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International equity portfolio investment and enforcement of insider trading laws: a cross-country analysis

Abstract In this study, we examine the effects of stringent insider trading laws' enforcement, institutions and stock market development on international equity portfolio allocation using data from 44 countries over the period 2001-2015. Our results suggest that stringent insider trading laws and their enforcement exert a positive and significant impact on international portfolio investment allocation. Further analysis indicates that the interaction between a country's institutional quality, stock market development and enforcement of insider trading laws have a positive and significant effect on international equity portfolio allocation. The findings of this study have implications for the design of portfolio investment trading strategies and contribute to the literature on foreign equity investment decisions.

Keywords Insider trading laws · Institutional quality · Stock market development · Foreign equity portfolio flows

JEL classification G11· G14 · F3

1 Introduction

One of the most significant developments in the international financial environment over the past three decades is the gradual and systematic removal of investment restrictions and institutional constraints that impede capital flows in both emerging and developed countries (see French and Poterba 1991; Bekaert and Harvey 2003). Increasingly, economists and policy makers have realised that financial liberalisation and institutional reforms play a pivotal role in attracting foreign investment inflows and consequently facilitate economic growth. Scholars also contend that cross-border capital inflows provide a means to overcome capital shortages (Grubel 1968; Du et al. 2016). For example, Papaioannou (2009) points out that capital inflows generated by countries are regarded by the market as a vote of confidence and a validation of government policies.

While prior studies have examined the economic determinants and benefits of foreign equity portfolio allocation, relatively less empirical work exists on how the interaction between insider trading laws enforcement and institutions may influence international portfolio investments (see So and Tse 2001; Papaioannou 2009; Phengpis and Swanson 2011; Chiou and Lee 2013; Okada 2013). Notwithstanding countries enacting insider trading laws, existing studies show that corporate insiders continue to trade on price-sensitive non-public information (Kryzanowski and Lazrak 2011; Milian 2016; Tartaroglu and Imhof 2017).

It is pertinent to point out that the notable contributions by Beny (2007) and Bhattacharya and Daouk (2002)[1] have focused on the effects of insider trading laws and their enforcement on stock market performance and cost of capital. However, global capital flows across countries depend and react to the diverse institutions, legal framework and economic characteristics in the host country in which firms do their business (Miletkov, Poulsen and

[1] Beny (2007) and Bhattacharya and Daouk (2002) looked at the effects of insider trading laws, their enforcement on performance, cost of capital and portfolio investment and neglect the interaction between insider trading laws' enforcement, institutional quality and levels of stock market development.

Wintoki 2017). Globerman and Shapiro (2003); La Porta et al. (1998, 1999) and Chiyachantana et al. (2004) support this view and contend that institutional environment, capital market depth and the strength of the corporate governance system in the host country are not only important in attracting foreign investments but are also central to the design of trading strategies and efficiency of firms. Yet prior empirical efforts have not addressed the effects of institutions on portfolio investment holistically and we have little understanding regarding the combined effects of the interaction between the insider trading laws enforcement, and infrastructure development[2] on international equity portfolio allocation. The above is against the backdrop that Filatochev et al. (2013) emphasize, which is that institutional characteristics interact on both a complementary and substitutable basis, and the effect of institutions should be evaluated with other factors to provide an inclusive and full account of their effects. This argument is broadly consistent with institutional theory, which posits that the combination of formal rules, their enforcement and governance quality are important in shaping the behaviour and investment strategies of firms (North 1991; Scott 1995). We contend that the level and quality of institutions and the insider trading law enforcement may jointly affect investors' willingness to participate in equity markets and therefore it is imperative the combined effects are investigated to improve our understanding on whether they affect foreign equity portfolio allocation.

In this study, we shed light on the effects of insider trading laws enforcement and their interactions with institutional quality and stock market development on foreign equity portfolio allocation, which previous literature has ignored. Our argument here is that the level of stock market development, institutions and insider trading laws enforcement may interact to engender confidence in the market and influence the willingness of portfolio investors to allocate equity investments to countries that have quality infrastructure and a good enforcement

[2] A proxy for institutional quality and stock market development (Fernandes and Ferreira 2009)

regime. This is because scholars such as Leland (1992), Brockman and Chung (2002); Eleswarapu and Venkataraman (2006) and Du et al. (2016) argue that good institutions reduce transaction costs, information asymmetry and adverse selection risks, while enforcement increases investors' participation in equity markets, liquidity and efficient corporate behaviour. For example, La Porta et al. (1998) showed that countries with weak institutions have narrow capital markets due to low participation by outside investors. Therefore, we argue that any attempt to deeply understand international portfolio allocation should explore not only insider trading laws enforcement but also the joint effect of enforcement, stock market development and institutional quality. This paper fills this gap and extends the literature on the effects of inside trading laws enforcement, levels of capital markets development, and institutional quality on international equity portfolio investment inflows. We do so by using panel OLS regression analysis on the data of 44 bilateral countries over the period from 2001-2015. We further employ dynamic generalized methods of moments (GMM) to increase the robustness of our results.

We find evidence to suggest that stringent insider trading laws and their enforcement exert a positive and significant impact on foreign equity portfolio allocation. Regarding the effects of interaction between the level of enforcement, institutional quality and stock market development, we find that the interaction between the enforcement of insider trading laws, institutional quality and stock market development exerts a significant influence on international portfolio investment allocation.

The study contributes to the literature in several important ways: First, the paper extends prior literature on the determinants of international portfolio investment. In particular, our study addresses gaps in prior empirical research by highlighting the effects of interactions between stringent insider law enforcement, institutions and stock market development and how they influence the inflows of international equity portfolio investments. Examining the joint

effect of host country institutions, stock market development and insider trading laws enforcement on portfolio investment is important for designing trading strategies to minimise information risk and transaction costs, and increase stock market participation by foreign equity investors. Second, the study provides an enhanced understanding by employing a large data set involving 44 countries with more statistical power, compared to prior studies. Employing a proxy for enforcement following the work of Beny (2007), we show that the enforcement of insider trading laws, institutional quality and level of stock market development jointly influence foreign equity investors' decisions to enter foreign markets. Taken together and relying on the institutional theory, our findings argue that institutions matter, underscoring the importance of understanding the pivotal role of the host country's institutional environment in shaping the success of international portfolio strategies.

The rest of the paper is organized as follows. Section 2 reviews relevant literature and formulates hypotheses in respect of the effects of insider trading laws and institutions on international equity portfolio allocation. Section 3 provides a description of the data and methods used in this study. Section 4 reports and discusses the empirical results, and section 5 presents some concluding remarks.

2 Literature review and hypothesis development

2.1 Institutions and international equity portfolio allocation

Existing literature offers both theoretical and empirical explanations of the factors that determine international equity portfolio allocation. These include transaction cost (Warnock 2002); barriers to international investment (Errunza and Losq 1985); differences in investor protection, levels of transparency, and the corporate governance systems in the host country (La Porta et al. 1999; Dahlquist et al. 2003; Gelos and Wei 2005; Adegbite 2015). Others indicate that information asymmetries between foreign and domestic investors, and capital

market depth and risk associated with the host country institutional environment, have a bearing on the flow of international portfolio investment (Dahlquist and Robertson 2001; La Porta et al. 1998). It is argued that foreign investors not only face foreign exchange risk but also political risk in countries that exhibit policy instability, poor governance and weak institutions (Uche et al. 2016). For example, La Porta et al. (1998) note that corporate governance and institutional quality impact on risk and information costs associated with foreign investments. Furthermore, studies such as Kho et al. (2009) and Giannetti and Koskinen (2010) have rendered some support for the role played by the nature of corporate governance and institutional quality on foreign equity portfolio allocation in the host country. This above view is consistent with institutional theory explanations which argue that institutional contexts, i.e., the combination of formal and informal rules, and their enforcement are important in explaining the investment strategies of firms (North 1991; Scott 1995). Scott (2001) and Buckley et al. (2007) argue that the institutional and regulatory framework of the host economy can shape and determine the investment inflows into a country. Therefore any attempt to examine a firm's investment strategy requires an understanding of the institutional framework of the countries within which firms operate. We therefore draw on institutional theory, which is defined by North (1990) as "the rules of the game" to ground this paper.

At the empirical level, systematic research evidence points to the important role of institutions in foreign investments. For example, Aggarwal, Klapper and Wysocki (2005) find that US funds allocate more investments to emerging countries with stronger accounting standards, shareholder rights and a legal framework. Similarly, Papaioannou (2009) shows that poor institutional quality and poor governance adversely affect foreign equity portfolio flow to developing and emerging countries. Djankov et al. (2008) concur, and argue that institutions that protect minority investors attract foreign equity portfolio inflows while poor corporate governance and weak institutions discourage portfolio investments. Moreover, Papaioannou

(2009) contends that poor legal and property rights in an institutional context affect international bank lending and investment inflow. Recent literature, such as Du et al. (2016), also suggests that financial liberalisation and globalisation have spurred cross-border investments across countries. However, Okada (2013) notes that the institutional environment tends to play a complementary role in international equity capital flows. Those who support this line of thinking argue that financial integration alone has little effect in attracting foreign equity capital into countries with poor institutional quality and weak governance (Gelos and Wei 2011). Alternatively, they suggest that differences in the quality of governance, levels of capital market development and institutions explain the reasons why some countries attract more equity capital inflows relative to other countries, even though those countries might have higher marginal returns. Overall, previous studies underscore the need for insider trading laws (Lee and Lu 2008), and the importance of institutions, corporate governance quality, insider trading laws enforcement, and capital market development as key drivers of foreign portfolio investments. Yet, relatively little scholarly attention has been paid to how insider trading laws enforcement may interact with institutional quality and stock market development to affect portfolio investment. This is against the backdrop that investing directly in international equity markets entails unique risks, challenges, and costs (see Chiyachantana et al. 2004), which can be alleviated by the combination of institutional environment in which firms operate, level of laws' enforcement and stock market development. Our paper is different from previous studies in that it focuses on the joint effects of these variables to provide a more holistic understanding of institutions and law enforcement, and their association may reduce transaction costs, information risks and improve stock market participation by investors in international markets.

2.2 Hypotheses development

Law and economics literature provides the pros and cons of insider trading.[3] The economic argument suggests that restrictive insider trading laws and their enforcement can reduce adverse selection costs and enhance stock market liquidity. For example, Carlton and Fischel (1983) argue that insider trading laws alleviate agency conflict and also reduce intra-firm inefficiency. Further, such laws increase investors' confidence in the market, reduce corporate plans' interference, improve investment and welfare, and motivate institutional shareholders to monitor management, rather than seek to profit from insider trading (Uche et al. 2016).

On the empirical front, recent studies document that foreign investors tend to increase their portfolio allocation in countries that have stringent insider trading laws and rigorously enforce them. For example, Beny (2007) finds that stringent insider trading laws and enforcement are positively associated with greater corporate valuation in common law countries. This suggests that restrictive insider trading laws and enforcement mitigate risk and cost. Therefore, it may be argued that foreign investors may devote more resources to collect information once they know there is a low probability of trading with insiders who would be unable to use their superior private knowledge. If restrictive insider trading laws and enforcement prevent the crowding-out effect, this makes stock prices more informationally efficient and increases the participation of foreign investors. Enforcement of insider trading laws may further reduce information asymmetries and encourage investments, and increase domestic stock market participation by foreign equity investors. Overall, it is argued that countries that have stringent insider trading laws will attract more foreign investors as this reduces controlling shareholders' incentives to divert corporate value through trading on price-sensitive, private information. Similarly, countries that enforce insider trading laws tend to

[3] For papers on pros and cons on insider trading laws (see Damodaran and Liu 1993; Bebchuk and Fershtman 1994; Agrawal and Jaffe 1995; Maug, 2002; Firth et al. 2011; Gangopadhyay et al. 2014).

attract more foreign equity investors as this serves as a deterrent to controlling shareholders. In the light of the above, we put forward the following hypotheses:

H_1: Stringent insider trading laws (*SITL*) are positively associated with higher foreign equity portfolio allocation.

H_2: Enforcement of insider trading laws (*Enforce*) relates to higher foreign equity portfolio allocation.

The finance literature shows that the level of a country's infrastructure development plays a significant role in international equity portfolio allocation. Fernandes and Ferreira (2009) suggest that both institutional quality and stock market development capture infrastructure development. The strength of institutions provides an indication of the health of the stock market and is a strong predictor of foreign equity portfolio allocation. Leland (1992); Brockman and Chung 2002) and Eleswarapu and Venkataraman (2006) echo similar view and argue that improved regulatory quality and the rule of law provide confidence to increase stock market liquidity. However, an issue yet to be explored in the literature is whether stringent insider trading laws' enforcement interacts with the level of a country's level of infrastructure development to increase investors' willingness to participate in equity markets.

In this paper, we argue that insider trading laws enforcement interacts with infrastructure development to influence equity portfolio inflows. This is because institutional quality, stock market development and insider trading law enforcement may jointly engender confidence in the market and influence the willingness of portfolio investors to participate in equity investments across countries. This argument is in line with the views of Eleswarapu and Venkataraman (2006); Beck and Levine (2005) and Leland (1992) who contend that good institutions, stock market development and insider trading laws' enforcement, albeit separately,

may alleviate transaction costs, and information and adverse selection risks, and engender confidence, resulting in higher investors' equity market participation and liquidity. In the light of the above, we therefore put forward two exploratory hypotheses (representing proxies for a country's infrastructural development) as follows:

H_3: The interaction between the level of insider trading law enforcement and institutional quality is positively related to foreign equity portfolio allocation.

H_4: The interaction between the level of insider trading law enforcement and stock market development is positively related to foreign equity portfolio allocation.

3 Data and methodology

3.1 Data sources and measurement of variables

Our dependent variable is foreign equity portfolio allocation for each country. We obtained annual standard bilateral country aggregated equity allocation data from the Coordinated Portfolio Investment Survey (CPIS) of the International Monetary Fund (IMF). We use the annual bilateral CPIS dataset of 44 countries for the period from 2001-2015 to construct foreign portfolio allocation. The CPIS provides data on bilateral equity holdings for 76 stock markets. Following the standard data filtering (e.g., deleting countries with missing data, as well as inconsistent and extreme values of variables), we restricted our sample size to 44 out of the 45 countries. This consists of the investable Morgan Stanley Capital International (MSCI) All Country Index, which accounts for about 95% of total assets and liabilities held by CPIS. The IMF requires all the participating countries to provide a breakdown of equity portfolio investment. We model foreign equity portfolio allocation as our dependent variable following Cooper and Kaplanis (1986). The foreign equity portfolio allocation of country i into country j is defined as:

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

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.

3.2 Independent variables

In our analysis, the main independent variables of interest are stringent insider trading laws (*STIL*) and enforcement of insider trading laws (*Enforce*). Following existing literature, we discuss and construct *SITL* and *Enforce* as follows.

3.2.1 Stringent insider trading laws

The stringent insider trading laws (*SITL*) is the aggregate of four elements: Laws preventing insiders from trading on price-sensitive private information; the country's regulations preventing tippees (outsiders) from using the price-sensitive private information provided by corporate insiders; financial penalty suffered for violating insider trading laws; and whether insider trading is considered as a criminal offence. Following Beny (2007) we construct *SITL* across our sample countries. First, we assign a value equal to one if the insider trading laws make a corporate insider liable for providing price-sensitive private information to a tippee and otherwise zero. Second, we give a value equal to one if the country's insider trading laws forbid the tippee from trading on price-sensitive private information provided by corporate insiders and otherwise zero. The third element considers the penalty for violating insider trading laws relative to the proceeds from the crime. We assign a value equal to one if the possible financial penalty for violating a country's insider trading regulations is higher than the proceeds from the unlawful trading and otherwise zero. The final element considers whether insider trading

is a criminal offence. We assign a value equal to one if the country's insider trading regulations classify insider trading as a criminal activity and otherwise zero.

The aggregate measure of *SITL* may be problematic, as a regression model with a discrete variable assumes a constant marginal effect for any increment in the discrete variable, which may be different in practice. Nevertheless, following existing studies (see Beny 2008; Brockman et al. 2014), *SITL* is suitable (even if there is a practical concern) as it captures the breadth of the insider trading prohibition and the expected criminal and monetary penalties for violating a country's insider trading laws.

3.2.2 Enforcement of insider trading laws

A country can have stringent insider trading laws on the books but would rarely enforce them to deter potential illicit traders to enhance investor confidence. Zimring and Hawkins (1973) argue that regulations' deterrent is a combined function of the substantive content of the law and the possibility that the law will be enforced. Countries have little systematic information on actual enforcement of insider trading laws. Following Bhattacharya and Daouk (2002), Beny (2007), and Fernandes and Ferreira (2009), we construct a dummy variable *Enforce* which is equal to one if insider trading laws have been enforced once in a country by the year 2000, and zero otherwise.[4]

The fundamental *Enforce* data are from Bhattacharya and Daouk (2002) who report the first time prosecution of insider traders in over 100 countries. The construction of the *Enforce* measure could undoubtedly be problematic as it does not offer enough intuition on the magnitude and frequency of enforcement or prosecution of insider traders. However, as in Beny (2008), it remains a good proxy with the understanding that if a country had once enforced the insider trading laws, there is high likelihood of the law being enforced again.

[4] Our data begins from 2001 so we chose the year 2000 as the cut-off date.

3.3 Control variables

In our panel regression analysis, we control for several time-varying country-specific characteristics shown in existing studies that influence portfolio allocation decisions of foreign investors. Country-specific factors such as direct and indirect barriers, country risk, and the level of financial and economic development, largely influence the ability and incentives of foreign investors to buy domestic equities.

In spite of the benefits of international portfolio diversification through increased risk sharing, a body of research has shown that investors fail to exploit diversification benefits and allocate a relatively significant proportion of their investments to domestic equities. Fidora et al. (2007) and Chan et al. (2005) show that investors over-invest in their domestic market. We therefore use equity home bias *(EHBIAS)* to isolate its implications on international portfolio allocation before controlling for the possible effects of other factors on foreign investment flow.

Foreign exchange risk affects international portfolio returns and therefore, the movement of foreign exchange would be a concern to foreign investors. Following Carrieri et al. (2006), we use real effective foreign exchange rate (*REFER*) to capture exchange rate volatility which directly affects international portfolio returns. Carrieri et al. (2006) argue that *REFER* is a better than nominal effective exchange rate because consumer price levels are mainly non-random. They also suggest that the use of real effective foreign exchange rate will capture the true effect of exchange rate risk arising from purchasing power parity. *REFER* is a three year moving average standard deviation of weighted *REFER*. We obtained data from the Bank of International Settlement (BIS).

Foreign investors are generally concerned with the country-specific risk profile in terms of economic and financial risk. We use financial risk (*FinRisk*) and economic risk policy

(*EconRisk*) to control their effects on international portfolio investment decisions. We derived our data from the International Country Risk Guide (ICRG).

Stock markets where transaction costs are lower will attract more equity portfolio flow. Solnik and McLeavey (2004) show that transaction costs reduce a portfolio's expected returns. Investors tend to reduce their investments in countries with high transaction costs. We therefore use transaction cost (*TRCT*) to capture the important role it plays in international portfolio allocation. We obtained the data that are estimated and maintained by Elkins/McSherry (E/M) and are reported in the annual global stock market fact book of Standard and Poor's. The E/M transaction cost is the average transaction cost in US dollars, obtained by aggregating three sub-components: commission, fees, and market impact. Foreign investors are more likely to invest in countries with lower transaction costs.

Existing studies show that integrated markets attract foreign portfolio investment (see Chan et al. 2005). We use the log average of a country's annual exports and imports scaled by *GDP* (*LSMI*) to capture stock market openness.

Following Aggarwal et al. (2005) and La Porta et al. (1998), we use two measures to control for investor protection. International investors tend to invest in countries where strong shareholders' rights and institutional quality exist. We employ the International Country Risk Guide's (ICRG) rule of law (*Law*) index, ranging from 0 (highest potential risk) to 6 (lowest potential risk). The second measure we use is the ICRG corruption (*Cor*) index ranging from 0 (highest risk) to 6 (lowest potential risk).

We use *Tobinq* to capture the valuation effects of a country. It is conceivable that foreign investors will be attracted to countries with firms experiencing higher valuations. We measure *Tobinq* as the log (natural) book value of total liabilities plus market value of equity and divided by the book value of corporate assets of country i.

We use GDP per capita growth rate (*GDPPCG*) to capture the level of economic development in attracting foreign equity investment. We obtained data from the World Development Indicators (WDI) of the World Bank. We expect investors to have high preference to invest in countries with high economic development.

Foreign investors are likely to invest in countries that have developed stock markets. For instance, Claessens, Klingebiel and Schmukler (2006) show that foreign investors increase their investments in developed stock markets as a result of higher liquidity. We use market capitalization to GDP (*MGDP*) to control for the importance of a country's stock market to the economy. Investors will invest in countries with developed stock markets which play a significant role in the economy. Levine and Zervos (1996) argue that developed stock markets play a significant role in mobilizing financial resources and risk diversification. We obtained data from WDI. The manner in which our dependent and independent variables are defined and measured is provided in Table A1 in the appendix.

4 Empirical analysis

This section begins with a brief analysis of the summary statistics of the variables. We subsequently discuss the results of the multivariate regression that accounts for the relationship between the enforcement of insider trading laws and international equity portfolio allocation.

4.1 Summary statistics

Table 1 presents a summary analysis of the annual country-level of the variables used in the study. Among the 44 sample countries, 23 are developed countries and 21 are emerging markets. Panel A presents averages of annual data for developed countries and panel B reports averages for emerging markets. There are a total of 660 annual country-level observations in 44 countries, with an average relative foreign equity portfolio allocation across both developed

and emerging markets of 0.0233(median 0.0062). Developed countries on average attract 0.0425 foreign equity portfolio allocations more than emerging markets.

Models 2 and 3 of Table 2 report a wide cross-country distribution in stringent insider trading laws (*SITL*) and enforcement (*Enforce*). Interestingly, developed countries have most stringent insider trading laws (2.9) relative to emerging markets (2.7). Similarly, developed countries on average have enforced insider trading laws (0.8) compared to emerging markets (0.6). Norway and Mexico have the least stringent insider trading laws.

Models 4-11 present the control variables at the country level. Equity home bias (*EHBIAS*) ranges from an average of 3.32 in developed countries to 6.04 in emerging markets, indicating domestic investors in emerging countries overweight their local stock market compared to developed countries. Financial risk (*FinRisk*) varies largely between 24.27 in the United Kingdom to 46.5 in China. Transaction cost (*TRCT*) ranges from 88.02 basis points in the Philippines to 19.38 basis points in Japan.

[Insert Table 1 about here]

4.2 Correlation analysis

Table 2 presents the cross-correlation coefficient matrix, highlighting the relationship between *Port_Alloc*, *SITL*, *Enforce* and other explanatory variables used in our analysis. In line with theoretical expectations, foreign portfolio allocation *Port_Alloc*, is positively and significantly correlated with *SITL* and *Enforce*. Interestingly, there is a positive and statistically significant correlation between *SITL* and *Enforce*. Several variables' correlation coefficients show expected signs.

[Insert Table 2 about here]

4.3 Regression results

This section examines whether cross-sectional and temporal differences in insider trading laws and enforcement have any varying impact on international equity portfolio flows. The above univariate analysis suggests a positive relationship between the enforcement of insider trading laws and foreign equity portfolio flows. To ensure the reliability of the observed relationship, we control for other factors that affect foreign equity portfolio allocation. In our analysis, we use a panel regression with Newey-West standard error correction method to arbitrarily correct for autocorrelation and heteroskedasticity. Fixed effects uses within-country or firm changes to explain the dependent variable (see Coles, Daniel and Naveen, 2008). In this study, our independent variables hardly change over time. Therefore, we use a random effects approach to address within-country correlation, as the control variables are uncorrelated with country-specific effect. The random effects approach is mainly efficient because it uses both between and within cross-country variations in the dataset. Hausman's (1978) test shows that the random effects model is preferred over fixed effects estimation.

4.3.1 Insider trading laws, enforcement, and international portfolio allocation

We proceed to formally test the relationship between insider trading laws, enforcement and international portfolio allocation. In Table 3, we present the panel OLS results from *SITL* and *Enforce*; all specifications include the control variables discussed in section 2.3 and capture country fixed effects (α_j) and year fixed effects (δ_t). The *t-statistics* are reported in parentheses.

$$w_{ijt} = \alpha + \beta_1 SITL_{i,t} + \beta_2 Controls_{i,t} + \alpha_j + \delta_t + \varepsilon_{i,t} \quad (2)$$

Equation (2) is estimated using foreign portfolio allocation (w_{ijt}) and the results are reported in models 1 and 3 of Table 3 with stringent insider trading laws ($SITL_{i,t}$) as the key independent variable of interest. We find the coefficients for stringent insider trading laws

(*SITL)* to be positive (β = 0.194; t-statistics = 2.15), and (β = 0.177; t-statistics = 2.06) and statistically significant at the 5% level. The results suggest that merely enacting stringent insider trading laws provides a signal to investors that the country will protect them against insider trading, thereby leading to an increase in foreign equity investment. These results, although marginally significant in model 3, provide some support for hypothesis 1. However, this finding appears inconsistent with the dominant view in the literature, such as that of Dalko and Wang (2016), who argue that insider trading laws could be ineffective unless enforced.

Equation (3) is estimated with enforcement of insider trading laws (*Enforce*) as the key independent variable of interest and we report the result in models 2 and 4.

$$w_{ijt} = \alpha + \beta_1 Enforce_{i,t} + \beta_2 Controls_{i,t} + \alpha_j + \delta_t + \varepsilon_{i,t} \quad (3)$$

The results indicate that *Enforce* has a positive and statistically significant influence on international portfolio investment inflows at the 1% level. The coefficients for *Enforce:* (β = 0.819; t-statistic = 9.74) and (β = 0.612; t-statistics = 7.63) reported in models 2 and 4 show that countries that enforce insider trading laws tend to attract more foreign equity investors. Further, after controlling for *EHBIAS* in model 4, *Enforce* remains positive and statistically significant at the 1% level. Our results therefore support hypothesis 2. This is consistent with the insider trading literature, which suggests that the enforcement of insider trading laws reduces risk associated with investment, and encourages foreign investors to allocate more investment to countries that enforce those laws. For example, Bhattacharya and Daouk (2002) show that the introduction of insider trading laws has no impact on the cost of equity capital but rather its enforcement reduces cost of equity capital, implying that enforcement may lead to abundance of capital and inflows of equity portfolio investments.

The results demonstrate the extent of foreign investors' concern about the integrity of the stock market. Countries that have stringent insider trading laws but fail to prosecute insiders

who trade on price-sensitive non-public information suffer from lack of market reliability and confidence, and the inability to attract foreign investors.

[Insert Table 3 about here]

The control variables mainly exhibit the expected signs and are statistically significant as reported in Table 3 (models 1-4). The coefficient on *EHBIAS* is negative and statistically significant at the 1% level in models 3 and 4. This is consistent with results reported in Thapa and Poshakwale (2010). All the variables that capture the riskiness of a country are negatively related to international equity portfolio allocation. For instance, *REFER*, *FinRisk EconRisk*, *TRCT*, and *Cor* have a negative and statistically significant association with international equity portfolio allocation. We find *LSMI*, *Law*, *Tobinq*, *GDPPCG* and *MGDP* which mainly capture the level of integration, performance of firms, economic growth and the level of stock market development, to have a positive and significant association with international portfolio allocation.

4.3.2 Enforcement, institutions and the stock market development

To find out whether the interaction between the enforcement of insider trading laws, quality of institutions and the level of stock market development increase the portfolio investment inflows, we carried out an analysis using the interaction of enforcement with proxies representing quality institutions (INS) and stock market development (SMD). The extent to which country institutional quality protects minority investors is proxied by World Bank Governance Indicator *(WBGI)* (which captures good governance) and the investor protection (*InvPro)* measure from the International Country Risk Guide *(ICRG).* Furthermore, we examine the extent to which foreign investors react to the enforcement of insider trading laws and the degree of the country stock market development. We use stock value traded to GDP

(*TRGDP*) and Turnover ratio (*Turn*), measured as stock value traded divided by market capitalisation, to capture the level of stock market development. Our model specifications for the interactive variables are given below:

$$w_{i,j,t} = \alpha + \beta_1 Enforce_{i,t} + \beta_2 INS_{i,t} + \beta_3 Enforce_{i,t} \times INS_{i,t} + \beta_4 Controls_{i,t} + \alpha_j + \delta_t + \varepsilon_{i,t} \quad (4)$$

$$w_{i,j,t} = \alpha + \beta_1 Enforce_{i,t} + \beta_2 SMD_{i,t} + \beta_3 Enforce_{i,t} \times SMD_{i,t} + \beta_4 Controls_{i,t} + \alpha_j + \delta_t + \varepsilon_{i,t} \quad (5)$$

Models 1 and 2 of Table 4 report the results of the interactions between enforcement and institutional quality. We find positive and significant coefficients for interactive variables: *Enforce x WBGI* ($\beta = 0.882; p < 0.01$) and *Enforce x InvPro* ($\beta = 0.490; p < 0.01$). The corresponding marginal effects are 0.472 and 0.268 in models 1 and 2 respectively, thus suggesting that enforcement of insider trading laws works in tandem with the quality of institutions to influence portfolio investment inflows. The positive coefficient on *Enforce* in Models 1 and 2 indicates that the quality of institutions appears to be an important element of enforcement and its sustainability. Foreign investors prefer to invest in equities of countries that enforce insider trading laws, coupled with good institutions. Hypothesis 3 is therefore supported.

In Models 3 and 4 of Table 4, we examine the effects of interaction between enforcement and stock market development in attracting foreign equity portfolio flows. Countries that have developed stock markets experience stock prices that are more informative and have lower information asymmetry. Foreign investors allocate more equity investment to countries that have developed stock markets as a result of higher liquidity and lower transaction cost. Intuitively, enforcement of *SITL* and developed stock markets should have a pronounced combined effect in attracting foreign equity portfolio flow. The coefficients of interactions

between enforcement and stock market development in models 3 and 4: *Enforce*×*TRGDP* ($\beta = 0.577; p < 0.01$) and *Enforce*×*Turn* ($\beta = 0.228; p < 0.01$) are positive and significant. The marginal effects of the interaction between enforcement and stock market development are 0.236 and 0.354 in models 4 and 5 respectively. The results suggest that enforcement of insider trading laws and stock market development have a positive and statistically significant joint effect in attracting international equity portfolio flows. The results highlight the complementary roles that insider trading laws' enforcement, institutional quality and stock market development play in attracting foreign equity portfolio investments across countries. Hypothesis 4 is therefore supported.

[Insert Table 4 about here]

4.3 Dynamic generalized methods of moment (GMM) estimation

To address the issue of endogeneity, we use dynamic panel data estimation (Arellano and Bover 1995) by including the first difference of foreign equity portfolio allocation as an explanatory variable. However, since in GMM, the first differenced foreign equity portfolio allocation is used as an instrument, we lose an observation. In addition to addressing the issue of reverse causality, the dynamic GMM model also takes account of unobservable heterogeneity (see Wintoki et al. 2012).[5] Once again, four specifications of the equation are estimated for *SITL* and *Enforce*. We estimated the dynamic GMM using the following equation. All specifications include control variables, discussed in section 2, and capture country fixed effects (α_j) and year fixed effects (δ_t).

$$w_{i,j,t} = a + \beta_1 w_{i,j,t-1} + \beta_2 X_{i,t-1} + \gamma Z_{j,t-1} + \alpha_j + \delta_t + \varepsilon_{i,t} \quad (6)$$

[5] The dynamic GMM estimation is appropriate when time waves are smaller and the panels are larger. Thus, the method is suitable for our data type as our sample is comprised of 15 years from 44 countries (panels).

Where w_{ijt} is the weight of foreign equity portfolio allocation from country i into country j for the year t. X contains the *SITL* and *Enforce* variables and Z contains the control variables. Employing lagged foreign equity portfolio allocation, *SITL* and *Enforce* variables help to perform two things. The first is to examine the impact of stringent insider trading laws and enforcement using different sets of assumptions from Tables 3 and 4. Second, it enables us to use it as an alternative dynamic panel as it does not rely on instruments.

The results are presented in Table 5. All coefficients of the measures of *SITL* in models (1-2) and *Enforce* in models (3-4) are significant with expected signs, supporting the view that stringent insider trading laws and enforcement exert a positive influence on foreign equity portfolio allocation.

[Insert Table 5 about here]

5 Conclusion

In this paper, we use a sample of 44 countries to investigate the impact of insider trading laws' enforcement and their interaction with the level of institutional quality and stock market development on foreign equity portfolio allocation. Prior studies have ignored the combined effects of insider trading laws' enforcement, institutional quality and stock market development on international portfolio investments. Yet research evidence suggests that cross-border capital flows across countries depend on and react to differences in institutions, legal regimes and capital market depth in the host country in which firms do their business (Miletkov et al. 2017). More importantly, Filatochev et al. (2013) note that institutional characteristics interact with each other on both complementary and substitutable bases and, in order to fully understand the effects of institutions, researchers should evaluate the role of institutions holistically. In response, this paper has examined the effects of insider trading law enforcement, and its interaction with the level of institutional quality and stock market development. Indeed, this

study constitutes one of the first attempts to examine the implications of institutions on foreign equity portfolio investment inflows across countries. We find that stringent insider trading laws and their enforcement exert a positive and significant impact on international portfolio investment allocation. Regarding the effects of interaction between the level of enforcement, institutional quality and stock market development, we find that the interactions between the enforcement of insider trading laws, institutional quality and stock market development exert a significant influence on international portfolio investment allocation. It is pertinent to point out that the law, economics and finance literature all provide contentious debate with regard to the pros and cons of insider trading laws, with inconclusive results thus far. Our results provide evidence that countries that enact insider trading laws and enforce them, leads to an increase in foreign equity portfolio flows across countries. Providing implications for institutional theory, our findings demonstrate that institutional characteristics interact complementarily to attract equity portfolio investment, suggesting that the institutional environment appears critical to foreign firms' investment strategies and portfolio allocation decisions.

Our findings have important implications for policy makers and regulators. For instance, while enacting stringent insider trading laws provides a signal to foreign portfolio investors, their enforcement leads to an unequivocal increase in portfolio investments in the host country. Furthermore, our results imply that enforcement of insider trading laws operates on a complementary basis with the level of stock market development and institutional quality. Therefore investors should not only pay attention to the enactment and enforcement of insider trading laws, but should also consider the stock market depth and the quality of a country's institutions to ensure the sustainability of portfolio investment inflows. This is because strengthening insider trading laws, providing for increased enforcement, institutional quality and stock market depth, tends to promote good governance, and enhance market integrity and investor confidence, thereby leading to high capital inflows. The implication of the results of

this study for emerging and developing countries is particularly important. We suggest that, in their quest to attract foreign equity capital and increase economic growth, emerging countries should reform and restructure their governance systems to provide good institutions for potential foreign investors to increase their investments in these countries.

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Table 1 Summary statistics of dependent and independent variables

Note: *Port_Alloc* is portfolio allocation which is the log value of country wise bilateral foreign portfolio allocation from country i in country j at time t $(W_{i,j,t})$; *SITL* is stringent insider trading laws index that ranges between 1 (least stringent) and 4 (most stringent); *Enforce* is the enforcement of insider trading law which is a dummy variable equal to one if insider trading law has been enforced at least once by 2000, and zero otherwise; *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; *REFER* is the three year moving average standard deviation of weighted real effective foreign exchange rate; *FinRisk* is the financial risk rating index of a country; *EconRisk* represents the economic risk rating index of a country; *TRCT* is the measure of average transaction cost in basis points and is divided by 100; *LSMI* is a measure of market integration measured as the ratio of a country's annual exports plus imports divided by *GDP; Law* represents the rule of law rating index of a country; *Tobinq* is measured as the log (natural) book value of total liabilities plus market value of equity and divided by the book value of corporate assets of country i; *GDPPCG* is gross domestic product per capita growth rate; *MGDP* is market capitalization as a percentage of GDP; *Cor* corruption level prevailing in the country. Statistical significance is reported against 10% (*), 5% (**) and 1% (***).

Panel A. Developed markets

Country	Port_Alloc	SITL	Enforce	EHBIAS	REFER (%)	FinRisk (0-50)	EconRisk (0-50)	TRCT (Basis points)	LSMI (% of GDP)	Law (0-6)	Tobinq	GDPPCG (%)	MGDP (% of GDP)	Cor (0-6)
Australia	0.0116	3	1	3.46	7.84	36.09	29.13	31.31	40.83	5.81	5.83	1.46	119.16	4.667
Austria	0.0124	2	0	4.18	2.37	38.43	33.65	30.47	101.49	5.85	5.35	0.87	28.95	4.842
Belgium	0.0249	3	1	3.32	2.71	27.78	42.97	28.16	153.17	4.72	5.09	0.77	65.83	3.817
Canada	0.0251	4	1	2.81	4.26	29.51	41.84	30.28	70.33	5.85	5.67	0.94	114.47	4.854
Denmark	0.0124	3	1	4.22	2.59	41.92	43.53	32.04	124.87	5.68	3.72	0.50	63.31	5.267
Finland	0.0082	3	1	4.15	2.36	37.21	45.22	37.72	55.01	5.85	6.71	0.80	98.62	5.552
France	0.0869	4	1	2.62	2.73	30.69	34.92	24.74	78.37	4.62	5.59	0.54	80.67	3.238
Germany	0.0831	3	1	2.19	3.68	26.22	36.07	25.65	53.34	4.55	5.42	1.20	45.71	4.325
Greece	0.0034	2	1	4.72	5.37	32.76	34.77	54.34	78.38	3.55	5.77	-0.10	51.91	2.775
Hong Kong	0.0268	3	1	2.87	2.32	41.38	43.84	39.22	362.92	4.66	3.69	3.10	421.17	3.817
Ireland	0.0568	3	0	2.84	4.69	35.59	41.85	31.24	161.14	5.85	6.13	2.92	46.77	3.288
Israel	0.0017	4	1	4.68	3.72	31.27	36.16	37.36	76.03	5.15	4.47	1.39	84.72	3.075
Italy	0.0416	3	1	2.84	2.38	31.76	35.05	29.15	52.75	3.79	5.22	-0.41	37.54	2.467
Japan	0.1048	2	1	1.73	7.45	43.47	36.28	19.38	26.94	4.85	1.29	0.76	77.97	3.258
Netherlands	0.0518	3	1	2.31	2.24	29.08	41.93	28.45	132.82	5.97	6.12	0.72	91.33	5.083
New Zealand	0.0014	3	0	5.77	6.93	26.5	27.89	34.58	59.34	5.45	6.22	1.38	36.38	5.233
Norway	0.0183	1	1	3.87	5.77	44.74	44.62	30.21	71.45	5.55	4.41	0.62	55.66	5.462

Portugal	0.0056	3	0	5.28	2.35	34.62	34.63	31.83	67.27	5.05	5.02	0.16	39.39	3.637
Spain	0.0195	3	1	3.09	4.80	36.77	38.29	46.82	56.87	4.66	6.24	0.51	86.73	3.858
Sweden	0.0137	3	1	3.75	4.78	28.42	44.64	28.62	89.37	5.98	3.48	1.45	104.08	5.192
Switzerland	0.0385	3	1	3.11	3.34	45.24	44.93	27.16	88.85	4.75	5.21	0.79	229.24	4.163
United Kingdom	0.1121	3	1	2.03	4.67	24.27	34.08	50.02	57.08	5.36	6.04	1.06	128.47	4.171
United States	0.2259	4	1	0.65	4.35	30.56	27.82	21.73	25.46	4.83	6.53	0.94	124.09	4.033
Mean	0.0427	3	0.8	3.32	4.07	34.09	38.01	32.63	90.61	5.14	5.17	0.97	97.05	4.177

Panel B. Emerging markets

Country	Port_Alloc	Insider	Enforce	EHBIAS	REFER (%)	FinRisk (0-50)	EconRisk (0-50)	TRCT (Basis points)	LSMI (% of GDP)	Law (0-6)	Tobinq	GDPPCG (%)	MGDP (% of GDP)	Cor (0-6)
Argentina	0.0008	3	1	6.62	11.32	31.15	32.43	67.98	40.41	3.21	5.76	1.87	38.67	2.608
Brazil	0.0006	2	1	5.34	13.64	32.63	34.98	46.06	25.81	2.33	5.01	1.75	54.96	2.313
Bulgaria	0.0003	2	0	9.59	5.71	32.31	31.08	60.21	116.48	3.89	5.25	4.42	17.52	2.521
Chile	0.0025	3	1	5.33	6.53	25.74	40.14	NA	69.21	4.85	0.21	3.09	107.1	3.496
China	0.0083	3	0	3.15	5.87	46.53	37.37	46.58	58.66	3.93	4.18	9.07	69.07	1.854
Czech Rep	0.0009	3	1	6.44	5.75	31.03	36.91	56.37	58.66	5.15	3.33	2.50	25.33	3.146
Egypt	0.0002	3	0	7.27	8.66	33.46	34.54	68.15	93.56	3.92	5.39	2.12	55.67	2.246
Hungary	0.0031	3	1	6.98	6.32	35.64	34.87	51.24	146.36	4.34	0.92	2.27	24.53	3.467
India	0.0006	2	1	4.76	5.13	37.38	33.53	59.06	39.94	3.78	2.73	5.75	68.12	2.021
Indonesia	0.0003	2	1	6.95	12.36	24.54	36.83	65.32	56.92	2.92	-1.81	3.94	30.03	2.088
Korea	0.0034	4	1	4.56	5.83	34.19	41.64	55.05	82.12	4.76	-0.72	3.39	37.54	2.471
Malaysia	0.0009	2	1	6.21	3.67	36.95	35.78	51.21	191.51	3.27	4.98	2.92	46.77	2.754
Mexico	0.0089	1	0	5.35	7.26	38.97	38.38	35.71	54.33	3.42	4.11	0.73	28.33	2.142
Peru	0.0002	4	1	7.63	4.52	31.58	39.06	71.24	43.06	2.75	5.17	4.00	47.15	2.517
Philippines	0.0003	2	0	6.26	5.35	35.77	29.84	88.02	89.85	2.73	2.66	3.32	48.26	2.033
Poland	0.0005	3	1	5.97	7.47	36.19	36.48	NA	75.52	4.45	4.93	3.68	28.56	2.688
Romania	0.0006	3	0	7.64	8.60	35.21	31.71	73.12	75.08	3.75	3.49	4.65	16.31	2.238
Russia	0.0068	3	0	4.92	13.42	43.92	37.73	NA	55.18	4.29	2.66	3.77	61.59	1.725
South Africa	0.0009	2	0	4.78	10.35	25.91	35.07	68.54	59.34	2.72	4.84	1.67	76.32	2.671

Thailand	0.0005	3	1	5.83	4.16	33.74	34.24	53.14	135.01	3.17	2.96	3.46	62.06	1.742
Turkey	0.0006	4	1	5.44	15.32	32.02	32.59	51.52	49.15	4.56	5.26	3.66	28.94	2.392
Mean	0.0002	2.7	0.6	6.04	7.96	34.04	35.49	60.87	76.95	3.71	3.39	3.43	46.32	2.434

Overall:

Mean	0.0233	2.8	0.7	4.62	5.93	34.07	36.79	44.37	84.09	4.46	4.32	2.15	72.84	3.345
Median	0.0062	3	1	4.74	5.24	33.65	36.12	39.22	69.77	4.64	5.02	1.57	55.67	3.192
Std Dev	0.426	0.7	0.5	1.87	3.26	5.75	4.69	16.88	57.29	1.03	1.93	1.79	66.60	1.145
Minimum	0.0002	1	0	0.65	2.24	24.27	27.80	19.38	25.46	2.33	-1.81	-0.41	16.31	1.725
Maximum	0.2259	4	1	9.59	15.32	46.50	45.22	88.02	362.90	3.75	6.71	9.07	421.17	5.552

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

Note: *Port_Alloc* is portfolio allocation which is the log value of country wise bilateral foreign portfolio allocation from country i in country j at time t ($W_{i,j,t}$); *SITL* is stringent insider trading laws index that ranges between 1 (least stringent) and 4 (most stringent); *Enforce* is the enforcement of insider trading law which is a dummy variable equal to one if insider trading has been enforced at least once by 2000, and zero otherwise; *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; *REFER* is the three year moving average standard deviation of weighted real effective foreign exchange rate; *FinRisk* is the financial risk rating index of a country; *EconRisk* represents the economic risk rating index of a country; *TRCT* is the measure of average transaction cost in basis points and is divided by 100; *LSMI* is a measure of market integration measured as the ratio of a country's annual exports plus imports divided by *GDP; Law* represents the rule of law rating index of a country; *Tobinq* is measured as the log (natural) book value of total liabilities plus market value of equity and divided by the book value of corporate assets of country i; *GDPPCG* is gross domestic product per capita growth rate; *MGDP* is market capitalization as a percentage of GDP; *Cor* corruption level prevailing in the country. Statistical significance is reported against 10% (*), 5% (**) and 1% (***)

	Port_Alloc	SITL	Enforce	EHBIAS	REFER	FinRisk	EconRisk	TRCT	LSMI	Law	Tobinq	GDPPCG	MGDP	Cor
Port_Alloc	1													
SITL	0.12	1												
Enforce	0.37*	0.23*	1											
EHBIAS	-0.65*	-0.38*	-0.28*	1										
REFER	-0.12*	-0.08	-0.06*	-0.11	1									
FinRisk	-0.13*	-0.06	-0.13*	-0.03	-0.08	1								
EconRisk	-0.14*	-0.14	0.21*	-0.17*	-0.05	0.04	1							
TRCT	-0.21*	0.02	0.14*	-0.28*	-0.11	0.11*	0.21*	1						
LSMI	0.25*	-0.15*	-0.03	-0.16*	-0.06	-0.02	-0.27*	-0.28*	1					
Law	0.20*	0.08	0.12*	-0.29*	0.04	0.09*	0.17*	0.33*	0.19*	1				
Tobinq	0.23*	-0.09*	-0.10*	-0.21*	0.04	0.03	0.10*	0.29*	-0.06	0.17*	1			
GDPPCG	0.38*	0.18*	0.31*	-0.51*	-0.06	-0.02	-0.27*	-0.27*	0.14*	0.36	0.35*	1		
MGDP	0.16*	0.12*	0.18*	-0.41*	-0.06	-0.08	-0.22*	-0.18*	0.32*	0.10*	0.08	0.29*	1	
Cor	-0.25*	0.10*	0.22*	-0.34*	-0.08	-0.04	-0.19*	-0.08*	0.18*	-0.34*	-0.32*	-0.34*	-0.22*	1

Table 3 Effects of insider trading laws and enforcement on international equity portfolio investment

This table reports the results from the regression of insider trading laws and enforcement in a country from 2001 to 2015. In all regressions the dependent variable is portfolio allocation which is the log value of country wise bilateral foreign portfolio allocation from country i in country j at time t $(W_{i,j,t})$. The explanatory variables of key interest are *SITL* and *Enforce* as defined in the notes to Table 1. All the control variables are as described in Table 1. The *t*-statistics, reported in parentheses, are based on Newey-West autocorrelation and heteroskedasticity corrected standard errors. For tractable interpretation, all the coefficients are reported as partial elasticity and the statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels. For models 1 and 3 estimations, please see equation (2), and for models 2 and 4 estimations, please see equation (3) in the text.

	Model (1)	Model (2)	Model (3)	Model (4)
SITL	0.194**		0.177**	
	(2.15)		(2.06)	
Enforce		0.819***		0.612***
		(9.74)		(7.63)
EHBIAS			-0.149***	-0.126***
			(-6.13)	(-5.41)
REFER	-0.176***	-0.135***	-0.182***	-0.128***
	(-3.37)	(-2.97)	(-3.47)	(-3.04)
FinRisk	-0.362**	-0.383**	-0.423***	-0.456**
	-2.11)	(-2.06)	(-2.59)	(-2.38)
EconRisk	-0.718***	-0.775**	-0.731**	-0.852**
	(-2.95)	(-2.03)	(-2.19)	(-2.40)
TRCT	-0.287***	-0.365***	-0.326**	-0.495***
	(-2.85)	(-3.97)	(-2.13)	(-2.58)
LSMI	0.206***	0.197***	0.506***	0.539***
	(3.44)	(3.34)	(3.19)	(3.17)
Law	0.145**	0.277*	0.638**	0.483**
	(2.10)	(1.85)	(2.24)	(2.29)
Tobinq	0.406***	0.377***	0.285***	0.270**
	(4.18)	(3.22)	(2.72)	(2.38)
GDPPCG	0.151***	0.147***	0.583**	0.605**
	(4.24)	(4.10)	(2.16)	(2.42)
MGDP	0.617**	0.604**	0.618***	0.472***
	(2.29)	(2.25)	(2.57)	(2.81)
Cor	-0.640***	-0.694***	-0.412***	-0.536***
	(-4.23)	(-4.67)	(-3.02)	(-3.43)
Constant	0.734***	0.952***	0.325***	0.496*
	(2.63)	(3.38)	(3.37)	(1.88)
Number of Observations	615	615	615	615
Adj. R-square	0.44	0.43	0.42	0.41
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes

Table 4 Insider trading law enforcement, institutional quality, stock market development and international equity portfolio investment

This table reports the results from the regression of enforcement in a country from 2001 to 2015. For models 1-2 and 3-4 specification (please see equations 4 and 5 respectively in the text). The dependent variable is the portfolio allocation by foreign investors. The explanatory variable of key interest is *Enforce* as defined in the notes to Table 1. *WBGI* and *InvPro* are proxies for a country's infrastructure. *WBGI* is World Bank Governance Indicator of good governance. *InvPro* is investor protection measure from International Country Risk Guide. *TRGDP* and *Turn* are proxies for the level of a country's stock market development. *TRGDP* is stock value traded scaled by GDP. *Turn* is turnover ratio which is the market capitalization scaled by GDP. The interaction of the coefficient *Enforce* tests whether the impact of enforcement of insider trading laws on foreign equity flow varies depending on a country's institutional quality and the level of the country's stock market development. All the control variables are as described in Table 1. The *t*-statistics, reported in parentheses, are based on Newey-West autocorrelation and heteroskedasticity corrected standard errors. For tractable interpretation, all the coefficients are reported as partial elasticity and the statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels.

	Model (1)	Model (2)	Model (3)	Model (4)
Enforce	0.236***	0.263***	0.358***	0.470***
	(2.96)	(3.02)	(3.74)	(3.81)
WBGI	0.279***			
	(2.68)			
Enforce×WBGI	0.882***			
	(4.12)			
InvPro		0.154**		
		(2.38)		
Enforce×InvPro		0.490***		
		(5.87)		
TRGDP			0.383***	
			(3.91)	
Enforce×TRGDP			0.577***	
			(3.46)	
Turn				0.578***
				(3.95)
Enforce×Turn				0.228***
				(5.07)
EHBIAS	-0.146***	-0.198***	-0.270***	-0.285***
	(-7.53)	(-8.25)	(-10.37)	(-10.64)
REFER	-0.819**	-0.933**	-0.596**	-0.827**
	(-2.16)	(-2.24)	(-2.18)	(-2.14)
FinRisk	-0.461***	-0.457***	-0.189*	-0.632***
	(-2.64)	(-2.62)	(-1.73)	(-3.74)
EconRisk	-0.892***	-0.930***	-0.405**	-0.961***
	(-3.85)	(-3.91)	(-2.47)	(-4.33)
PolRisk	-0.446	-0.889***	-0.925***	-0.894***
	(-1.32)	(-2.58)	(-4.27)	(-2.96)
LSMI	0.197***	0.233***	0.768***	0.255***
	(5.78)	(6.46)	(3.62)	(7.59)
Law	0.765	0.528	0.183	0.208
	(0.46)	(0.13)	(1.21)	(1.02)
Tobinq	0.130	0.107	0.156	0.114
	(1.39)	(1.22)	(0.20)	(1.28)
GDPPCG	0.123***	0.127***	0.918***	0.102***
	(6.97)	(6.11)	(5.85)	(4.94)
Cor	-0.753***	-0.887***	-0.838***	-0.911***
	(-2.94)	(-3.47)	(-4.96)	(-3.75)
Marginal Effects	0.472	0.268	0.236	0.354
Constant	0.125***	0.105***	-0.063	0.113***
	(4.97)	(3.06)	(-0.37)	(4.28)
Number of observations	660	660	660	660
Adj.R-square	0.37	0.36	0.34	0.40
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes

Table 5 Dynamic GMM

$$w_{i,j,t} = a + \beta_1 w_{i,j,t-1} + \beta_2 X_{i,t-1} + \gamma Z_{j,t-1} + \alpha_j + \delta_t + \varepsilon_{i,t}$$

This table reports the results from the regression of stringent insider trading laws and enforcement in a country from 2001 to 2015. In all regressions the dependent variable is portfolio allocation *Port_Alloc* which is the log value of country wise bilateral foreign portfolio allocation from country i in country j at time t ($W_{i,j,t}$).The explanatory variables of key interest are *SITL* and *Enforce* as defined in the notes to Table 1. All the control variables are as described in Table 1. The *t*-statistics, reported in parentheses, are based on Newey-West autocorrelation and heteroskedasticity corrected standard errors. For tractable interpretation, all the coefficients are reported as partial elasticity and the statistical significance is reported against 10% (*), 5% (**) and 1% (***) significance levels.

	Developed Markets		Emerging Markets	
	Model (1)	Model (2)	Model (3)	Model (4)
SITL	0.267***		0.185**	
	(2.81)		(2.11)	
Enforce		0.276***		0.172**
		(4.79)		(2.07)
EHBIAS	-0.178***	-0.213***	-0.322***	-0.304***
	(-8.26)	(-9.26)	(-11.93)	(-11.86)
REFER	-0.212**	-0.174*	-0.318**	-0.213***
	(-2.26)	(-1.89)	(-2.09)	(-2.78)
FinRisk	-0.838***	-0.797***	-0.373**	-0.386***
	(-3.46)	(-2.62)	(-2.25)	(-2.57)
EconRisk	-0.663**	-0.631*	-0.251*	-0.260*
	(-2.28)	(-1.69)	(-1.73)	(-1.77)
TRCT	-0.159***	-0.114**	-0.197***	-0.217***
	(-3.52)	(-2.09)	(-5.35)	(-5.84)
LSMI	0.504***	0.458***	0.141***	0.165***
	(7.75)	(7.30)	(3.98)	(4.35)
Law	0.262	0.209	0.194	0.216
	(0.57)	(0.36)	(1.17)	(1.59)
Tobinq	0.638***	0.582**	0.184*	0.230**
	(3.01)	(2.35)	(1.82)	(2.08)
GDPPCG	0.141***	0.107***	0.429***	0.465***
	(4.50)	(3.76)	(6.32)	(6.67)
MGDP	0.317***	0.288***	0.354***	0.387***
	(4.63)	(3.91)	(3.32)	(3.66)
Cor	-0.171***	-0.148***	-0.530***	-0.563***
	(-4.38)	(-3.87)	(-2.59)	(-2.90)
AR (2)	0.59	0.70	0.66	0.85
Hansen J statistics	0.63	0.67	0.59	0.74
Difference Hansen J statistics	0.75	0.79	0.77	0.66
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes

Appendix

Table A1

Definitions of variables

Variable		Description
Portfolio allocation	*Port_Alloc*	The log value of country wise bilateral foreign portfolio allocation from country i in country j at time t ($W_{i,j,t}$).
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, if insider trading is considered as a criminal offence.
Enforcement	*Enforce*	A dummy variable which is equal to one if insider trading laws have once been enforced in a country by the year 2000, and zero otherwise.
Equity home bias	*EHBIAS*	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.
Real effective foreign exchange rate	*REFER*	The three year moving average standard deviation of weighted real effective foreign exchange rate.
Financial risk	*FinRisk*	The financial risk rating index of a country from the International Country Risk Guide.
Economic risk	*EconRisk*	The economic risk rating index of a country from the International Country Risk Guide.
Political risk	*PolRisk*	The political risk rating index of a country from the International Country Risk Guide.
Transaction cost	*TRCT*	The average transaction cost in basis points which is divided by 100.
Log stock market integration	*LSMI*	The ratio of a country's annual exports plus imports divided by *GDP*.
Law	*Law*	The rule of law rating index of a country.
Tobinq	*Tobinq*	The log (natural) book value of total liabilities plus market value of equity and divided by the book value of corporate assets of country.
GDP per capita growth	*GDPPCG*	The gross domestic product per capita growth rate.
Market capitalisation to GDP	*MGDP*	The market capitalization as a percentage of GDP.
Corruption	*Cor*	Corruption level prevailing in the country
World bank governance indicators	*WBGI*	The investor protection measure obtained from the World Bank Governance Indicator of good governance.
Investor protection	*InvPro*	The investor protection measure obtained from the International Country Risk Guide.
Equity value traded scaled by GDP	*TRGDP*	The equity value traded scaled by GDP.
Turnover ratio	*Turn*	The total value of equity traded scaled by market capitalization.