The impact of stringent insider trading laws and institutional quality on the cost of capital

Abstract

This paper examines the effects of interaction between stringent insider trading laws, institutional quality and equity portfolio allocation on the cost of capital. Using a dataset drawn from 44 countries over the period from 2001-2015, we find that stringent insider trading laws interact with institutional quality and foreign equity portfolio allocation to reduce the country-level cost of capital. Further analysis from a quasi-natural experiment based on the 2008-2009 global financial crisis suggests that the findings are robust to endogeneity. Our results imply that the enactment of stringent insider trading laws and their interplay with the quality of institutions are not only important to portfolio investment allocation decisions but reduce the country-level cost of capital.

JEL classification G11, G14, F3

Keywords: Insider trading laws; Cost of capital; Foreign equity allocation; Institutional quality.

1. Introduction

Cross-border investments have accelerated and become a global phenomenon over the past three decades. Scholars and multilateral institutions attribute the rising trends of cross-border investments to a number of factors, including the forces of globalisation and integration of financial markets, which have brought down barriers to foreign investment activities (Lau, Ng, and Zhang, 2010; UNCTAD, 2015). As a result, the cost of capital required to fund foreign investments has fallen (Kose, Eswar, Prasad, and Taylor, 2011). Commensurate with the rising trends of cross-border investments is the increasing amount of literature examining the determinants of cost of capital (see Bhattacharya and Daouk, 2002; Johnstone, 2015). However, studies that directly examine the combined effects of stringent insider trading laws (*SITL*), institutional quality (*INSTQ*) and foreign equity portfolio allocation (*Port_Alloc*) on the cost of capital remain relatively unexplored.

The paucity of studies on the effects of interaction between *INSTQ* and *SITL* appears surprising, given that several researchers have documented that institutions affect the cost of doing business and riskiness of the firm with implications for the cost at which capital funds are raised (see Hail and Leuz, 2006; Du, Boateng, and Newton, 2016). Similarly, *SITL* and the volume of portfolio investment allocation engender confidence in the market by improving stock price informativeness, reduce information asymmetry and monitoring costs, and enhance market efficiency (Fernandes and Ferreira, 2009). More importantly, cost of capital, which represents the required rate of return for investors, constitutes a crucial input for long-term investment decisions and drives investment allocation in foreign countries (Chen, Chen, and Wei, 2009). It may, therefore, be conjectured that stringent insider trading laws, quality of institutions and the volume of portfolio investment allocation may interact to lessen information asymmetry among investors, increase investors' willingness to trade and thereby lead to greater liquidity (Hail and Leuz, 2006; Chen et al., 2009), with implications for cost of

capital. Yet as far as we are aware, no systematic investigation to date has been conducted on the joint effect of institutional quality, international equity portfolio allocation and stringent insider trading laws on the cost of capital. We fill this gap by investigating whether *SITL* interacts with *INSTQ* and *Port_Alloc* to reduce country-level cost of capital.

The purpose of this paper is to examine the effects of interactions between stringent insider trading laws, institutional quality, portfolio allocation and the cost of capital. Our main hypothesis is that stringent insider trading laws, quality of institutions in the country and equity portfolio allocation, interact to reduce the cost of capital. We test this hypothesis in an international setting covering 44 countries. We further check the robustness of the hypothesized relationship by using the 2008-2009 global financial crisis to perform quasi-natural experiment by employing the differences-in-difference (DiD) model. Our results show that the relationship between the *SITL* and cost of capital is moderated by the quality of host country institutions. Regarding the relationship between the *Port_Alloc* and institutional quality, we document that the combined effect of *SITL* and *Port_Alloc* reduce the cost of capital. Further results from the quasi-natural experiment utilising the 2008-2009 financial crisis suggests that our findings are robust to endogeneity.

The remainder of this paper is structured as follows. Section 2 reviews the related literature and hypothesis development. Section 3 describes the data. Section 4 reports the empirical analysis and the results, and section 5 concludes the paper and offers policy implications.

2. Related literature review and hypothesis development

2.1. Effects of stringent insider trading laws on the cost of capital

Prior studies suggest that foreign investors are susceptible to expropriation when insider trading laws and institutions are weak (Fernandes and Ferreira, 2009). It is argued that such

weaknesses lead to an increase in agency cost and asymmetry information, and a reduction in investors' participation in the stock market with implications for the cost of capital. The above argument is broadly consistent with the earlier work of La Porta, López-de-Silanes, Shleifer, and Vishny (1997) and La Porta, Lopez-de-Silanes, and Shleifer (2006), which documented that institutions and regulation of securities are related to the equity market's development. It is argued that well-functioning legal systems protect outside investors and help reduce non-diversifiable risk, and consequently the cost of capital, through a number of mechanisms including reduction in information asymmetry and risk, greater willingness to trade and stock market liquidity (Chen et al., 2009; Hail and Leuz, 2006). This argument is also in line with the findings of Botosan (1997) and Beny (2008) who reported that insider trading laws and the quality of institutions within a country reduce information asymmetry, lower risk, engender confidence among investors and enhance stock market participation and liquidity. Similarly, Uche, Adegbite, and Jones (2016) found that insider trading laws lessen the agency conflict, increase investors' confidence in the market, and facilitate the institutional shareholders' monitoring of management rather than seeking to profit from insider trading. Overall, it is argued that countries that have stringent insider trading laws attract more foreign investors as the laws reduce controlling shareholders' incentives to divert corporate value through trading on price-sensitive, private information. La Porta López-de-Silanes, Shleifer, and Vishny (2002) and Hail and Leuz (2006) therefore found countries with stringent insider trading laws and extensive disclosure requirements enjoy higher firm value and lower cost of capital.

It is pertinent to point out that while prior studies have documented the effects of either institutions or insider trading laws on the cost of equity, it is less clear whether insider trading laws interact with institutions and portfolio investment allocation to reduce the cost of capital. In this study, we attempt to shed light on the combined effects of stringent insider trading laws, institutions' and equity portfolio investment allocation and cost of capital.

2.2. Hypotheses development

2.2.1. Impact of institutional quality on the cost of capital

Institutional quality can impact on the cost of capital through its influence on *SITL*. A country can have *SITL* on the books but the likelihood of enforcement will depend on the quality of the country's institutional environment (Adegbite, 2015). Strong regulatory and legal institutions help the enforcement of *SITL*. Previous empirical studies show that it affects the cost of capital. For instance, Hail and Leuz (2006) found that legal institutions explain cross-country variations in cost of capital. Levitt (1998) argues that strong institutions improve the quality of accounting standards and therefore reduce the cost of capital. Regulatory deterrent is a combined function of the substantive content of the law and the possibility that the law will be enforced (Zimring and Hawkins, 1973). Well-functioning institutions ensure that the rule of law prevails, increase transparency, and improve the efficiency and independence of judicial systems to enforce *SITL*. We therefore argue that *INSTQ* affects information risk through enforcement of *SITL*. This indicates that strong institutions are important to the liquidity of the stock market. While this claim is intuitively appealing, the theoretical work on the hypothesized relationship is surprisingly little. In particular, it is ambiguous as to what extent *INSTQ* is relevant to *SITL* in determining cost of capital.

Countries that have strong legal institutions will experience less information asymmetry. Equity investors will experience lower monitoring costs, which will lead to investors demanding a lower risk premium and therefore reduce firms' cost of capital. Eleswarapu and Venkataraman (2006) contend that the legal environment of a country affects information risk and stock market liquidity. Strong institutions that protect minority investors from expropriation by corporate insiders will reduce the cost of capital by means of increased risk sharing. The investor participation in the stock market will not only depend on the laws

banning insider trading but the joint effects on the confidence that there are strong institutions to enforce the laws (Eleswarapu and Venkataraman, 2006). For instance, the presence of an independent and efficient judicial system for public enforcement will reduce expropriation risk. Glaeser, Johnson, and Shleifer (2001) contend that the private right to enforce laws mainly depends on actions taken by the relevant regulatory authorities. When a country has strong institutions, the likelihood of enforcement will increase, with a positive effect on the information environment.

We argue that, information asymmetry is more severe in countries with poor *INSTQ*, resulting in increased investors monitoring costs. When informed investors trade on private information and uninformed investors do not have access to private information, equilibrium prices are influenced by informed investors' information demand. The rational expectations of equilibrium prices are derived from the equilibrium required return on equity, which is the cost of capital. *SITL* interacts with *INSTQ* to reduce the cost of capital through increased enforcement and stock prices becoming more informative. In the equilibrium, systematic risk will be lower as investors demand lower compensation for risk exposure. This is because investors will not be crowded out by corporate insiders and tend to engage in informed trading, which reduces risk premium. Strong institutions that enforce *SITL* will deter and reduce expropriation risk by insiders and this lowers the risk premium required by investors. Cost of capital should fall when countries enact *SITL* and complement them with strong institutions that can enforce the laws. Consequently, we set our first hypothesis as follows:

H_1: The interaction between stringent insider trading laws and institutional quality reduces cost of capital.

2.2.2. Impact of foreign equity portfolio allocation on the cost of capital

We provide the channel through which foreign equity portfolio allocation connects with *SITL* to reduce the cost of capital. First, when a country enacts insider trading laws, it tends to attract foreign equity investors due to the fact that corporate insiders are not able to trade on price sensitive non-public information. Previous empirical studies document that foreign investors from well-governed countries demand better minority right protection and put pressure on national governments to enforce insider trading laws (see Boubakri, Cosset, and Guedhami, 2005; Kho, Stulz, and Warnock, 2009; Kang and Kim, 2010; Huang and Zhu, 2015; and Kwabi, Thapa, Paudyal, and Adegbite, 2017). We therefore conjecture that foreign investors improve the degree of information flow and alter the relevant source of systematic risk for equity returns as stock prices become more informative. Further, Hail and Leuz (2006) find that countries that have enforcement mechanisms experience a lower cost of capital. This is because firms are able to raise external capital and take advantage of growth opportunities in a country that has a well-functioning legal system that protects minority investors.

Countries that attract foreign investors tend to have their stock markets integrated with the rest of the world. In an integrated stock market, the variance of the stock market is lower than a segmented stock market (Bekaert and Harvey, 2003). The interaction between *SITL* and *Port_Alloc* will increase risk sharing between domestic and foreign investors. Consequently, the country's expected return will be determined by the covariance of its return with global market portfolio return (Adler and Dumas, 1983). This concept is consistent with the regulatory quality hypothesis which suggests that countries that have better stock market rules and disclosures experience a lower cost of capital. This is because investors tend to demand lower expected returns as a result of increased transparency and lower information asymmetry. Easley and O'Hara (2004) developed a theoretical framework where a rational expectations equilibrium model between both private and public information affects asset values.

Motivated by existing theoretical approaches (see Lewis, 1999 and Lau et al. 2010), we assume that local investors include both domestic and foreign equity in their portfolio. However, insider trading impedes the inflow of foreign equity investment. Therefore, in the absence of *SITL*, the domestic stock market becomes segmented which adversely affects the cost of capital. To illustrate the above point, let there be *L* small countries, with country l having N^lequity assets and r_l as its dollar-denominated return index return for asset i. We contend that there exists a representative mean-variance domestic investor d in a country and that investor d holds a portfolio Y^d with a percentage W_i^d in asset i. Investor d maximizes the following utility function.

$$U = U(E(R), \Sigma), \tag{1}$$

With $E(R) = (E(r_1) \dots (R(r_N)\ and\ \Sigma = Var(R)$, we give the first-order condition as

$$E(R) = \gamma \Sigma W^d \tag{2}$$

where γ represents the comparative risk-aversion parameter and, for brevity, all investors are assumed to have the same amount of comparative risk aversion. W^d represents the vector of the proportions of asset holdings. The expected return of a domestic asset i in investor $d's$ country l is given by

$$E(r_i) = \gamma \sum_{j=1}^{N^l} W_j^d Cov(r_i, r_j) \tag{3}$$

where N^l represents the number of securities in country l. If prior to the enactment of *SITL*, only domestic investors hold asset i, by aggregating over all these investors and taking the wealth-weighted average, the equilibrium risk premium is given in Equation 4.

$$E(r_l) = \gamma \frac{w_l - w_l^*}{1 - w_l^*} (Var(r_l) - Cov(r_l, r_w)) + \gamma Cov(r_l, r_w) \tag{4}$$

By multiplying both sides of Equation (4) by the market capitalization weight of asset i held by all domestic investors and aggregating over all assets they hold in country l, we obtain country $l's$ risk premium.

$$E(r_l) = \gamma \frac{w_l - w_l^*}{1 - w_l^*}(Var(r_l) - Cov(r_l, r_w)) + \gamma Cov(r_l, r_w) \quad (5)$$

w_l^* is the country $l's$ market share in the world market portfolio, r_w is the world market index return, r_l denotes the return of country l, γ is the relative risk-aversion parameter.

The first term on the right-side of Equation (5) reflects the risk premium associated with the covariance of asset i with the domestic market return prior to a country enacting *SITL*. The second term is the risk element related to the covariance of asset i with the world market portfolio return when a country enacts *SITL*.

Equation (5) indicates the expected return of a country's equity index associated with increased risk sharing between domestic and foreign equity investors, and domestic investors diversifying internationally following enactment of *SITL*. This will make the domestic country's stock market integrated with the rest of the world. Therefore, the expected return of domestic equity will be proportional to the covariance of domestic equity return with the return on the world market portfolio, which is lower (see Bekaert and Harvey, 1995; de Jong and de Roon, 2005). This suggests that *SITL* influences the level of investment in the domestic stock market and expected return. Consequently, we therefore set our second hypothesis as follows.

H_2: Stringent insider trading laws interact with foreign equity portfolio allocation to reduce the cost of capital.

3. Data and methodology

This section describes the source of data and the three measures of cost of capital employed in our regression analysis, followed by *SITL, INSTQ* and *Port_Alloc* and the control variables that could have cross-sectional and temporal variations on the cost of capital.

3.1. *Cost of capital measures*

We employ three measures of cost capital that are commonly used in the finance literature (see Lau et al., 2010; and Damodaran, 2012). The measures are: (a) historical realized market risk premium (*HRRm*), (b) default spread-based country risk premium (*CERP*), and (c) dividend yield (*DY*). We use these three costs of capital measures to ensure that the *SITL, INSTQ* and *Port_Alloc* effects are not influenced by a particular cost of capital proxy.

3.1.1. Historical realized market risk premium

Following the empirical literature (see Lau et al., 2010), our study employs the historical realized return of the market (*HRRm*) which captures the historical average of excess country market return over government treasury bills. For each year, we employ the monthly US dollar country stock market indices sourced from Morgan Stanley Capital International (MSCI) to calculate the annual market return. We further employ the annual average of the monthly return on US treasury bills to proxy for risk-free rates for all countries in our sample to reflect the returns being dominated in US dollars.

The main advantage of using the historical realized market return to capture the expected risk premium is that the long-term average premium reverses to the mean. The *HRRm* measure is suitable as a cost of capital proxy in developed markets that have long historical data. However, it can be problematic in several emerging countries that have relatively shorter data on historical return and may produce on the average, a lower degree of standard errors. We address this concern by employing Damodaran's (2012) country equity risk premium

which captures sovereign default spread and adjusts for equity risk relative to bond markets' expected return.

3.1.2. Country equity risk premium

To substantiate the impact of *SITL*, *INSTQ*, and *Port_Alloc* on the historical realized market return, we also test their effects on the country equity risk premium (*CERP*) as an alternative cost of capital measure. The country risk premium measure is based on Damodaran (2012). This is from the view of demanding incremental country equity risk premiums for equity investment allocation in a particular market, compared to a developed stock market as a based country.

Damodaran (2012) constructed *CERP* by using the United States as a based mature country and S&P as the representative stock market. The incremental risk premium is constructed relative to the based country (United States), and reflects a further country risk premium. It is calculated by incorporating the default spread over the United States, using sovereign bonds ratings in local currency obtained from Moody. The resulting risk premium is subsequently divided by the ratio of the country's equity market volatility to the bonds' market volatility. For example, in calculating the equity risk premium for Mexico, Damodaran (2012) first calculates the default risk premium of 10-year government bonds denominated in pesos over the 10-year US treasury bills. The ensuing premium is then adjusted for further equity market risk divided by the ratio of the standard deviations of Mexico's equity to bond market. The returns on the 10-year Mexico treasury bills and those of the Mexico equity market are used to calculate the standard deviations of the bond market.

3.1.3. Dividend yield

Bekaert and Harvey (2005) argue that the historical realized returns have some limitations for emerging markets where returns are relatively more volatile than those of their developed market counterparts. Consistent with prior work in the finance literature, we use dividend yield (*DY*) as an additional measure for cost of capital (see Bekaert and Harvey, 2000; and Lau et al., 2010). We source *DY* data for all countries from Thompson Reuters and the World Federation of Exchanges.

3.2. Independent variables

In our analysis, our main independent variables of interest are *SITL, INSTQ* and *Port_Alloc.* We discuss them as follows.

3.2.1. Stringent insider trading laws

SITL captures the restrictiveness of a country's stock market regulations in deterring corporate insiders from trading on non-public price sensitive information. *SITL* measure is an aggregate of four elements: (1) Laws inhibiting corporate insiders from trading on price-sensitive non-public information, (2) the country's laws prohibiting tippees from trading with price-sensitive non-public information provided by corporate insiders, (3) the extent of financial penalty suffered as a result of breaking insider trading laws, and (4) whether insider trading is regarded as a criminal offence. Following Beny (2008), we calculate *SITL* as a total of four elements. First, *SITL* takes a value of one if a corporate insider is liable under the country's insider trading laws for providing price-sensitive non-public information to the tippee and otherwise zero. Second, we award a value equal to one if under the country's insider trading laws, the tippee is forbidden from trading on price-sensitive private information provided by the corporate insiders and otherwise zero. Third, *SITL* takes a value of one if the likely financial penalty for flouting insider trading laws is greater than the proceeds from the

illicit trading and otherwise zero. Finally, we allocate a value equal to one if trading on insider information is considered as a criminal activity under the country's insider trading laws and otherwise zero (see Beny, 2008 for the data source).

3.2.2. Institutional quality

Several countries tend to have *SITL* on the books but hardly enforce them to deter corporate insiders from trading on price-sensitive non-public information. Countries that have better institutional quality are more likely to enforce insider trading laws. Zimring and Hawkins (1973) contend that a regulatory deterrent is a combined function of the substantive content of the law and the possibility that the law will be enforced. We use data from World Governance Indicators (WGI) to construct the institutional quality (*INSTQ*) variable. The institutional quality measure is a composite index of judicial efficiency, regulatory quality, rule of law, and control of corruption. It is constructed on a scale of 0 (lower score) to 100 (higher score) reflecting the institutional quality environment of a country. In equation (3), we interact institutional quality with stringent insider trading laws.

3.2.3. Foreign equity portfolio allocation

We use the annual bilateral Coordinated Portfolio Investment Survey (CPIS) of the International Monetary Fund (IMF) dataset for the period from 2001-2015 to construct a foreign portfolio allocation for each country. The CPIS provide data on bilateral equity holdings for 76 stock markets. IMF requires all the participating countries to provide a breakdown of equity portfolio investment. We model foreign equity portfolio allocation as our independent variable following Cooper and Kaplanis (1986). The foreign equity portfolio allocation of country i into country j is defined as:

$$w_{ijt} = log\left(\frac{FPI_{ijt}}{\sum_{j=1}^{44} FPI_{ijt}}\right) \quad (6)$$

where w_{ijt} is the weight of foreign equity portfolio allocation from country i into country j for the year t, and FPI_{ijt} is foreign investors' actual portfolio allocation in USD millions.

3.3. Control variables

In order to isolate the effects of *SITL*, *INSTQ* and *Port_Alloc* on the cost of capital, we draw from existing literature regarding variables shown to have effects on the cost of capital. As in Lau et al. (2010), we control for the effects of market beta (*Mbeta*), market capitalization (*MCap*), and book-to-market (*BM*) on the cost of capital. Fama and French (1993) show that these variables explain cross-sectional variation in equity returns.

The capital asset pricing model shows a positive relationship between market beta and expected returns. We calculate *Mbeta* as the MSCI country index return over the MSCI All Country World index return using monthly data for the previous five years. Subsequently, we scale the subsequent covariance by the variance of the MSCI World index return.

Next, we employ the natural log of market capitalization (*MCap*) denominated in USD millions to capture the effects of size and information on the cost of capital. Existing literature shows that larger stock markets experience more transparency and better disclosure which reduces information asymmetry and cost of capital (see Hail and Leuz, 2006). We sourced market capitalization data from World Development Indicators (WDI).

Following Gebhardt, Lee, and Swaminathan (2001), we employ book-to-market ratio (BM) to capture differences in countries growth opportunities. *BM* reflects cost of monitoring, growth opportunities and accounting conservatism, which affects a country's perceived risk. We calculate *BM* as the natural log country-level ratio of book-to-market. Following existing studies, we compute the sum of a country-level book value by adding the constituents of each

country and dividing the total by the country's total market capitalization. We obtained data from WorldScope.

Empirical studies by Jegadeesh and Titman (1993) show that previous year's stock market performance (*Retn_1*) affects the expected return. We use *Retn_1* to capture the momentum effect on the cost of capital. As in Lau et al. (2010), we compute *Retn_1* as the average MSCI monthly index return over the previous year. Next, we use log stock market integration (*LSMI*) which we construct as the natural log of a country's annual exports plus imports divided by GDP to control for the effects of stock market openness and integration on the cost of capital. An integrated stock market will experience lower cost of capital because the expected return is measured by the covariance of the country's return with world market return divided by the variance of world market return, which is lower than a segmented stock market return, and is determined by the variance of the segmented market return.

We use real gross domestic product growth (*RGDPG*) to capture the growth opportunities' effect on international risk sharing. Foreign investors tend to allocate more equity investment to countries that experience high economic growth and this has a negative effect on the cost of capital due to increased risk sharing between domestic and foreign investors. We also use exchange rate volatility (*Exch*) to capture the correlation between equity return and foreign exchange return. We calculate *Exch* by using a three-year moving average of the covariance between a country's market index return and the monthly depreciation of the local currency relative to the US dollar. We obtained exchange rates data from Thompson Reuters.

Existing literature shows that equity risk premiums have a positive association with inflation (see Brandt and Wang, 2003). We employ one-year lagged inflation (*Inf*) to ensure that cost of capital is not driven by changes to macroeconomic fundamentals as a result of inflation. We sourced inflation data from WDI.

Studies show that countries' specific risk affects the expected returns of a country. Erb, Harvey, and Viscanta (1996) demonstrate that country risk ratings affect expected equity returns. We use two country-level risk measures; economic risk (*EconRisk*), and financial risk (*FinRisk*) to control for their effects on the cost of capital. We obtained data for these variables from the International Country Risk Guide (ICRG). We compute the country risk measures using annual averages based on the monthly ratings.[1]

Lastly, we control for the degree of portfolio diversification by using equity home bias (*EHBIAS*). The literature on the international capital asset pricing model suggests that when domestic investors overinvest in their local stock market, the domestic stock market tends to be segmented and it reduces risk sharing, which tends to have a positive impact on the cost of capital (see Lau et al., 2010). We compute *EHBIAS* as the natural log value of domestic investors' equity allocation in their home country's stock market capitalization relative to the country's global market capitalization weight. We sourced data from the CPIS of IMF.

4. Empirical Analysis

4.1. Summary statistics

Table 1 presents the univariate analysis that compares the mean of developed markets (panel A) and emerging markets (panel B) of cost of capital, *SITL, INSTQ, Port_Alloc* and control variables. In line with theoretical expectations, the means suggest that developed countries have lower cost of capital relative to emerging markets. Correspondingly, developed countries have stringent insider trading laws.

The mean cost of capital for developed markets is $HRRm$ = 10.7%, $CERP$ = 6% and DY = 2.6% relative to emerging markets of $HRRm$ = 22.9%, $CERP$ = 11.6% and DY = 3.8%.

[1] See ICRG, 2016 for additional details on the method.

Average *SITL*, *INSTQ* and $Port\_Alloc$ in developed markets are 2.9, 90.95 and 0.0427 respectively, compared to 2.7, 56.41 and 0.0022 in emerging markets. Table 1 offers strong indication that those countries with *SITL* and *INSTQ* attract more foreign equity portfolio allocation in order to experience a lower cost of capital.

[Insert Table 1 Here]

4.2. Correlation matrix

Table 2 presents the correlation matrix among the variables employed in our empirical analysis. *SITL*, *INSTQ* and $Port\_Alloc$ have a negative and significant correlation with all the cost of capital proxies. The results suggest that *SITL* and *INSTQ* reduce information asymmetry and monitoring cost. As a result, investors will demand a lower risk premium, which will reduce the cost of capital. The correlation among *SITL*, *INSTQ*, $Port\_Alloc$ and cost of capital proxies are relatively low, suggesting multicollinearity is not an issue in this study.

[Insert Table 2 Here]

4.3 Multivariate regression analysis

4.3.1. Cost of capital and stringent insider trading laws

Table 3 presents the regression results regarding the impact of stringent insider trading laws on the cost of capital. We run the regression using first difference ΔCoC_{jt} to mitigate the probable concern of any non-stationarity. The specification below is estimated.

$$\Delta CoC_{jt} = \alpha + \beta_1.\Delta SITL_{jt} + \beta_2.\Delta Ctls_{jt} + \beta_3.TFE_t + \beta_4.CFE_j + \epsilon_{jt} \quad (7)$$

In Equation (7), ΔCoC_{jt} represents the first difference of one of the three measures of ΔCoC_{jt} (i.e. *HRRm*, *CERP*, and *DY*), one at a time, of country *j* at time *t*. *SITL* is regressed one

at a time. $Ctls_{jt}$ is a vector of the control variables of country j at time t. *TFE* and *CFE* are time (year) and country fixed effects respectively.[2]

Models (1-3) of Table 3 report the coefficients for the three cost of capital proxies. As evident throughout the specifications, the coefficients of *SITL* have the expected negative sign and are statistically significant at the 1% level for all the proxies of cost of capital (*SITL* β = -0.315; $t-statistics =$ -3.21); (β = -0.204; $t-statistics =$ -2.56); (β = -0.294; $t-statistics =$ -3.17) for *HRRm*, *CERP* and *DY* respectively. The coefficients of *SITL* are negative and statistically significant, which is in contrast to Bhattacharya and Daouk (2002) who used the enactment dates of insider trading laws. The results indicate that stringent insider trading laws reduce the cost of capital, suggesting that countries that have *SITL* experience a lower cost of capital. The results may be explained by the reduced risk premium demanded by investors as a result of low information asymmetry and lower monitoring costs streaming from the benefits of stringent insider trading laws. The negative effect of *SITL* on the cost of capital is in line with Choi, Li and Hongjun (2016) who found *SITL* reduced the cost of capital as a result of improvement in the information environment.

[Insert Table 3 Here]

4.3.2. The effect of institutional quality on the cost of capital

In this section, we examine the combined effects of *SITL* and *INSTQ* on the cost of capital as specified in Equation (8).

$$CoC_{jt} = \alpha + \beta_1.SITL_{jt} + \beta_2.INSTQ_{jt} + \beta_3.SITL_{jt} \times INSTQ_{jt} + \beta_4.Ctls_{jt} + \beta_5.TFE_t + \beta_6.CFE_j + \epsilon_{jt} \quad (8)$$

[2] For the sake of brevity we do not report the estimates of year and country fixed effects.

Table 4 presents the effect of interaction between *SITL* and *INSTQ* on the cost of capital. We find the coefficients for the interaction of *SITL*×*INSTQ* in models 1-3 (β = *-0.511;* $t-statistics$ = *-3.02*); (β = *-0.525*; $t-statistics$ = *-2.68*); and (β = *-0.646;* $t-statistics$ = *-2.87).* The coefficients are negative and statistically significant across all the cost of capital proxies. The marginal effects are also negative and significant in all the three models, confirming the results. The results indicate that *SITL* interact with *INSTQ* to lower the cost of capital. Hypothesis 1 is therefore supported. The findings may be explained by the fact that stringent insider trading laws and the quality of institutions in a country engender confidence among investors, reduce information asymmetry, risk associated with foreign investments and monitoring cost, and consequently the cost of capital.

[Insert Table 4 Here]

4.3.3. The effects of foreign equity portfolio allocation on the cost of capital

To test the effects of interaction between *SITL* and foreign equity portfolio allocation on the cost of capital, we specify the following model:

$$CoC_{jt} = \alpha + \beta_1.SITL_{jt} + \beta_2.Port\_Alloc_{jt} + \beta_3.SITL_{jt} \times Port\_Alloc_{jt} + \beta_4.Ctls_{jt} + \beta_5.TFE_t + \beta_6.CFE_j + \epsilon_{jt} \quad (9)$$

Models 1 to 3 of Table 5 present the results of the effects of interaction between *SITL* and foreign equity portfolio allocation on the cost of capital. The coefficients are negative and statistically significant at the 1% level in all three models. The coefficients of the interactive variable in all the three models (β = *-0.533;* $t-statistics$ = *-3.50*), (β = *-0.516;* $t-statistics$ = *-3.02)*; (β = *-0.319* ($t-statistics$ = *-2.73*) for *HRRm*, *CERP*, and *DY* respectively. The results support hypothesis 2 and indicate that foreign investors allocate more investment to countries with stringent insider trading laws. The findings support the view that stringent insider trading laws encourage greater willingness among foreign investors to trade

and increase stock market liquidity and consequently help reduce the cost of capital. The findings appear in line with the findings of Botosan (1997) and Beny (2008) who reported that stringent insider trading laws and the quality of institutions within a country reduce information asymmetry, lower risk, engender confidence among investors and enhance stock market participation and liquidity.

[Insert Table 5 about here]

Regarding the control variables, the results presented in Tables 3-6 have the expected signs and are statistically significant. *RGDPG, MCap,* and *LSMI* are negative and significant at the 1% level, and consistent with the findings of Lau et al. (2010). *Mbeta* and *EHBIAS* have a positive and statistically significant association with the cost of capital. The results render some support to the findings reported in existing studies (see El Ghoul, Guedhami, Kwok, & Mishra, 2011; and Lau et al., 2010). *Retn_1, Exch, EconRisk*, *FinRisk*, and *BM* are positively related to the cost of capital. The coefficients for *Inf* are negative but statistically insignificant.

4.4. Robustness test

In this section, we check the robustness of our main analysis. In particular, we employ DiD to account for the concern of endogeneity. We also examine the impact of *SITL* and *INSTQ* on the cost of capital.

4.4.1. Evidence from 2008 global financial crisis

We use the 2008 global financial crisis to perform a quasi-natural experiment of "shocks" to the demand of *SITL* and better stock market regulations. Performing this analysis allows us to take into consideration the effects of time-invariant country-level factors while

addressing the influence of *SITL* and *INSTQ* via interaction terms. As in Lian and Renneboog (2017), we specify the DiD approach which we use to estimate the test as follows:

$$CoC_{ict} = A_c + B_t + \beta X_{ict} + \gamma I_{lt} + \epsilon_{ict} \quad (10)$$

where A_c, B_t are country and year fixed effects respectively, X_{ict} are the country-level control variables. I_{lt} is the interaction between *SITL* and the year dummy (2008) so that the estimated impact of *SITL* in year *t* is captured by the OLS estimate $\hat{y}$ and ϵ_{ict} is an error term. To account for serial and cross-sectional correlations, we clustered standard errors across countries and over time.

In Table 6, we report the quasi-natural experiment regarding the 2008 global financial crisis which, on average, moved firms and countries out of equilibrium as the financial crisis triggered the demand for stringent stock market regulations. The use of the 2008 global financial crisis allows us to make comparisons across countries.

The DiD estimator is the coefficients on *SITL*×*Post-2008* and *INSTQ*×*Post-2008*. In models 1-3 of Table 6, the coefficients on *SITL* are positive and statistically significant at the 1% level. Similarly, in models 4-6 of Table 6, we run a separate regression using *INSTQ*. The coefficients on *INSTQ* in models 4-6 of Table 6 are positive and statistically significant at the 1% level. Overall, the results show that the 2008 global financial crisis improved stock market regulations and institutional quality, and subsequently lowered the cost of capital.

[Insert Table 6 about here]

5. Contributions and *Conclusions*

In this study, we examined the effects of interaction between stringent insider trading laws, institutional quality and equity portfolio allocation on the cost of capital based on a large dataset of 44 countries over a period from 2001-2015. We find that countries that have *SITL* experience a lower cost of capital. Regarding the combined effects of stringent insider trading

laws, institutional quality and equity portfolio allocation, we find that *SITL* interacts with institutional quality (*INSTQ*) and foreign equity portfolio allocation (*Port_Alloc*) to reduce the country-level cost of capital. Further analysis from a quasi-natural experiment based on the 2008-2009 global financial crisis suggests our results are robust to endogeneity.

The findings of this study have important implications for investors and policy makers. First, our results imply that institutional quality and stringent insider trading laws play a significant role in influencing a country's cost of capital, suggesting policy makers should pay attention to these factors if they want to reduce the country-level cost of capital and attract foreign investments. More specifically, policy makers at a national level should not only aim to enact *SITL*, but should complement them with strong institutions to pursue enforcement to reduce risk and attract foreign investments. Second, our findings also suggest that stringent insider trading laws and institutional quality enhance equity market participation among foreign investors, improve liquidity and risk-sharing opportunities and reduce the cost of capital. We therefore suggest that policy makers of emerging countries with small stock markets should review and strengthen their insider trading laws and establish good and independent institutions to curtail the risks often associated with these markets and improve participation from foreign investors.

The study makes two primary contributions to the literature. First, this study extends prior literature in finance on the role of institutions, stringent insider trading laws and portfolio allocation on the cost of capital. Specifically, our paper complements the studies of Hail and Leuz (2006) and Chen et al. (2009) and shows that stringent insider trading laws, institutions, and portfolio allocation interact to reduce the cost of capital. Thus our results suggest that while the enactment of stringent insider trading laws is important, its interplay with the quality of institutions within the country further affect the perceived riskiness of doing business in a country, facilitate better enforcement and significantly lower the cost of capital. Similarly, the

enactment of stringent insider trading laws moderate portfolio investment allocation decisions, increase liquidity, market efficiency and information flow among investors, and consequently reduce the cost of capital.

Second, the results re-affirm that the cost of capital, which represents a return required by an investor, is important for long-term investment decisions. Thus, our results indicate that those countries with stringent insider trading laws and quality institutions attract foreign equity investors, and reduce the perceived risk of expropriation of investments by corporate insider traders. The confidence generated through *SITL* and *INSTQ* reduces the country risk premium and the cost of capital. Our findings continue to hold after controlling for firm-level and other country-level factors and further employing the 2008-2009 global financial crisis to perform a quasi-natural experiment using the DiD model.

Appendix

Table A1

Definitions of Variables

Variable	Abbreviation	Description
Historical realized market return	*HRRm*	The historical realized market return measured as the historical average of excess country equity market return over risk-free rate.
Country equity risk premium	*CERP*	The country equity risk premium based on adding the sovereign default risk premium (scaled by the relative volatility of equity to bond market) to the equity risk premium of a base country (The United States).
Dividend yield	*DY*	The dividend yield measured as the total amount of stock dividend of a country as a percentage of the market capitalization of the country.
Stringent insider trading laws	*SITL*	An index that ranges between 1 (least stringent) and 4 (most stringent) and is the aggregate of four elements: Laws forbidding insiders from trading on price-sensitive private information, the country's regulations forbidding tippees from using the price-sensitive private information provided by corporate insiders, financial penalty suffered for violating insider trading laws, and if insider trading is considered as a criminal offence.
Market beta	*Mbeta*	The covariance of *MSCI* countries' world index return over the past five years divided by *MSCI* world index return variance.
Return	*Retn_1*	The average *MSCI* monthly index return over the past year.
Exchange rate	*Exch*	The three year moving average covariance of the monthly stock market index return with the monthly change of the domestic currency with respect to the dollar.
Inflation	*Inf*	The following year's percentage change in the consumer price index.
Log stock market integration	*LSMI*	The ratio of a country's annual exports plus imports divided by *GDP*.
Real gross domestic product growth	*RGDPG*	The real growth rate in the domestic product.
Economic risk	*EconRisk*	The economic risk rating index of a country from the International Country Risk Guide.
Financial risk	*FinRisk*	The financial risk rating index of a country from the International Country Risk Guide.
Market capitalisation	*MCap*	The market capitalization of a country.
Book to market	*BM*	The log country-level ratio of book-to-market.
Equity home bias	*EHBIAS*	The investor protection measure obtained from World Bank Governance Indicator of good governance.
Institutional quality	*INSTQ*	The institutional quality of a country measured as the aggregate of government effectiveness, control of corruption, regulatory quality, and rule of law.
Portfolio allocation	*Port_Alloc*	The log value of country wise bilateral foreign portfolio allocation from country i in country j at time t (w_{ijt})

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Table 1

Summary statistics of dependent and independent variables

Note: The variables in columns 2-4 are the three cost of capital measures. $HRRm$ is the historical realized market return measured as the historical average of excess country equity market return over risk-free rate; $CERP$ is the country equity risk premium based on adding the sovereign default risk premium (scaled by the relative volatility of equity to bond market) to the equity risk premium of a base country (The United States); *DY* is the dividend yield measured as the total amount of stock dividend of a country as a percentage of the market capitalization of the country; *SITL* is the stringent insider trading laws index that ranges between 1 (least stringent) and 4 (most stringent); $Port\_Alloc$ is the portfolio allocation, which is the log value of country wise bilateral foreign portfolio allocation from country i in country j at time t; *INSTQ* is the institutional quality of a country; *MCap* is the country market capitalization; *Mbeta* is the covariance of *MSCI* countries' world index return over the past five years divided by *MSCI* world index return variance; *BM* is the log country-level ratio of book-to-market; *Retn_1* is the average *MSCI* monthly index return over the past year; *Exch* is the three year moving average covariance of the monthly stock market index return with the monthly change of the domestic currency with respect to the dollar; *Inf* is the following year's percentage change in the consumer price index; *LSMI* is a measure of market integration measured as the ratio of a country's annual exports plus imports divided by *GDP; RGDPG* is the real growth rate in the domestic product; *EconRisk* represents the economic risk rating index of a country; *FinRisk* is the financial risk of a country; *EHBIAS* is equity home bias and is calculated as the log value of the share of domestic investors in their own country's stock market capitalization (*l*) relative to the country's world market capitalization weight.

Panel A: Developed markets

Country	HRRm (%)	CERP (%)	DY (% of price)	SITL (0-4)	Port_Alloc	INSTQ (0-100)	MCap (in USD millions)	Mbeta (%)	BM (Ratio)	Retn_1 (%)	Exch (%)	Inf (%)	LSMI (% of GDP)	RGDPG (%)	EconRisk (0-50)	FinRisk (0-50)	EHBIAS
Australia	12.4	7.5	3.3	3	0.0116	95.03	76438	0.86	0.49	5.6	0.8	2.8	41.26	2.96	29.13	36.09	3.46
Austria	11.1	8.3	2.0	2	0.0124	95.35	55971	0.83	0.58	3.8	0.2	2.1	96.34	1.41	33.65	38.43	4.18
Belgium	9.6	7.2	2.3	3	0.0249	89.37	177876	0.94	0.5	1.9	0.3	2.2	149.03	1.3	42.97	27.78	3.32
Canada	10.2	4.2	2.0	4	0.0251	94.91	1062678	0.97	0.29	5.4	1.1	1.9	66.91	20.4	41.84	29.51	2.81
Denmark	13.4	4.6	1.2	3	0.0124	98.80	135542	0.89	0.71	1.9	1.4	1.9	93.73	0.6	43.53	41.92	4.22
Finland	17.3	6.8	2.6	3	0.0082	98.91	145079	1.58	0.57	7.2	0.9	1.7	76.14	1.24	45.22	37.21	4.15
France	11.5	6.3	2.6	4	0.0869	88.84	1433149	1.15	0.35	1.9	0.9	1.6	54.82	1.1	34.92	30.69	2.62
Germany	15.1	5.4	2.3	3	0.0831	92.73	1029901	1.28	0.36	2.7	4.6	1.6	74.98	1.03	36.07	26.22	2.19
Greece	17.4	9.5	5.3	2	0.0034	74.17	60206	1.58	0.86	7.3	4.2	2.6	55.58	-0.01	34.77	32.76	4.72
Hong Kong	9.6	7.7	3.4	3	0.0268	92.35	440529	1.13	1.12	2.5	0.7	1.6	387.19	3.81	43.84	41.38	2.87
Ireland	5.6	4.2	2.4	3	0.0568	93.23	56975	0.86	0.45	7.8	0.9	2.2	162.49	2.35	41.85	35.59	2.84
Israel	13.1	5.7	2.8	4	0.0017	80.83	80736	1.12	0.98	6.7	0.9	2.1	72.24	3.36	36.16	31.27	4.68
Italy	11.3	5.2	3.2	3	0.0416	72.22	475029	0.92	0.48	2.5	0.2	2.1	51.79	-0.07	35.05	31.76	2.84
Japan	5.7	7.4	1.7	2	0.1048	85.34	2840190	0.66	0.95	1.4	-1.4	0.1	28.24	0.77	36.28	43.47	1.73

Netherlands	6.8	4.3	3.6	3	0.0518	96.80	349413	1.2	0.47	2.2	0.7	2	133.14	1.01	41.93	29.08	2.31
New Zealand	5.8	4.7	3.4	3	0.0014	96.77	17449	0.95	0.55	11.3	1.2	2.4	59.7	2.49	27.89	26.52	5.77
Norway	13.7	5.6	2.5	1	0.0183	95.26	157211	1.19	1.24	5.1	1.2	1.9	69.76	1.6	44.6	44.74	3.87
Portugal	12.2	7.1	3.3	3	0.0056	84.31	52160	0.86	0.36	4.6	0.6	2.2	68.39	0.07	34.63	34.63	5.28
Spain	14.3	6.5	2.7	3	0.0195	86.53	459606	0.93	0.27	6.4	0.9	2.5	55.76	1.42	38.29	36.77	3.09
Sweden	10.7	5.3	2.4	3	0.0137	96.85	337099	1.31	0.31	5.2	0.6	1.3	84.68	1.96	44.64	28.42	3.75
Switzerland	6.6	4.4	1.5	3	0.0385	96.84	870989	0.65	0.49	4.5	1.2	0.6	108.32	1.82	44.93	45.24	3.11
United Kingdom	6.4	4.8	2.3	3	0.1121	94.69	2422146	0.87	0.39	4.5	0.5	2.3	56.96	1.72	34.08	24.27	2.03
United States	5.2	4.7	1.5	4	0.2259	91.74	12494889	0.92	0.48	3.3	0.4	2.3	26.65	1.8	27.8	30.56	0.65
Mean	10.7	6.0	2.6	2.9	0.0427	90.95	1097011	1.03	0.58	4.6	1.0	1.9	90.18	2.35	38.0	34.10	3.33

Panel B: Emerging markets

Country	HRRm (%)	CERP (%)	DY % of price)	SITL (0-4)	Port_Alloc	INSTQ (0-100)	MCap (in USD millions)	Mbeta (%)	BM (Ratio)	Retn_1 (%)	Exch (%)	Inf (%)	LSMI (% of GDP)	RGDPG (%)	EconRisk (0-50)	FinRisk (0-40)	EHBIAS
Argentina	23.5	16.3	3.5	3	0.0008	39.55	16599	1.35	0.65	8.2	3.1	10.5	33.52	3.82	32.43	31.15	6.62
Brazil	33.7	13.6	4.6	2	0.0006	53.57	557521	2.12	1.36	16.3	1.8	6.5	25.98	3.24	34.98	32.63	5.34
Bulgaria	29.3	11.3	3.3	2	0.0003	58.05	50205	1.33	1.44	11.2	3.8	4.8	109.77	3.32	31.08	32.3	9.59
Chile	20.1	8.5	4.6	3	0.0025	89.27	103694	1.05	0.98	12.6	1.5	3.7	68.95	4.10	40.14	25.74	5.33
China	13.8	9.5	3.6	3	0.0083	44.41	852177	1.27	1.08	11.8	1.7	2.4	50.82	9.82	37.37	46.5	3.15
Czech Rep	30.3	7.1	4.4	3	0.0009	76.18	32291	0.92	1.37	8.5	2.2	2.3	124.68	2.48	36.91	31.03	6.44
Egypt	29.2	7.3	5.4	3	0.0002	42.21	2577	1.08	1.35	11.4	1.9	8.6	51.51	4.06	34.5	33.46	7.27
Hungary	19.8	7.5	3.5	3	0.0031	78.49	20269	1.27	0.63	8.6	0.9	4.8	146.06	1.87	34.87	35.64	6.98
India	21.5	12.7	3.3	2	0.0006	49.76	513996	1.15	0.9	10.2	1.82	7.1	43.74	7.25	33.53	37.38	4.76
Indonesia	26.4	15.3	3.8	2	0.0003	30.92	122671	1.29	1.06	7.4	1.9	7.7	54.66	5.37	36.83	24.54	6.95
Korea	14.2	9.4	2.1	4	0.0034	74.47	578838	1.57	0.31	4.7	1.6	2.9	84.77	4.04	41.64	34.19	4.56
Malaysia	19.8	10.3	4.3	2	0.0009	69.31	197732	0.79	0.66	7.4	1.7	2.3	181.73	4.86	35.78	36.95	6.21
Mexico	17.2	11.2	3.0	1	0.0089	53.49	215204	1.18	1.42	5.3	1.6	4.4	57.6	2.13	38.38	38.97	5.35
Peru	26.3	12.7	4.4	4	0.0002	45.43	30396	1.23	1.12	5.4	2.7	2.6	46.71	5.48	39.06	31.58	7.63
Philippines	23.4	13.6	3.8	2	0.0003	47.30	5487	1.01	1.05	9.7	1.6	4.4	82.24	5.11	29.84	35.77	6.26

Poland	25.7	9.4	3.7	3	0.0005	69.75	81434	0.87	0.8	5.8	0.8	2.7	76.85	5.58	36.48	36.19	5.97
Romania	23.3	13.3	3.7	3	0.0006	53.44	20606	0.78	0.65	9.2	1.7	9.8	77.72	3.74	31.71	35.21	7.64
Russia	14.3	14.8	3.5	3	0.0068	29.88	449528	1.71	0.64	5.1	3.5	11.3	54.39	4.21	37.73	43.92	4.9
South Africa	19.4	11.4	4.3	2	0.0009	65.17	281864	1.12	1.08	11.4	2.1	5.9	59.13	3.14	35.07	25.91	4.78
Thailand	26.8	12.8	4.2	3	0.0005	57.81	139412	1.44	0.86	8.1	2.5	2.7	138.21	3.85	34.2	33.74	5.83
Turkey	24.6	15.5	2.8	4	0.0006	56.11	118926	2.28	0.53	12.6	2.2	15.7	51.69	4.14	32.59	32.02	5.44
Mean	22.9	11.6	3.8	2.7	0.0022	56.41	209116	1.28	0.95	9.1	2.0	5.8	77.17	4.36	35.48	34.04	6.05

Overall:

Mean	16.5	8.7	3.2	2.8	0.0233	74.46	673243	1.15	0.75	6.7	1.49	3.79	83.97	3.31	36.80	34.07	4.62
Median	14.3	7.5	3.3	3	0.0062	79.66	151145	1.12	0.65	6.1	1.3	2.4	68.67	2.73	36.12	33.60	4.70
Std Dev	7.7	3.5	1.0	0.74	0.426	21.16	1896035	0.34	0.35	3.5	1.12	3.18	59.12	3.27	4.64	5.69	1.85
Minimum	5.2	4.2	1.2	1	0.0002	29.88	2577	0.65	0.27	1.4	-1.4	0.1	25.98	-0.07	27.8	24.27	0.65
Maximum	33.7	16.3	5.4	4	0.2259	98.91	12494889	2.28	1.44	16.3	4.6	15.7	387.19	20.4	45.22	46.5	9.59

Table 2
Pearson's pairwise correlation coefficients between the dependent and independent variables

Note: The variables labelled 1-3 are the three cost of capital measures. $HRRm$ is the historical realized market return measured as the historical average of excess country equity market return over risk-free rate; $CERP$ is the country equity risk premium based on adding the sovereign default risk premium (scaled by the relative volatility of equity to bond market) to the equity risk premium of a base country (The United States); DY is the dividend yield measured as the total amount of stock dividend of a country as a percentage of the market capitalization of the country; *SITL* is the stringent insider trading laws index that ranges between 1 (least stringent) and 4 (most stringent); $Port\_Alloc$ is the portfolio allocation, which is the log value of country wise bilateral foreign portfolio allocation from country i in country j at time t; *MCap* is the country market capitalization; *INSTQ* is the institutional quality of a country; *Mbeta* is the covariance of *MSCI* countries' world index return over the past five years divided by *MSCI* world index return variance; *BM* is the log country-level ratio of book-to-market; *Retn_1* is the average *MSCI* monthly index return over the past year; *Exch* is the three year moving average covariance of the monthly stock market index return with the monthly change of the domestic currency with respect to the dollar; *Inf* is the following year's percentage change in the consumer price index; *LSMI* is a measure of market integration measured as the ratio of a country's annual exports plus imports divided by *GDP; RGDPG* is the real growth rate in the domestic product; *EconRisk* represents the economic risk rating index of a country; *FinRisk* is the financial risk of a country; *EHBIAS* is equity home bias and is calculated as the log value of the share of domestic investors in their own country's stock market capitalization (*l*) relative to the country's world market capitalization weight. For brevity and space, statistical significance of at least the 5% level is reported in bold.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
HRRm (1)	1																
CERP (2)	**0.56**	1															
DY (3)	**0.17**	**0.15**	1														
SITL (4)	**-0.15**	**-0.14**	**-0.19**	1													
Port_Alloc (5)	**-0.23**	**-0.11**	**-0.17**	**0.15**	1												
INSTQ (6)	**-0.14**	**-0.19**	**-0.08**	**0.32**	0.07	1											
Mbeta (7)	**0.26**	**0.2**	**0.14**	-0.07	-0.03	-0.04	1										
Retn_1 (8)	**0.13**	0.09	**0.19**	-0.06	0.05	**0.21**	**0.19**	1									
Exch (9)	0.08	**0.12**	**0.11**	-0.02	0.06	**-0.26**	0.05	**-0.43**	1								
Inf (10)	-0.1	**-0.15**	-0.09	**-0.12**	**-0.21**	-0.03	0.05	**0.16**	**0.11**	1							
LSMI (11)	**-0.16**	**-0.24**	**-0.27**	-0.06	**0.11**	0.09	**-0.14**	-0.04	-0.03	-0.02	1						
RGDPG (12)	**-0.20**	**-0.23**	**-0.32**	-0.05	0.02	0.03	0.09	**-0.15**	**0.29**	**0.10**	-0.05	1					
EconRisk (13)	**0.11**	**0.22**	0.05	0.04	-0.03	-0.04	0.03	-0.04	-0.03	**-0.13**	**0.28**	-0.06	1				
FinRisk (14)	0.09	0.07	0.21	**-0.11**	-0.05	-0.02	-0.03	-0.07	0.06	-0.03	-0.04	**0.09**	-0.01	1			
MCap (15)	**-0.39**	**-0.19**	**-0.24**	0.06	0.01	0.06	-0.04	0.02	0.04	-0.01	**-0.19**	-0.02	0.07	-0.05	1		
BM (16)	**0.18**	**0.21**	0.07	**-0.45**	-0.09	-0.01	0.05	**0.3**	**-0.12**	0.03	-0.04	0.07	-0.05	**0.12**	0.05	1	
EHBIAS (17)	**0.18**	**0.44**	**0.14**	**-0.22**	0.02	0.08	0.06	**0.22**	0.07	**0.27**	**0.17**	**0.16**	**-0.2**	0.02	**-0.22**	**0.29**	1

Table 3
Cost of capital and stringent insider trading laws

$$\Delta CoC_{jt} = \alpha + \beta_1.\Delta SITL_{jt} + \beta_2.\Delta Ctls_{jt} + \beta_3.TFE_t + \beta_4.CFE_j + \epsilon_{jt} \quad (7)$$

This table reports estimates of three specifications of Equation (7). In each specification the dependent variable is one of the three measures of cost of capital (i.e. *HRRm, CERP*, and *DY*) as defined in the notes to Table 1. The explanatory variable of key interest is *SITL,* also defined in the notes to Table 1. All the control variables are defined in the notes to Table 1. All variables are used as first difference. The *t*-statistics, reported in parentheses, are based on double clustered standard errors (clustering done at the country and year levels). For tractable interpretation, all the coefficients are reported as elasticity and the statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels respectively.

	Model (1) HRRm	Model (2) CERP	Model (3) DY
ΔSITL	-0.315***	-0.404***	-0.594***
	(-3.21)	(-2.56)	(-3.17)
ΔMbeta	0.692***	0.963***	0.683***
	(4.62)	(3.66)	(3.78)
ΔRetn_1	0.427	0.445	0.490***
	(1.10)	(1.31)	(4.70)
ΔExch	0.354*	0.128**	0.364**
	(1.77)	(2.09)	(2.35)
ΔInf	-0.349*	-0.202**	-0.695*
	(-1.86)	(-2.37)	(-1.68)
ΔLSMI	-0.686**	-0.788***	-0.654***
	(-2.03)	(-2.86)	(-3.05)
ΔRGDPG	-0.148***	-0.164***	-0.389***
	(-3.15)	(-3.09)	(-3.99)
ΔEconRisk	0.495*	0.213**	0.539
	(1.81)	(2.48)	(0.68)
ΔFinRisk	0.417*	0.411	0.319
	(1.88)	(1.02)	(1.34)
ΔMCap	-0.719***	-0.731***	-0.132***
	(-4.05)	(-2.79)	(-3.45)
ΔBM	0.177**	0.308	0.274
	(2.47)	(1.26)	(1.53)
ΔEHBIAS	0.175***	0.689***	0.229***
	(3.59)	(3.70)	(2.88)
Constant	0.805**	0.111***	0.630***
	(2.11)	(7.91)	(4.82)
Number of Observations	645	645	645
Adj. R-square	0.45	0.44	0.36
Country effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes

Table 4
The effects of institutional quality

$$CoC_{jt} = \alpha + \beta_1.SITL_{jt} + \beta_2.INSTQ_{jt} + \beta_3.SITL_{jt} \times INSTQ_{jt} + \beta_4.Ctls_{jt} + \beta_5.TFE_t + \beta_6.CFE_j + \epsilon_{jt} \quad (8)$$

This table reports estimates of three specifications of Equation (8). In each specification the dependent variable is one of the three measures of cost of capital (i.e. *HRRm*, *CERP*, and *DY*) as defined in the notes to Table 1. The explanatory variable of key interest is *SITL*, also defined in the notes to Table 1. *INSTQ* is institutional quality; *SITL×INSTQ* is the stringent insider trading laws interaction with institutional quality. All the control variables are defined in the notes to Table 1. The *t*-statistics, reported in parentheses, are based on double clustered standard errors (clustering done at the country and year levels). For tractable interpretation, all the coefficients are reported as elasticity and the statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels respectively.

	Model (1) HRRm	Model (2) CERP	Model (3) DY
SITL	-0.246**	-0.299**	-0.483***
	(-2.27)	(-2.08)	(-3.02)
INSTQ	-0.211**	-0.306**	-0.462**
	(-2.34)	(-2.14)	(-2.30)
SITL×INSTQ	-0.511***	-0.525***	-0.646***
	(-3.02)	(-2.68)	(-2.87)
Mbeta	0.702***	0.981***	0.676***
	(3.77)	(2.52)	(2.73)
Retn_1	0.489	0.276	0.463**
	(1.26)	(1.19)	(2.32)
Exch	0.553*	0.124***	0.419**
	(1.80)	(3.89)	(2.41)
Inf	-0.325	-0.197***	-0.679
	(-1.31)	(-2.85)	(-1.57)
LSMI	-0.766***	-0.862***	-0.120***
	(-2.78)	(-2.90)	(-3.12)
RGDPG	-0.154**	-0.165**	-0.694***
	(-2.24)	(-2.17)	(-3.00)
EconRisk	0.494	0.541***	0.341
	(1.57)	(2.78)	(0.68)
FinRisk	0.379	0.495	0.322*
	(1.44)	(0.51)	(1.83)
MCap	-0.645***	-0.315***	-0.134**
	(-4.33)	(-2.76)	(-2.47)
BM	0.180***	0.309	0.270
	(2.82)	(1.38)	(1.50)
EHBIAS	0.177***	0.693***	0.228***
	(3.94)	(4.60)	(3.07)
Marginal Effects	-0.274	-0.315	-0.246
Constant	0.609***	0.111***	0.508***
	(2.82)	(4.77)	(3.18)
Number of Observations	645	645	645
Adj. R-square	0.45	0.44	0.32
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes

Table 5
Interaction between *SITL* and foreign equity portfolio allocation on the cost of capital

$$CoC_{jt} = \alpha + \beta_1.SITL_{jt} + \beta_2.Port\_Alloc_{jt} + \beta_3.SITL_{jt} \times Port\_Alloc_{jt} + \beta_4.Ctls_{jt} + \beta_5.TFE_t + \beta_6.CFE_j + \epsilon_{jt} \quad (9)$$

This table reports estimates of three specifications of Equation (9). In each specification the dependent variable is one of the three measures of cost of capital (i.e. *HRRm, CERP,* and *DY*) as defined in the notes to Table 1. The explanatory variables of key interest are *SITL*, and *Port_Alloc* also defined in the notes to Table 1. *SITL*×*Port_Alloc* is the stringent insider trading laws interaction with foreign equity portfolio allocation. All the control variables are defined in the notes to Table 1. The *t*-statistics, reported in parentheses, are based on double clustered standard errors (clustering done at the country and year levels). For tractable interpretation, all the coefficients are reported as elasticity and the statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels respectively.

	Model (1) HRRm	Model (2) CERP	Model (3) DY
SITL	-0.201***	-0.252***	-0.290***
	(-4.29)	(-2.84)	(-2.67)
Port_Alloc	-0.214***	-0.235***	-0.152***
	(-3.08)	(-3.22)	(-2.76)
SITL x Port_Alloc	-0.533***	-0.516***	-0.319***
	(-3.50)	(-3.02)	(-2.73)
Mbeta	0.592***	0.964***	0.441**
	(7.29)	(3.84)	(2.33)
Retn_1	0.455	0.740*	0.642***
	(1.15)	(1.72)	(6.56)
Exch	0.167**	0.357***	0.374**
	(2.15)	(3.98)	(2.48)
Inf	-0.149***	-0.315***	-0.403
	(-3.22)	(-3.60)	(-1.21)
LSMI	-0.878*	-0.610***	-0.472***
	(-1.70)	(-4.92)	(-3.31)
RGDPG	-0.366**	-0.274***	-0.483***
	(-2.03)	(-7.55)	(-3.37)
EconRisk	0.240*	0.147***	0.332
	(1.72)	(2.71)	(0.96)
FinRisk	0.440**	0.320	0.468*
	(2.26)	(1.32)	(1.93)
MCap	-0.876***	-0.101***	-0.237***
	(-10.75)	(-3.72)	(-4.29)
BM	0.296***	0.355	0.291
	(4.09)	(1.58)	(1.13)
EHBIAS	0.399***	0.512***	0.216***
	(4.82)	(7.99)	(4.48)
Marginal Effects	-0.254	-0.412	-0.363
Constant	0.486**	0.220***	0.336***
	(2.15)	(8.84)	(2.98)
Number of Observations	645	645	645
Adj. R-square	49	47	48
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes

Table 6
Differences-in-difference: Evidence from 2008 global financial crisis

$$CoC_{ict} = A_c + B_t + \beta X_{ict} + \gamma I_{lt} + \epsilon_{ict} \qquad (10)$$

This table reports estimates of six specifications of Equation (10). In each specification the dependent variable is one of the three measures of cost of capital (i.e. *HRRm*, *CERP*, and *DY*) as defined in the notes to Table 1. The explanatory variables of key interest are *SITL× Post-2008*, which is the interaction of stringent insider trading laws and the post 2008 financial crisis; and *INSTQ × Post-2008*, which is the interaction of institutional quality and post 2008 financial crisis. All the control variables are defined in the notes to Table 1. All variables are used as first difference. The *t*-statistics, reported in parentheses, are based on double clustered standard errors (clustering done at the country and year levels). For tractable interpretation, all the coefficients are reported as elasticity and the statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels respectively.

	Model (1) HRRm	Model (2) CERP	Model (3) DY	Model (4) HRRm	Model (5) CERP	Model (6) DY
SITL× Post-2008	-0.318***	-0.402**	-0.507***			
	(-2.77)	(-2.04)	(-2.96)			
INSTQ × Post-2008				-0.366***	-0.397***	-0.581***
				(-3.21)	(-3.64)	(-3.29)
Mbeta	0.300***	0.216***	0.726***	0.223***	0.175***	0.648**
	(3.67)	(4.07)	(2.88)	(3.44)	(2.91)	(2.30)
Retn_1	0.306*	0.215	0.374***	0.211*	0.133	0.359***
	(1.97)	(1. 21)	(2.76)	(1.82)	(1.05)	(2.62)
Exch	0.747	0.170***	0.698***	0.682	0.175***	0.773***
	(1.10)	(3.84)	(2.78)	(1.15)	(3.87)	(2.85)
Inf	-0.484	-0.495*	-0.320	-0.503	-0.467*	-0.381
	(-1.06)	(-1.91)	(-0.93)	(-1.07)	(-1.93)	(-1.24)
LSMI	-0.857***	-0.498***	-0.203***	-0.640**	-0.585**	-0.194***
	(-3.75)	(-2.60)	(-3.19)	(-2.32)	(-2.26)	(-2.97)
RGDPG	-0.126*	-0.593**	-0.152***	-0.169**	-0.435*	-0.163***
	(-1.91)	(-2.34)	(-3.29)	(-2.14)	(-1.93)	(-3.44)
EconRisk	0.720**	0.687**	0.534	0.753**	0.590**	0.506
	(2.01)	(2.05)	(0.48)	(2.37)	(2.10)	(0.48)
FinRisk	0.429	0.163	0.276*	0.373	0.148	0.282**
	(1.43)	(0.96)	(1.97)	(1.24)	(0.73)	(2.11)
MCap	-0.503***	-0.345***	-0.120***	-0.468***	-0.321***	-0.123***
	(-3.44)	(-2.86)	(-3.19)	(-3.18)	(-2.83)	(-3.28)

BM	0.164**	0.580	0.562**	0.198**	0.432	0.394*
	(2.02)	(1.26)	(2.25)	(2.45)	(1.24)	(1.71)
EHBIAS	0.235***	0.517***	0.386***	0.271***	0.458***	0.356***
	(4.13)	(3.89)	(2.94)	(4.60)	(3.22)	(2.93)
Constant	-0.709**	0.188***	0.534***	-0.784***	0.176***	0.546***
	(-2.48)	(4.21)	(3.24)	(-2.61)	(3.79)	(4.52)
Number of Observations	645	645	645	645	645	645
Adj. R-square	0.36	0.33	0.28	0.38	0.34	0.29
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes