.483	0.104	0.326	0.388	0.481	0.560	0.719
France	0.452	0.077	0.255	0.403	0.459	0.507	0.604
Germany	0.464	0.085	0.308	0.385	0.477	0.533	0.635
Greece	0.335	0.063	0.199	0.285	0.330	0.366	0.548
Hong Kong	0.406	0.056	0.284	0.366	0.410	0.447	0.530
Ireland	0.450	0.094	0.255	0.391	0.460	0.524	0.626
Italy	0.409	0.076	0.243	0.344	0.425	0.471	0.543
Japan	0.363	0.030	0.299	0.340	0.365	0.388	0.428
Netherlands	0.464	0.110	0.259	0.374	0.466	0.545	0.691
New Zealand	0.445	0.061	0.333	0.394	0.447	0.495	0.588
Norway	0.412	0.091	0.285	0.333	0.399	0.480	0.635
Portugal	0.328	0.066	0.229	0.277	0.322	0.367	0.477
Singapore	0.421	0.063	0.287	0.377	0.422	0.463	0.553
Spain	0.399	0.108	0.199	0.314	0.403	0.471	0.636
Sweden	0.432	0.089	0.256	0.360	0.426	0.496	0.641
Switzerland	0.476	0.108	0.285	0.377	0.477	0.568	0.679
United Kingdom	0.507	0.072	0.328	0.461	0.517	0.558	0.647
Panel B: Summary Statistics of Corporate Governance by Legal Origin & Financial Development							
Common Law	0.501	0.096	0.306	0.433	0.501	0.562	0.739
Civil Law	0.397	0.081	0.255	0.344	0.376	0.429	0.638
High FININT	0.419	0.087	0.273	0.354	0.391	0.483	0.638
Low FININT	0.476	0.118	0.256	0.388	0.473	0.552	0.750
High SKTMKT	0.463	0.093	0.258	0.391	0.465	0.535	0.660
Low SKTMKT	0.417	0.102	0.269	0.350	0.384	0.465	0.727

This Table presents mean, median and distribution of key Corporate Governance score across countries, legal origin, and financial development.

Table 4: Summary Statistics of Key Variables

Variable	Mean	St. Dev.	Distribution 1st	25th	50th	75th	99th
Panel A: Cost of Equity Estimates Using Different Methods							
Cost of Equity- Average	9.74%	4.24%	2.62%	7.39%	9.06%	10.99%	26.79%
Cost of Equity- GLS	8.16%	4.59%	0.20%	6.41%	7.85%	9.24%	21.79%
Cost of Equity- CT	9.41%	7.61%	1.55%	5.81%	8.21%	10.69%	60.00%
Cost of Equity- OJ	10.88%	5.08%	1.30%	7.89%	10.44%	13.14%	27.35%
Cost of Equity- Easton	11.13%	6.17%	1.23%	4.25%	10.10%	12.74%	36.38%
Panel B: Average Cost of Equity Estimates by Country							
Australia	9.94%	3.38%	5.43%	8.20%	9.37%	10.72%	27.66%
Austria	10.88%	4.27%	2.77%	8.39%	9.89%	11.94%	32.92%
Belgium	10.48%	3.14%	6.14%	8.54%	9.96%	11.91%	23.43%
Canada	10.02%	4.26%	4.26%	7.90%	9.33%	10.90%	31.88%
Denmark	9.26%	3.88%	3.79%	6.95%	8.29%	10.74%	30.84%
Finland	10.67%	4.00%	5.26%	8.14%	9.73%	11.83%	26.42%
France	9.69%	2.65%	5.44%	7.76%	9.46%	10.96%	17.84%
Germany	10.36%	4.13%	4.72%	7.95%	9.58%	11.26%	24.97%
Greece	11.77%	5.61%	3.85%	8.26%	10.20%	12.76%	33.88%
Hong Kong	10.17%	4.85%	2.26%	7.58%	9.28%	11.86%	27.19%
Ireland	12.94%	6.96%	7.15%	9.13%	10.52%	12.72%	34.75%
Italy	10.42%	4.90%	4.59%	7.62%	9.45%	11.53%	34.00%
Japan	8.48%	3.39%	3.77%	6.32%	7.87%	9.70%	20.25%
Netherlands	9.39%	2.29%	5.63%	7.92%	9.11%	10.68%	16.31%
New Zealand	11.53%	5.46%	3.68%	8.03%	9.71%	13.23%	29.94%
Norway	11.00%	5.17%	2.98%	7.83%	10.09%	11.83%	26.46%
Portugal	10.08%	4.63%	4.57%	7.82%	8.93%	11.17%	29.89%
Singapore	12.24%	7.18%	4.71%	7.87%	10.24%	12.69%	40.39%
Spain	9.66%	2.87%	4.86%	8.21%	9.24%	10.74%	19.21%
Sweden	9.64%	3.10%	2.69%	7.66%	9.01%	11.34%	18.11%
Switzerland	9.22%	3.52%	5.08%	7.11%	8.52%	10.22%	20.40%
United Kingdom	10.34%	4.71%	1.85%	8.28%	9.96%	12.11%	26.59%
Panel C: Descriptive Statistics of Control Variables							
Beta	0.974	0.660	0.000	0.507	0.853	1.313	3.143
Log(MV)	8.001	1.424	4.863	7.038	7.918	8.930	11.428
Log(B/M)	-0.722	0.671	-2.792	-1.072	-0.647	-0.270	0.511
Inflation	1.92%	1.49%	-0.30%	0.40%	1.95%	3.03%	4.56%
Momentum	9.62%	25.85%	-44.74%	-5.77%	7.87%	22.43%	90.77%
Forecast Error	-0.43%	12.94%	-18.20%	-0.35%	0.06%	0.51%	7.33%
Liquidity	89.30%	7.47%	60.00%	87.69%	90.77%	93.85%	98.46%
Freefloat	71.88%	23.02%	17.00%	53.00%	77.00%	92.00%	100.00%

This Table summarizes key statistics of cost of equity for the whole sample, across countries and control variables used in this paper. Cost of equity- GLS is calculated from Gebhardt et al. (2001), Cost of equity- CT is from Claus and Thomas (2001), Cost of equity- OJ is from Ohlson and Juettner-Nauroth (2005), and Cost of equity- Easton is from Easton (2004). Cost of Equity- Average is simple average of four models. Beta is calculated by regression each firm's last 60 months or at least 24 months return on the current and lagged MSCI world market index returns. Market Value (MV) is the dollar denominated outstanding shares in issue. Book to Market (B/M) is the ratio of book value per share to share price. Inflation is calculated by annualizing country-specific one-year ahead realized monthly inflation rates. Momentum returns for each firm is calculated by compounding last six months return. Forecast Error is the analyst forecast error computed as actual minus expected scaled by the current price for the next year. Liquidity is from Lesmond et al. (2005) and calculated as the ratio of non-zero trading days divided by total trading days over the last quarter. Freefloat is the percentage of total shares in issue available for ordinary shareholders.

Table 5: Corporate Governance, cost of equity and investor protection

	Investor protection		Private Enforcement		Public Enforcement		Newspaper circulation	
	Low	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
CG	-0.021	-0.031	-0.009	-0.036	-0.023	-0.031	-0.003	-0.058
	(0.106)	(0.004)	(0.524)	(0.000)	(0.044)	(0.005)	(0.753)	(0.000)
Beta	0.003	0.008	0.004	0.007	0.003	0.007	0.004	0.006
	(0.022)	(0.000)	(0.009)	(0.000)	(0.020)	(0.000)	(0.002)	(0.000)
Log (MV)	-0.003	-0.004	-0.005	-0.003	-0.002	-0.005	-0.003	-0.004
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Log (B/M)	0.007	0.009	0.014	0.006	0.007	0.009	0.013	0.006
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inflation	0.565	0.421	0.548	0.358	0.46	0.43	0.246	0.494
	(0.016)	(0.001)	(0.041)	(0.007)	(0.032)	(0.001)	(0.249)	(0.001)
Momentum	-0.01	-0.023	-0.015	-0.018	-0.01	-0.022	-0.018	-0.016
	(0.016)	(0.000)	(0.042)	(0.000)	(0.017)	(0.000)	(0.000)	(0.000)
Forecast Error	-0.028	-0.04	-0.012	-0.042	-0.027	-0.04	-0.011	-0.042
	(0.165)	(0.001)	(0.681)	(0.000)	(0.136)	(0.001)	(0.731)	(0.000)
Liquidity	-0.038	0.003	-0.014	-0.008	-0.024	0	0.002	-0.017
	(0.057)	(0.742)	(0.570)	(0.377)	(0.205)	(0.994)	(0.862)	(0.137)
Freefloat	0.009	0.009	0.009	0.009	0.01	0.008	0.012	0.008
	(0.006)	(0.009)	(0.040)	(0.001)	(0.002)	(0.014)	(0.000)	(0.021)
N	3723	3657	1849	5531	3680	3700	2517	4524
Adj-R^2	13.50%	15.70%	15.60%	15.50%	13.50%	15.80%	11.30%	17.50%
Year F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This Table shows regression estimates of firm-level Corporate Governance and Cost of Equity under two states of investor protection. The dependent variable in this Table is Cost of Equity. Beta is calculated by regression each firm's last 60 months or at least 24 months return on the current and lagged MSCI world market index returns. Market Value (MV) is the dollar denominated outstanding shares in issue. Book to Market (B/M) is the ratio of book value per share to share price. Inflation is calculated by annualizing country-specific one-year ahead realized monthly inflation rates. Momentum returns for each firm is calculated by compounding last six months return. Forecast Error is the analyst forecast error computed as actual minus expected scaled by the current price for the next year. Liquidity is from Lesmond et al. (2005) and calculated as the ratio of non-zero trading days divided by total trading days over the last quarter. Freefloat is the percentage of total shares in issue available for ordinary shareholders. Investor protection is from La Porta et al. (2006). Private and Public enforcement are from La Porta el al. (2006). Newspaper circulation is from Dyck and Zingales (2004). The model includes year, industry and country fixed effects. *p*-values are in parentheses and are based on robust standard errors.

Table 6: Corporate Governance & Cost of Equity Regression results

		Legal Origin		Financial Development			
	Unconditional	**Common Law**	**Civil Law**	**FININT-High**	**FININT-Low**	**STKMKT-High**	**STKMKT-Low**
CG	-0.029	-0.049	-0.006	-0.046	-0.015	-0.046	-0.007
	(0.000)	(0.000)	(0.492)	(0.000)	(0.217)	(0.000)	(0.542)
Beta	0.006	0.009	0.003	0.007	0.003	0.007	0.004
	(0.000)	(0.000)	(0.002)	(0.000)	(0.018)	(0.000)	(0.002)
Log(MV)	-0.004	-0.005	-0.003	-0.004	-0.002	-0.005	-0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.010)	(0.000)	(0.005)
Log(B/M)	0.008	0.007	0.009	0.005	0.015	0.008	0.008
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inflation	0.428	0.394	0.503	0.485	0.372	0.491	0.308
	(0.000)	(0.007)	(0.002)	(0.001)	(0.037)	(0.001)	(0.186)
Momentum	-0.016	-0.024	-0.010	-0.017	-0.015	-0.023	-0.011
	(0.000)	(0.000)	(0.005)	(0.000)	(0.001)	(0.000)	(0.001)
Forecast Error	-0.038	-0.040	-0.029	-0.037	-0.046	-0.034	-0.046
	(0.000)	(0.001)	(0.142)	(0.002)	(0.499)	(0.014)	(0.064)
Liquidity	-0.012	0.005	-0.026	-0.018	0.012	-0.007	-0.007
	(0.156)	(0.610)	(0.126)	(0.099)	(0.376)	(0.557)	(0.572)
Freefloat	0.009	0.009	0.009	0.012	0.006	0.007	0.011
	(0.000)	(0.039)	(0.001)	(0.000)	(0.106)	(0.043)	(0.000)
N	7380	2860	4520	5123	2257	3092	4288
Adj-R^2	15.73%	15.40%	14.17%	17.17%	12.02%	17.68%	12.52%
Year F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This Table shows regression estimates of firm-level Corporate Governance and Cost of Equity. The dependent variable in this Table is Cost of Equity. Regressions are ran separately on the sample split on based of legal origin and financial development as reported under Legal origin and Financial development respectively. Financial development scores for Hong Kong, Ireland and Greece are not available in Khurana et al. (2006). It is assumed that Hong Kong and Ireland fall under FININT & STKMKT High and Greece under FININT & STKMKT Low. The results are qualitatively similar when we exclude these three countries from the sample or change their ordering. Beta is calculated by regression each firm's last 60 months or at least 24 months return on the current and lagged MSCI world market index returns. Market Value (MV) is the dollar denominated outstanding shares in issue. Book to Market (B/M) is the ratio of book value per share to share price. Inflation is calculated by annualizing country-specific one-year ahead realized monthly inflation rates. Momentum returns for each firm is calculated by compounding last six months return. Forecast Error is the analyst forecast error computed as actual minus expected scaled by the current price for the next year. Liquidity is from Lesmond et al. (2005) and calculated as the ratio of non-zero trading days divided by total trading days over the last quarter. Freefloat is the percentage of total shares in issue available for ordinary shareholders. The model includes year, industry and country fixed effects. *p*-values are in parentheses and are based on robust standard errors.

Table 7: Legal Origin and Financial Development Regression Results

	Common Law				Civil Law			
	FININT-High	**FININT-Low**	**STKMKT-High**	**STKMKT-Low**	**FININT-High**	**FININT-Low**	**STKMKT-High**	**STKMKT-Low**
CG	-0.096	-0.026	-0.096	-0.026	-0.011	-0.005	-0.003	0.013
	(0.000)	(0.113)	(0.000)	(0.113)	(0.320)	(0.762)	(0.794)	(0.398)
Beta	0.011	0.006	0.011	0.006	0.003	0.002	0.003	0.003
	(0.000)	(0.052)	(0.000)	(0.052)	(0.013)	(0.147)	(0.020)	(0.037)
Log(MV)	-0.006	0.000	-0.006	0.000	-0.003	-0.003	-0.004	-0.002
	(0.000)	(0.860)	(0.000)	(0.860)	(0.000)	(0.001)	(0.000)	(0.002)
Log(B/M)	0.006	0.012	0.006	0.012	0.005	0.017	0.012	0.007
	(0.001)	(0.000)	(0.001)	(0.000)	(0.025)	(0.000)	(0.000)	(0.001)
Inflation	0.509	-0.107	0.509	-0.107	0.490	0.458	0.437	0.802
	(0.007)	(0.734)	(0.007)	(0.734)	(0.053)	(0.040)	(0.024)	(0.023)
Momentum	-0.026	-0.015	-0.026	-0.015	-0.010	-0.017	-0.018	-0.009
	(0.000)	(0.001)	(0.000)	(0.001)	(0.023)	(0.018)	(0.005)	(0.037)
Forecast Error	-0.039	-0.093	-0.039	-0.093	-0.027	-0.036	0.006	-0.045
	(0.002)	(0.306)	(0.002)	(0.306)	(0.145)	(0.643)	(0.709)	(0.079)
Liquidity	0.008	0.010	0.008	0.010	-0.030	0.004	-0.009	-0.021
	(0.522)	(0.569)	(0.522)	(0.569)	(0.187)	(0.868)	(0.799)	(0.236)
Freefloat	0.009	0.014	0.009	0.014	0.014	0.004	0.006	0.011
	(0.130)	(0.016)	(0.130)	(0.016)	(0.000)	(0.455)	(0.159)	(0.002)
N	1829	1031	1829	1031	3294	1226	1263	3257
Adj-R^2	18.97%	7.87%	18.97%	7.87%	10.66%	16.67%	17.71%	12.97%
Year F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This Table reports regression estimates of firm-level Corporate Governance and Cost of Equity using two-stage split. The dependent variable in this Table is Cost of Equity. Regressions are ran separately on the sample first split based on legal origin and then on financial development scores. Financial development scores for Hong Kong, Ireland and Greece are not available in Khurana et al. (2006). It is assumed that Hong Kong and Ireland fall under FININT & STKMKT High and Greece under FININT & STKMKT Low. The results are qualitatively similar when we exclude these three countries from the sample or change their ordering. Beta is calculated by regression each firm's last 60 months or at least 24 months return on the current and lagged MSCI world market index returns. Market Value (MV) is the dollar denominated outstanding shares in issue. Book to Market (B/M) is the ratio of book value per share to share price. Inflation is calculated by annualizing country-specific one-year ahead realized monthly inflation rates. Momentum returns for each firm is calculated by compounding last six months return. Forecast Error is the analyst forecast error computed as actual minus expected scaled by the current price for the next year. Liquidity is from Lesmond et al. (2005) and calculated as the ratio of non-zero trading days divided by total trading days over the last quarter. Freefloat is the percentage of total shares in issue available for ordinary shareholders. The model includes year, industry and country fixed effects. *p*-values are in parentheses and are based on robust standard errors.

Table 8: Legal Origin and Financial Development Regression Results using GOV44 index

	Common Law				Civil Law			
	FININT-High	**FININT-Low**	**STKMKT-High**	**STKMKT-Low**	**FININT-High**	**FININT-Low**	**STKMKT-High**	**STKMKT-Low**
GOV44	-0.082	-0.028	-0.082	-0.028	0.019	0.008	-0.004	0.043
	(0.000)	(0.218)	(0.000)	(0.218)	(0.143)	(0.586)	(0.719)	(0.004)
Beta	0.011	0.006	0.011	0.006	0.003	0.002	0.003	0.003
	(0.000)	(0.050)	(0.000)	(0.050)	(0.027)	(0.154)	(0.020)	(0.037)
Log(MV)	-0.006	0.000	-0.006	0.000	-0.003	-0.004	-0.004	-0.003
	(0.000)	(0.825)	(0.000)	(0.825)	(0.000)	(0.001)	(0.000)	(0.001)
Log(B/M)	0.006	0.012	0.006	0.012	0.005	0.017	0.012	0.007
	(0.000)	(0.000)	(0.000)	(0.000)	(0.029)	(0.000)	(0.000)	(0.001)
Inflation	0.555	-0.118	0.555	-0.118	0.554	0.418	0.441	0.776
	(0.003)	(0.714)	(0.003)	(0.714)	(0.028)	(0.064)	(0.022)	(0.028)
Momentum	-0.027	-0.015	-0.027	-0.015	-0.009	-0.016	-0.018	-0.009
	(0.000)	(0.009)	(0.000)	(0.009)	(0.028)	(0.021)	(0.005)	(0.042)
Forecast Error	-0.039	-0.091	-0.039	-0.091	-0.027	-0.036	0.006	-0.045
	(0.002)	(0.314)	(0.002)	(0.314)	(0.148)	(0.642)	(0.710)	(0.079)
Liquidity	0.006	0.010	0.006	0.010	-0.031	0.003	-0.009	-0.024
	(0.639)	(0.580)	(0.639)	(0.580)	(0.166)	(0.901)	(0.799)	(0.184)
Freefloat	0.007	0.014	0.007	0.014	0.014	0.003	0.006	0.01
	(0.235)	(0.020)	(0.235)	(0.020)	(0.000)	(0.522)	(0.157)	(0.004)
N	1829	1031	1829	1031	3294	1226	1263	3257
Adj-R^2	18.70%	7.80%	18.70%	7.80%	10.70%	16.70%	17.70%	13.20%
Year F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country F.E.?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This Table reports regression estimates of firm-level Corporate Governance (Gov 44 index) and Cost of Equity using two-stage split. The dependent variable in this Table is Cost of Equity. Regressions are ran separately on the sample first split based on legal origin and then on financial development scores. Financial development scores for Hong Kong, Ireland and Greece are not available in Khurana et al. (2006). It is assumed that Hong Kong and Ireland fall under FININT & STKMKT High and Greece under FININT & STKMKT Low. The results are qualitatively similar when we exclude these three countries from the sample or change their ordering. Beta is calculated by regression each firm's last 60 months or at least 24 months return on the current and lagged MSCI world market index returns. Market Value (MV) is the dollar denominated outstanding shares in issue. Book to Market (B/M) is the ratio of book value per share to share price. Inflation is calculated by annualizing country-specific one-year ahead realized monthly inflation rates. Momentum returns for each firm is calculated by compounding last six months return. Forecast Error is the analyst forecast error computed as actual minus expected scaled by the current price for the next year. Liquidity is from Lesmond et al. (2005) and calculated as the ratio of non-zero trading days divided by total trading days over the last quarter. Freefloat is the percentage of total shares in issue available for ordinary shareholders. The model includes year, industry and country fixed effects. *p*-values are in parentheses and are based on robust standard errors.

Table 9: Endogeneity Checks

	Panel A					Panel B	
	(1) 2SLS	**(2) 2SLS**	**(3) 2SLS**	**(4) 2SLS**	**(5) GMM**		**(6)Difference**
Fitted CG	-0.0915***				-0.0704***	ΔCG	-0.0187**
	(-2.86)				(-3.02)		
Fitted CG X FININT		-0.0521***					
		(-2.93)					
Fitted CG X SKTMKT			-0.0528***				
			(-4.62)				
Fitted CG X SKTMKT X Common Law				-0.0682***			
				(-3.59)			
Beta	0.00513***	0.00487***	0.00456***	0.00451***	-0.00235	ΔBeta	0.00249
	(4.41)	(3.36)	(3.16)	(3.13)	(-0.91)		(1.16)
Log (MV)	-0.00255***	-0.00257***	-0.00294***	-0.00304***	-0.00742***	ΔLog (MV)	-0.0157***
	(-4.56)	(-3.71)	(-4.54)	(-4.71)	(-3.97)		(-4.20)
Log (B/M)	0.00390***	0.00359**	0.00372**	0.00384**	0.000813	ΔLog (B/M)	0.00188
	(3.61)	(2.11)	(2.18)	(2.25)	(0.39)		(0.53)
Inflation	0.310**	0.387	0.398*	0.456*	0.234**	ΔInflation	0.345***
	(2.16)	(1.61)	(1.67)	(1.88)	(2.24)		(4.51)
Momentum	-0.0207***	-0.0199***	-0.0193***	-0.0190***	-0.0176***	ΔMomentum	-0.0207***
	(-7.41)	(-4.60)	(-4.51)	(-4.47)	(-9.64)		(-7.54)
Forecast Error	-0.0354***	-0.0453***	-0.0453***	-0.0453***	-0.0114	ΔForecast Error	0.0254**
	(-9.82)	(-6.60)	(-6.62)	(-6.63)	(-1.55)		(2.21)
Liquidity	-0.0143	-0.00726	-0.00713	-0.00701	-0.0168	ΔLiquidity	0.0101
	(-1.17)	(-0.48)	(-0.47)	(-0.46)	(-0.99)		(1.05)
Freefloat	0.00532	0.00744**	0.00705*	0.00755**	0.00519	ΔFreefloat	0.00500
	(1.57)	(2.03)	(1.95)	(2.06)	(0.67)		(1.06)
Year F.E.?	Yes	Yes	Yes	Yes	Yes	Year F.E.?	Yes
Industry F.E.?	Yes	Yes	Yes	Yes	Yes	Industry F.E.?	No
Country F.E.?	Yes	Yes	Yes	Yes	Yes	Country F.E.?	No
N	3,870	3,658	3,658	3,658	3,870	N	5,228
Adj.-R^2	14.6%	17.3%	17.5%	17.4%	NA	Adj.-R^2	11.0%

In this Table we undertake endogeneity checks. The dependent variable in this Table is Cost of Equity. Beta is calculated by regression each firm's last 60 months or at least 24 months return on the current and lagged MSCI world market index returns. Market Value (MV) is the dollar denominated outstanding shares in issue. Book to Market (B/M) is the ratio of book value per share to share price. Inflation is calculated by annualizing country-specific one-year ahead realized monthly inflation rates. Momentum returns for each firm is calculated by compounding last six months return. Forecast Error is the analyst forecast error computed as actual minus expected scaled by the current price for the next year. Liquidity is from Lesmond et al. (2005) and calculated as the ratio of non-zero trading days divided by total trading days over the last quarter. Freefloat is the percentage of total shares in issue available for ordinary shareholders. statistically significant at the 10 percent, ** statistically significant at the 5 percent and *** statistically significant at the 1 percent level. *t*-stats are given in parenthesis and are based on robust standard errors.

Table 10: Robustness Checks

	(1) Fama and MacBeth	(2) Two-way Clustering	(3) Hierarchical	(4) Exogenous Shock	(5) Equity Premium
CG	-0.0263**	-0.0288***	-0.0190***	-0.0541**	-0.0300***
	(-4.19)	(-3.95)	(-2.99)	(-2.57)	(-3.64)
Beta	0.00523*	0.00583**	0.00412***	0.00332*	0.00608***
	(2.15)	(2.24)	(4.16)	(1.75)	(6.56)
Log (MV)	-0.00346***	-0.00362***	-0.00500***	-0.00316***	-0.00353***
	(-9.48)	(-6.06)	(-9.20)	(-2.85)	(-7.54)
Log (B/M)	0.00767***	0.00816***	0.00681***	0.00814***	0.00833***
	(8.03)	(5.67)	(7.32)	(3.44)	(7.65)
Inflation		0.424***	0.576***	0.660	
		(8.90)	(11.99)	(1.64)	
Momentum	-0.0142*	-0.0167**	-0.0223***	-0.00561	-0.0173***
	(-2.18)	(-2.48)	(-13.86)	(-0.90)	(-5.99)
Forecast Error	-0.0459*	-0.0379***	-0.0238***	-0.0402***	-0.0380***
	(-2.76)	(-8.27)	(-7.08)	(-3.16)	(-3.34)
Liquidity	-0.00689	-0.00901	0.000863	-0.0104	-0.0119
	(-0.75)	(-0.93)	(0.12)	(-0.64)	(-1.36)
Freefloat	0.00925**	0.00872***	0.00614**	0.00741	0.00790***
	(3.12)	(2.94)	(2.47)	(1.36)	(3.30)
Year F.E.?	No	Yes	Yes	Yes	Yes
Industry F.E.?	Yes	Yes	Yes	Yes	Yes
Country F.E.?	Yes	Yes	Yes	Yes	Yes
N	7085	7085	7085	1857	7085
Adj.-R^2	17.3%	16.1%	NA	14.5%	11.9%

In this Table we undertake additional robustness checks. The dependent variable in this Table is Cost of Equity. Beta is calculated by regression each firm's last 60 months or at least 24 months return on the current and lagged MSCI world market index returns. Market Value (MV) is the dollar denominated outstanding shares in issue. Book to Market (B/M) is the ratio of book value per share to share price. Inflation is calculated by annualizing country-specific one-year ahead realized monthly inflation rates. Momentum returns for each firm is calculated by compounding last six months return. Forecast Error is the analyst forecast error computed as actual minus expected scaled by the current price for the next year. Liquidity is from Lesmond et al. (2005) and calculated as the ratio of non-zero trading days divided by total trading days over the last quarter. Freefloat is the percentage of total shares in issue available for ordinary shareholders. The model includes year, industry and country fixed effects. * statistically significant at the 10 percent, ** statistically significant at the 5 percent and *** statistically significant at the 1 percent level. t-stats are given in parenthesis and are based on robust standard errors.