

# **Financial globalization, governance, and the evolution of the home bias**

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## **Abstract**

Despite the disappearance of formal barriers to international investment across countries, we find that the average home bias of U.S. investors towards the 46 countries with the largest equity markets did not fall from 1994 to 2004 when countries are equally weighted but fell when countries are weighted by market capitalization. This evidence is inconsistent with portfolio theory explanations of the home bias, but is consistent with what we call the optimal insider ownership theory of the home bias. Since foreign investors can only own shares not held by insiders, there will be a large home bias towards countries in which insiders own large stakes in corporations. Consequently, for the home bias to fall substantially, insider ownership has to fall in countries where it is high. Poor governance leads to concentrated insider ownership, so that governance improvements make it possible for corporate ownership to become more dispersed and for the home bias to fall. We find that the home bias of U.S. investors decreased the most towards countries in which the ownership by corporate insiders is low and countries in which ownership by corporate insiders fell. Using firm-level data for Korea, we find that portfolio equity investment by foreign investors in Korean firms is inversely related to insider ownership and that the firms that attract the most foreign portfolio equity investment are large firms with dispersed ownership.

## 1. Introduction

Fifty years ago, investing in foreign securities was almost impossible for most investors. Typically, their country forbade them to do so or, equivalently, made it impossible for them to obtain foreign currency to pay for foreign securities. Moreover, the countries in which they would have wanted to invest almost always did not allow them to do so. As a result, capital markets in most countries were essentially completely segmented. Since then, explicit barriers to international investment have been brought down and, for the largest and most developed countries, largely eliminated. To use the analogy of Friedman (2005), when one focuses on explicit barriers, the financial world has become flat when one looks at developed countries and has become flatter when one considers emerging markets.

Since the early 1990s, after a wave of liberalizations in emerging markets, stock markets from developed countries as well as from a large number of emerging countries have been open to foreign investors. The neo-classical model of portfolio choice predicts that, under these circumstances, investors hold portfolios that are well-diversified internationally, so that risk is shared across countries efficiently and capital flows where it can be used most profitably.<sup>1</sup> Instead, capital does not appear to flow where neo-classical models predict it could be used most profitably (see Lucas, 1990) and investors still hold portfolios that are overweighted in the securities of the country they come from. In other words, the home bias is still with us, even though what used to be the main argument for the existence of such a bias, formal barriers to international investment, has not been important since the early 1990s for most countries with functioning stock markets. Consequently, the financial world is much flatter *de jure* than *de facto*, which limits the sharing of risks internationally and prevents capital from flowing where neo-classical models suggest it would have the highest return.

In this paper, we investigate how the home bias has evolved since the end of the equity market liberalization wave of the beginning of the 1990s, why the home bias is still with us and

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<sup>1</sup> See Karolyi and Stulz (2003) for a review.

what financial globalization means for the home bias. The traditional approach to explaining the home bias, which we call the portfolio approach, focuses on investors' portfolio demands and identifies reasons why investors have different demands for home country securities compared to foreign securities. Four such reasons have played a dominant role in the literature: (1) explicit barriers to international investment, (2) hedging motives, (3) differential access to information, and (4) behavioral biases. We review this literature in the next section. However, except for behavioral biases, the reasons for the home bias advanced by this literature cannot explain the magnitude of the home bias. Further, the impact of explicit barriers to international investment and differential access to information has fallen over time, so that some of these explanations for the home bias suggest a decreasing, if not disappearing, home bias.

The portfolio approach makes the critical assumption that there is no optimal ownership structure for firms. Yet, there is a considerable literature on the determinants of insider ownership in corporations. That literature predicts that insider ownership should be more concentrated when agency problems between those who control corporations and outside investors are stronger. These agency problems are stronger when the institutions that protect investors in a country are poorer.<sup>2</sup> If foreign investors have a strong home bias towards a country (so that they underweight that country's equities in their portfolio strongly) and it remains optimal for insiders to have large ownership stakes in corporations in that country, it is not possible for the home bias towards that country to fall sharply as long as foreign investors are not corporate insiders. To consider a simple example, in 2004, France represented 4.75% of the world market portfolio. If investors were mean-variance optimizers, there were no barriers to international investment, there were no information asymmetries and each country's stock market wealth equals its equity market capitalization, the absence of a home bias would mean that foreign investors would hold 95.25% of each French firm. Yet, in 2004, the equally-weighted average of insider ownership for French firms for which data was available on Worldscope was 58.1%. If it was optimal for French firms

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<sup>2</sup> See Stulz (2005) for references.

to have 58.1% insider ownership, then foreign investors could not have possibly held 95.25% of each French firm's equity unless foreign investors were also insiders. In fact, if 58.1% insider ownership was optimal and insiders were residents, which is typically the case, the largest fraction of the common stock of French firms foreign investors could hold was 41.9% on average. With this perspective, the existence of an optimal insider ownership bounds the holdings of foreign investors and prevents the elimination of the home bias.

The existence of an optimal level of insider ownership leads to what we call the optimal insider ownership theory of the home bias. With this theory, the upper bound on foreign ownership through equity holdings is determined by the optimal size of insider ownership. This theory has sharply different predictions for the evolution of the home bias than the portfolio choice models with rational investors. Optimal insider ownership depends on the institutions that support corporate governance in a country as well as on the risks of predation by the state. With weak governance because of weak institutions, concentrated insider ownership is optimal. Consequently, to improve the potential for risk-sharing through equity holdings, institutions have to improve so that decentralized ownership becomes optimal. Therefore, for the home bias to have a chance to disappear, institutions that support decentralized ownership have to become prevalent across the world.

Portfolio investors can only hold shares not held by insiders. Hence, as pointed out by Dahlquist, Pinkowitz, Stulz, and Williamson (2003), portfolio investors cannot hold the world market portfolio, but they can hold the world market portfolio of shares not held by insiders, which we call the float-adjusted world market portfolio. If all investors hold the float-adjusted world market portfolio, there is a mechanical relation between insider holdings and foreign ownership: as insider holdings fall, foreign investors buy a fraction of the shares sold by insiders equal to the weight of the country in the float-adjusted world market portfolio. If foreign investors do not hold the float-adjusted world market portfolio, there is no necessary relation between a change in insider ownership and a change in shares held by foreign investors since all the shares

sold by insiders could be bought by local investors. However, our theory implies that there is a lower bound on the home bias that depends on insider ownership. For many countries, this lower bound is high enough that there would be a large home bias towards these countries even if the lower bound were binding.

An exogenous increase in the demand for shares of a country by foreign investors could lead to a decrease in insider ownership in that country. This is because an increase in the demand for shares could increase their price and make their market more liquid, so that insiders might find it more attractive and easier to sell some of their shares. Yet, the extent to which an increase in the demand for shares by foreign investors might lead to a decrease in insider ownership depends crucially on the institutions of the country. If the institutions of a country do not support diffuse ownership, insiders cannot sell a substantial stake in the corporation they control because the corporation would be worth much less if they did so. In contrast, if the institutions of a country support diffuse ownership, increases in the demand for shares by foreign investors can lead insiders to sharply decrease their stake in the firms they control.

We use the period from 1994 to 2004 to investigate the evolution of the home bias. This period starts after a period of liberalization of equity markets in emerging countries, so that we can consider a large number of countries whose equity markets are reasonably open to foreign investors.<sup>3</sup> We first show that there is no evidence of a systematic decrease in ownership concentration across the world. Consequently, the upper bound on risk-sharing has not increased systematically. We then investigate how the holdings of U.S. investors in foreign countries changed from 1994 to 2004, the first and latest years of the U.S. Treasury's comprehensive and high quality benchmark surveys of ownership of foreign securities by U.S. residents. Using this dataset, we find that for a sample of 46 countries with the largest stock markets, the percentage of

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<sup>3</sup> Henry (2000), Bekaert and Harvey (2000), Levine and Zervos (1998) and Kim and Singal (2000) provide equity market liberalization dates for emerging markets. The only emerging markets with liberalization dates after 1992 are Jordan (1995), Nigeria (1993) and Zimbabwe (1993). These countries are not included in this study.

stock market wealth invested in these countries by U.S. residents increased from 9.76% to 13.44% from 1994 to 2004. However, it would be wrong to infer from this that over time there is a systematic increase in portfolio investment across countries towards the investment level that would prevail without a home bias. In fact, the percentage of U.S. stock market wealth invested in 13 countries decreased over that period of time, and in 6 other countries the increase in U.S. investment did not match the growth in the market. Further, the average change in the home bias per country from 1994 to 2004 is not significantly different from zero. Strikingly, we find that the change in the home bias towards individual countries depends critically on the level of insider ownership in these countries. The home bias decreases from 1994 to 2004 in countries where insiders had smaller stakes in firms in 1994 and where the stake of insiders fell from 1994 to 2004.

The U.S. dataset has two main advantages. First, it is high quality, as the U.S. government constructs it from security-level benchmark surveys. Second, it represents the international positions of the largest group of foreign equity investors in the world. The disadvantages of the U.S. dataset are that it provides data only for U.S. investors and only at the country level.<sup>4</sup> This sharply limits our ability to test our theory. We therefore use a second dataset that has firm-level ownership data for foreign investors as well as corporate insiders. Few countries have such data available over an extended time period. The dataset we were able to obtain is from Korea. Besides having the data we need, Korea is interesting because it experienced the largest reduction in the home bias from U.S. investors of any country from 1994 to 2004. Strikingly, the proportion of the Korean stock market capitalization held by foreign investors tripled from 1996 to 2004, going from 13.50% to 41.33%. Empirically, the foreign ownership of Korean firms is inversely related to insider ownership with foreign ownership highly concentrated in a small number of

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<sup>4</sup> Another country-level data set, the IMF's Coordinated Portfolio Investment Survey (CPIS), started too late for our study (in 1997) and is complete starting only in 2001.

large firms with fairly dispersed ownership. Further, foreign ownership grew in firms in which insider ownership fell.

The paper proceeds as follows. In Section 2, we review portfolio theories of the home bias. In Section 3, we develop in more detail the implications of insider ownership concentration for the home bias. In Section 4, we show that there is no evidence that insider ownership fell across the world from 1994 to 2004. In Section 5, we document the evolution of the home bias of U.S. investors from 1994 to 2004 and investigate the extent to which the evolution of the home bias for U.S. investors is consistent with the various theories of the home bias. In Section 6, we investigate whether the evolution of the home bias at the firm level for Korean firms is consistent with the various theories of the home bias. We conclude in Section 7.

## **2. Portfolio models of the home bias**

The models that use the portfolio approach to explain the home bias all proceed similarly. They posit an indirect utility function which depends on wealth and state variables. The investor maximizes the expected indirect utility function based on his expectation of the joint distribution of asset returns and state variables. Investors differ across countries because the indirect utility function and/or expectations of the joint distribution of returns and state variables differ across countries. These differences lead to a home bias.

Most of the early literature on the home bias was focused on the role of barriers to international investment. A number of papers presented models where domestic investors faced a cost of investing in a foreign country (see, for instance, Black, 1974, Stulz, 1981a, and Errunza and Losq, 1985). With such a cost, domestic investors overweight domestic stocks in their portfolios. These models generally imply that investors will invest in the foreign stocks that have the greatest diversification benefit for them, which are the foreign stocks least correlated with domestic stocks.

In testing these models, the literature looked at the cross-section of stock returns. If there are barriers to international investment, the international capital asset pricing model does not hold. The evidence shows that there are departures from the international capital asset pricing model for countries with capital markets that are not completely open to foreign investors and that departures from the international capital asset pricing model vary with the degree of segmentation of markets (see, for instance, Bekaert and Harvey, 1995). When a market is completely segmented from the world markets, one would expect the capital asset pricing model to hold domestically for that market, so that the expected return of a stock should be proportional to the stock's beta with respect to the market portfolio of the country. In contrast, when a market is completely integrated in the world markets and the capital asset pricing model holds, one would expect the expected return of a stock to be proportional to the beta of the stock with respect to the world market portfolio. With these models, as barriers disappear, investors hold the world market portfolio.

As barriers to international investment became less important but the home bias persisted, authors focused more on alternative explanations for the home bias. Though one might think that exchange rate risks lead investors to hold different equity portfolios, this need not be the case. If there is no inflation, so that exchange rate risks are real exchange rate risks, investors can hedge foreign exchange risks through money market positions, so that in principle foreign exchange risks do not affect equity portfolios (see Solnik, 1974, Adler and Dumas, 1983). The fact is that investors in different countries consume different goods and hence are exposed to different inflation risks which can lead them to hold different portfolios of equities if portfolios that hedge these relative price risks include stocks (Stulz, 1981b). The literature on hedging focuses either on inflation risk directly or on the role of non-traded goods in consumption baskets. Cooper and Kaplanis (1994) examine the role of inflation and conclude that the home bias cannot be explained by inflation hedging. Evidence on the role of relative price risks in explaining the home bias seems also to suggest that these risks are too small to explain the home bias (see, for

instance, Pesenti and Van Wincoop, 2002). Finally, investors are subject to various risks that they might want to hedge also, such as risks to their human capital. Human capital risks may lead investors to short domestic stocks (Baxter and Jermann, 1997), so that these risks can make the home bias even more puzzling.

If markets are efficient and investors are mean-variance optimizers, as long as investors consider identical joint distributions of real asset returns, they hold the same portfolio which is the market portfolio. The theories of the home bias considered so far assume that the joint distributions of asset real returns differ because of barriers to international investment and because of differences in consumption baskets, or assume that investors are not mean-variance optimizers. An additional possibility is that individuals simply have different expectations about stock returns, volatilities, and covariances. In particular, if investors are more uncertain about the expected returns for foreign stocks, these stocks will appear more risky to them and they will overweight their portfolio with domestic stocks (see Gehrig, 1993). This kind of argument has some empirical support, but it has three weaknesses. First, Jeske (2001, p. 31) concludes that “it is unable to account for the patterns of home bias that can be observed both qualitatively and quantitatively.” Second, investors who are better informed about their home market will at times have bad signals justifying a low allocation to their home market, yet allocations to home countries always exhibit a home bias and change little (see Jeske, 2001). Third, if resident investors are better informed, we would expect them to outperform foreign investors. Yet, some authors find that in some countries foreign investors outperform domestic investors.<sup>5</sup>

A possible explanation for the home bias is simply that investors exaggerate the risks of investing abroad or hold biased estimates of expected returns for stocks from their own country. There is survey evidence that is consistent with behavioral explanations of the home bias. For instance, Shiller, Kon-Ya and Tsutsui (1996) show that investors are more optimistic about their

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<sup>5</sup> See Seasholes (2000), Grinblatt and Keloharju (2000), and Froot and Ramadorai (2001). In addition, Thomas, Warnock and Wongswan (2006) find that U.S. investors' foreign equity allocations beat the EAFE index.

home equity markets than about foreign markets using survey data from the U.S. and Japan.<sup>6</sup> Graham, Harvey, and Huang (2005) show that investors who believe they have greater competence in their understanding of financial markets are substantially more likely to own foreign stocks. Some authors have built models generating a home bias that use utility functions that embed some behavioral factors emphasized in the psychology literature. In particular, Solnik (2005) builds on an insight of Statman (1999) and models the portfolio allocation decision between foreign and home country stocks as one where investors view foreign assets through a narrow frame as assets with upside potential, but have regret when that upside potential does not manifest itself.

### **3. Firm value, ownership structure, and governance**

The simplest version of the portfolio models discussed in the previous section predicts that all investors hold the world market portfolio if there are no barriers to international investment. With this simple model, it would never be optimal for an individual to hold more equity in a firm in his portfolio than the firm's proportional share in the world market portfolio. Yet, everywhere in the world, corporate insiders overweight the firm they control in their portfolio.

The portfolio model approach to firm ownership is radically different from the corporate finance approach to firm ownership. The corporate finance approach emphasizes that greater ownership by those who control the corporation (the insiders in the following) can reduce the adverse impact of agency problems and information asymmetries, so that there exists a level of insider ownership that maximizes firm value.<sup>7</sup> The optimal stake of the insiders can be very large. We first discuss the determinants of the optimal stake of the insiders. We argue that when the institutions that protect the rights of investors are poor, the optimal stake of the insiders is large.

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<sup>6</sup> See also Kilka and Weber (2000) and Strong and Xu (2003).

<sup>7</sup> See Helwege, Pirinsky and Stulz (2006) for a detailed review of the corporate finance approach to firm ownership and references.

We consider then the implications of poor institutions and high optimal insider ownership for investors who are not insiders.

### **3.1. The optimal insider ownership**

Consider, for simplicity, a private firm controlled by an entrepreneur. We assume that he owns all the equity of the firm. He is free to do what he wants as sole owner. In particular, he faces no limits on the private benefits of control he consumes. The entrepreneur then chooses to sell equity to the public through an IPO. The value of that equity will depend on how much ownership the entrepreneur retains for at least two reasons. First, if the entrepreneur were to sell all his equity, his incentives to work hard and make correct decisions for the firm or to limit his consumption of private benefits of control would be low.<sup>8</sup> The nature of private benefits the entrepreneur can extract from the firm he controls varies widely across the globe and depends on how well outside investors are protected. While in the U.S. private benefits may take the form of a nicer corporate plane, in many countries insiders can and at times do take money away from minority shareholders through related party transactions.<sup>9</sup> As the entrepreneur extracts private benefits of control, the value of the cash flows available to minority shareholders falls and the value of their shares is reduced. Second, the entrepreneur knows more about the firm's future cash flows than outsiders. Consequently, outsiders will use the retention decision of the entrepreneur to assess the value of the future cash flows.<sup>10</sup> They expect the entrepreneur to sell more shares if he believes them to be overpriced, so that the price they are willing to pay for the shares falls with the fraction of his ownership the entrepreneur wants to sell.

Investors will not buy equity from the entrepreneur if they believe that he will extract private benefits from the firm to such an extent that there will be no cash flows left for outside investors. To make public equity possible, it is therefore critical that it is costly for the insiders to extract private benefits and that these costs increase as insiders extract more private benefits. Laws and

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<sup>8</sup> See, for instance, Jensen and Meckling (1976).

<sup>9</sup> See Johnson, La Porta, Lopez-de-Silanes and Shleifer (2000).

<sup>10</sup> See, for instance, Leland and Pyle (1977).

regulations that protect outside investors from expropriation by insiders increase the costs of extracting private benefits of control. Outside investors are better protected if a country's laws and regulations are enforced efficiently and fairly, so that the degree to which investors are protected from expropriation by insiders depends generally on the quality of a country's institutions. The entrepreneur can also increase the costs of extracting private benefits from the firm by setting up firm-level governance mechanisms.

Firms in countries in which the insiders face low costs of extracting private benefits of control will have higher insider ownership.<sup>11</sup> Minority shareholders receive their proportionate share of the firm's cash flows net of the private benefits extracted by insiders. When insiders face low costs of extracting private benefits of control, investors expect low cash flows and put a low price on equity unless insiders commit to limit their extraction of private benefits of control. Insiders can commit to lower extraction of private benefits of control by increasing their ownership share of the firm. The reason for this is that insiders have fewer incentives to extract private benefits of control if they have a large stake. If the insiders can extract private benefits equal to a fraction  $\delta$  of the cash flows and own a fraction  $\alpha$  of the equity, they receive a fraction  $\delta + \alpha(1 - \delta)$  of the firm's cash flows. If  $\alpha$  is equal to one, the fact that the insiders can extract private benefits has no value to them since they own all of the firm's cash flows and can do with them what they want. When  $\alpha$  is smaller than one, insiders pay for their private benefits partly out of their own pocket because these private benefits come at the expense of dividends they would otherwise receive. The lower the ownership of the insiders, the less they pay for their private benefits out of their own pocket. Consequently, by choosing a high level of ownership, insiders commit to low extraction of private benefits.

As long as there is some protection of minority shareholders, there is a cost to insiders from extracting private benefits. For instance, they might get caught doing so and have to pay penalties. The cost of extracting private benefits will increase for insiders as the protection of

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<sup>11</sup> See Shleifer and Wolfenzon (2002) and Stulz (2005).

investors improves through laws and enforcement of laws. As the cost of extracting private benefits increases, the benefits of high insider ownership become worth less to outsiders. In fact, if the cost of extracting private benefits is infinite, ownership is optimally dispersed. It follows from this discussion that optimal insider ownership is higher in countries with poorer institutions to protect investors. At the extreme, if these institutions are extremely poor, there is no public equity.

So far, we have discussed insider ownership ignoring two important considerations. First, insiders may derive non-pecuniary private benefits from controlling a large stake. For instance, by controlling a large corporation, they might be able to play an important role in their country. Hence, good institutions are a necessary but not sufficient condition for dispersed ownership. As Gilson (2006) discusses, the non-pecuniary benefits of controlling a large corporation may be higher in smaller countries – there are fewer such corporations in smaller countries. Second, if institutions improve so that more dispersed ownership is possible, the ability of insiders to sell shares depends on the market for their shares. If the market for shares is illiquid, it will be expensive for insiders to sell shares because the sales will have a substantial market impact. As Helwege, Pirinsky and Stulz (2006) show for U.S. firms, insiders reduce their stake when the market for their shares is liquid and when their shares have performed well. Consequently, even after institutions improve, it takes time for ownership to become substantially more dispersed.

### **3.2. Insiders and outside investors**

We consider first the case where the world capital asset pricing model holds and insider ownership affects expected cash flows but not covariances of cash flows with the world market portfolio. In this case, if there are no barriers to international investment, the discount rate for expected cash flows does not depend on the level of insider ownership or on the type of outside shareholders the company attracts. Suppose now that the optimal insider ownership is  $\alpha^*$ . As pointed out by Dahlquist, Pinkowitz, Stulz and Williamson (2003), it immediately follows that all investors who are not insiders can only hold  $(1 - \alpha^*)$  of the firm. One would expect insiders to be

mostly residents of the country where the firm is located. Suppose the world is divided between insiders, whose wealth is completely invested in the firm they own, and non-insiders, who invest in securities. Foreign investors represent a fraction  $b$  of the non-insiders. In this case, foreign investors own a fraction  $b(1 - \alpha^*)$  of the firm if they have no home bias. Consider a country where insiders own 50% of the equity. Suppose that U.S. investors own equity wealth equal to half the equity wealth of portfolio investors in the world, so that  $b = 0.5$ . In this case, U.S. investors would own  $0.5(1 - 0.5)$ , or 25% of the equity of that country if no portfolio investors have a home bias. The portfolio model discussed in the previous section would imply that if U.S. investors own half of the world portfolio equity wealth, they should own half of the equity of that country. If the country represents 1% of the world market portfolio and the equity market wealth of countries is equal to their market capitalization, the portfolio model would predict that if foreign investors have no home bias, they should own 99% of the equity of that country. However, because of the optimal holdings of insiders, foreigners cannot own more than 50% of the equity of the country.

We now turn to the case where the demand curve for shares is not perfectly elastic. In this case, greater interest in shares of a company from foreign investors corresponds to a shift in the demand curve and increases the stock price. The increase in the stock price can make it more advantageous for insiders to sell shares. In addition to a shift in the demand curve, greater interest from foreign investors can also increase the elasticity of the demand curve. As foreign investors buy shares in a company for the first time, these shares contribute much less to the risk of their portfolio than they would contribute to the risk of the portfolios of local investors who already own shares of that company. Finally, greater participation of investors in the market for the company's stock would increase liquidity in the stock. With greater liquidity, insiders could sell shares with less of a price impact. Hence, if changes in governance make it optimal for insiders to decrease their stake, interest from foreign investors can make it easier for insiders to decrease their holdings. It follows from this that if the demand curve for shares is not perfectly elastic, an

exogenous increase in interest in a company from foreign investors could lead to a decrease in insider ownership. Such a decrease would not be possible if governance were sufficiently poor that it would not support less concentrated ownership.

Could the factors that lead insiders to have high optimal holdings also lead to a home bias among portfolio investors so that portfolio investors would overweight stocks from their home country relative to the world float portfolio? Leuz, Lins, and Warnock (2006) show that U.S. investors invest less in firms in which the controlling shareholder holds more control rights in countries with poor disclosure. Giannetti and Simonov (2006) show that this result holds in Sweden for foreign investors and small investors, but they argue that larger local shareholders are more protected from the consequences of agency conflicts between controlling shareholders and minority shareholders, so that they do not invest less in companies in which that conflict is more serious. Everything else equal, we would expect control rights held by insiders to be higher in countries in which private benefits are more valuable for the reasons already discussed. In an efficient market, higher expected consumption of private benefits simply lowers firm value. As long as firm value is properly discounted for the consumption of private benefits, the anticipated consumption of private benefits should have no impact on the investment decision of portfolio investors. Consequently, for private benefits to affect the investment decision of portfolio investors differently, these investors have to have different information or opinions about the anticipated consumption of private benefits and the implications of private benefits for the risk of firms. If resident investors all have more precise information about private benefits, foreign investors will be reluctant to trade with them since they would be at an information disadvantage. As a result, if trade takes place, it will be at a price that protects foreign investors from being taken advantage of. At that price, it may be too expensive for residents to trade with foreign investors. If only some foreign investors have valuable information, then trade will take place as long as these investors can hide their trades among liquidity traders.

Insider ownership has to be high when investor protection is poor. However, poor investor protection increases the cost of participation for investors since firms are less transparent and investors must assess the consequences of poor investor protection. One would expect resident investors to find it less costly to assess the consequences of poor investor protection in their country than foreign investors. Resident investors receive valuable information in the normal course of their activities that foreign investors would have to expend resources to gather. This advantage of residents would be especially valuable in countries with poor investor protection since these countries typically have poor disclosure and would enable them to forecast the distribution of future cash flows more cheaply for a given level of accuracy. Further, controlling shareholders face social and cultural constraints. Such constraints are much harder to understand for foreign investors. Consequently, poor institutions increase participation costs for foreign investors and create estimation risk for them. As a result, one would expect fewer foreigners to invest in countries with poor institutions and these investors to hold fewer assets. Viewed from this perspective, good governance reduces participation costs and estimation risk. These benefits from good governance are more important for foreign investors than for domestic investors for the simple reason that domestic investors already have some of the information that is produced as a result of better governance.

The analysis so far has assumed that the optimal insider ownership does not depend on who holds the shares not held by insiders. There is a literature that emphasizes the role of institutional investors as monitors.<sup>12</sup> With this literature, greater holdings by monitoring institutions would lead to lower insider holdings since the monitoring by institutions would make it more costly for insiders to extract private benefits of control. Though there are grounds to suspect that there is a relationship between optimal insider ownership and the composition of outside investor ownership, such a relationship would seem to be a second-order effect compared to the determinants of insider ownership we have discussed.

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<sup>12</sup> For a survey, see Gillan and Starks (2003).

#### **4. Financial globalization and the evolution of the upper bound on international risk sharing through equity ownership**

For investors to hold the world market portfolio, corporate ownership has to be highly dispersed, so that all shares could potentially be acquired by foreign investors. In most countries, however, insiders own large stakes in most corporations.<sup>13</sup> If the benefits that insiders derive from controlling the corporation are maximized when they own such stakes, they will not sell their shares to foreign investors. Consequently, the shares held by insiders place an upper bound on the share ownership by foreign investors. Though in many countries insiders control more votes than cash flow rights, the cash flow rights held by insiders are relevant for evaluating the upper bound on risk-sharing, since the risks of cash flows are shared.

We discussed in section 3 how insider ownership is determined. In this section, we examine whether it evolved from 1994 through 2004 across countries in a way to make it possible for foreign portfolio investors to hold much larger stakes in corporations. We report data for 1994, 2004, and the change from 1994 through 2004. The problem with estimating insider ownership is that, in many countries, the reporting requirements are weak or non-existent. Further, the cash flow rights of insiders result from their direct ownership of shares as well as from indirect ownership. For instance, the controlling shareholder could own 40% of the shares of the firm directly, but a different firm that he controls also could own 10% of the shares in addition. Direct insider ownership can therefore understate the extent to which insiders own cash flow rights in the firm if the 10% owned through a different firm are not taken into account. Various authors have painstakingly identified the direct and indirect ownership of cash flows of controlling shareholders for subsets of firms.<sup>14</sup> In this paper, we focus on country aggregate insider ownership rather than firm-level ownership. To obtain the country aggregate insider ownership, we aggregate block holdings reported by Worldscope at the firm level and then compute a

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<sup>13</sup> See La Porta, Lopez-de-Silanes and Shleifer (1999).

<sup>14</sup> Claessens, Djankov, and Lang (2000), Faccio and Lang (2002), Lins (2003), and La Porta, Lopez-de-Silanes, Shleifer (1999).

country insider ownership measure from block holdings. We include only firms for which insider ownership is available, does not exceed 100%, and is not equal to zero.

The Worldscope data has strengths and weaknesses. First, the approach we use makes it feasible to estimate insider ownership for two different years for a large number of countries. Though some papers have estimated insider ownership over time, they have done so for individual countries.<sup>15</sup> Here, we want to compare insider ownership in two different years across a broad range of countries. Second, the approach of focusing on the controlling shareholder alone assumes that blocks are independent from the controlling shareholder. This seems often unlikely. Our approach may therefore capture better the shares that are part of a controlling coalition. Third, we are not able to identify whether a block is aligned with the controlling shareholder or not. Consequently, some of the blocks may not be part of the controlling coalition and we will overstate the holdings of the controlling coalition. Fourth, some equity stakes that are indirect equity stakes from the controlling shareholder or stakes from allies of the controlling shareholder may be too small to be counted as blocks, so that we would understate the holdings of the controlling coalition. Fifth, reporting requirements and the enforcement of reporting requirements varies across the world. Sixth, the firms included in Worldscope vary over time. In particular the coverage of Worldscope has improved over time. It is well-known that insider ownership is negatively related to the size of a firm.<sup>16</sup> It could therefore be that as firms are added to Worldscope average insider ownership increases because the new firms are smaller. This would be less of a problem with a value-weighted measure of insider ownership.

To check the Worldscope data, we compared insider ownership computed from Worldscope with insider ownership computed from the Korean dataset we use in Section 6 of this paper for 2004. We find that our dataset has 571 observations with equally-weighted average insider ownership of 39.38%. Worldscope has 586 observations with average insider ownership of

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<sup>15</sup> See, for instance, Franks, Mayer and Rossi (2005).

<sup>16</sup> See, for instance, Demsetz and Lehn (1985).

39.82%. We looked at a sample of individual firms. For some, the insider ownership data is exactly the same in both databases. However, for others it is not. On average, though, the difference is trivial. The problem with this comparison is that Korea has excellent insider ownership data, so that the task of Worldscope is straightforward there. In another check, we estimated insider ownership using the median of the year before, the year after, and the year considered (though we did not have 2005 available for all firms). Doing so did not change our results meaningfully.

Table 1 reports insider ownership for 1994 and 2004 for 42 countries as well as the change in insider ownership in these countries between 1994 and 2004. We use two separate measures of insider ownership for each country. The first measure is the equally-weighted average of insider ownership for the firms for which data is available. The second measure is the value-weighted average of insider ownership. If we had insider ownership for all firms in a country, one minus the value-weighted average of insider ownership would be the upper bound for foreign ownership in that country if insiders are resident investors.

In 1994, the average of the equally-weighted averages of insider ownership across 42 countries is 48.9%. In contrast, the average of the value-weighted averages of insider ownership is 43.2%. The distribution of the insider ownership measures across countries conforms to the results obtained in other studies.<sup>17</sup> In particular, the U.S. has the lowest value-weighted insider ownership at 12.7%. Further, as expected, the U.K. has a low value-weighted insider ownership. Turkey has the highest value-weighted insider ownership at 72.7%. When we turn to 2004, we find no evidence of a decrease in ownership concentration. The average of the equally-weighted averages of insider ownership is 50.9% and the average of the value-weighted averages is 48.1%. Argentina experiences a dramatic increase in ownership concentration over the period. However, both measures of insider ownership are higher in 2004 than in 1994 even when we exclude Argentina. In 2004 Ireland has the most diffuse ownership followed by the U.S. and the U.K., and

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<sup>17</sup> See La Porta, Lopez-de-Silanes and Shleifer (1999).

Argentina replaces Turkey as the country with the most concentrated ownership. The average change in insider ownership is not significantly different from zero for either of our measures.

## **5. The evolution of the home bias of U.S. investors**

To investigate the holdings of U.S. investors in foreign countries, we use surveys conducted by the Treasury Department, the Federal Reserve Bank of New York, and the Federal Reserve Board in 1994 and 2004.<sup>18</sup> These so-called benchmark surveys provide the most reliable data on the holdings of U.S. investors, the largest group of foreign investors in the world. We first document holdings by U.S. investors across countries in 1994 and in 2004. We start from the 47 countries that have the highest market capitalization in 1997. Because the U.S. data reports investments in Belgium and Luxembourg together for 1994, we combine these two countries for 2004 as well and have 46 countries. Table 2 reports the weight of each of these countries in the portfolio of stocks of U.S. investors. The sum of the weights increases from 9.76% in 1994 to 13.44% to 2004. Therefore, the fraction of the equity portfolio of U.S. investors invested in stocks from the 46 countries increased by 37.70% from 1994 to 2004. In Table 2, the fraction of foreign stocks in the equity portfolio of U.S. investors increases from 10.25% to 15.27% when we consider all foreign countries. Consequently, it appears that the fraction of the portfolio of U.S. investors invested in other countries than the 46 we focus on increased from 0.48% to 1.83%. However, this increase is misleading. It is almost entirely due to U.S. companies that re-incorporated or created special-purpose vehicles (or corporations) in tax havens.<sup>19</sup>

With the portfolio model, the sum of the weights of these countries in the stock portfolio of U.S. investors should be 62.30% in 1994 and 54.50% in 2004 in the absence of a home bias.<sup>20</sup> A

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<sup>18</sup> The holdings data are as of March 31, 1994 and December 31, 2004, as reported in Table 18 of Department of Treasury et al. (2005). For a primer on the surveys, see Grier, Lee and Warnock (2001).

<sup>19</sup> The countries we include constitute 100% of U.S. holdings in countries other than Caribbean financial centers in 1994 and 99% in 2004.

<sup>20</sup> We require market capitalization data expressed in U.S. dollars for year-ends of 1993 and 2004 as well as March 1994 and various months in 2004. For year-end data we rely on Standard & Poors (2005, 2003),

simple way to evaluate the extent of the home bias for U.S. investors is to compute the ratio of the portfolio weight of foreign countries in the portfolio of U.S. investors relative to the portfolio weight of these countries in the world market portfolio. In 1994, the allocation to these 46 countries from U.S. investors represented 15.73% of what it would have been had they held the world market portfolio. In 2004, that allocation was 24.59% of the portfolio share of these countries in the world market portfolio. If the home bias is measured as one minus the decimal value of that percentage, so that there is no home bias when investors hold the world market portfolio, the home bias fell from 0.84 to 0.75 from 1994 to 2004, or by 10.71%.

If what happened over these 10 years had been a systematic reduction in the home bias across countries, we should observe a reduction in the home bias measure for each country. Table 2 shows the home bias measures for each country in 1994 and 2004. It also shows the percentage change in the home bias measure for each country. As illustrated in Figure 1, the home bias did not decrease systematically across countries. Out of 46 countries with complete data, the home bias increased for 19 countries and decreased for 27 countries. The home bias increased the most for Argentina and fell the most for Korea. The average reduction in the home bias is 0.027 with a p-value of 0.155. Consequently, one cannot reject the hypothesis that there was no change in the average home bias between 1994 and 2004.

The home bias measured using the aggregate portfolio share of the 46 countries in the portfolio of stocks of U.S. investors fell much more than the average home bias – by more than three times that amount, as it fell by 0.09 instead of 0.027. Such a result can only obtain if the home bias fell more for countries that have larger weights in the world market portfolio. The

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which is the best source of year-end market capitalization expressed in U.S. dollars. For months that are not year-end, for emerging markets we use the *Emerging Markets Database*. For industrial countries and the rest of the world aggregate, market capitalizations for March 1994 are December 1993 amounts (from *EMDB*) plus country-specific MSCI price changes. For industrial countries for months in 2004 (explained below), data are from [www.fibv.com](http://www.fibv.com). Exceptions are the following, for which December 2004 and MSCI price returns were used: France (no entry in FIBV), Netherlands (no entry in FIBV), and Singapore (for December 2004, FIBV data do not match S&P (2005) data). For Israel, as of December 2004 and March 1994 there were \$9.2 billion and \$1.9 billion, respectively, in Israeli stocks listed on Nasdaq but not the TASE. These are omitted from typical market capitalization data; we add them to the end-2004 and end-1994 amounts from Standard & Poors.

distribution of country portfolio shares in the world market portfolio is extremely skewed. Four countries account for 59.58% of the market capitalization of the 46 countries for which we have data. The home bias of U.S. investors decreased towards each of these four countries from 1994 to 2004.

In Table 3, for the 40 countries for which we have complete insider ownership and home bias data for both 1994 and 2004, we report correlations for the variables we use in our regressions to explain the change in the home bias from 1994 to 2004. We measure the home bias in two ways. One way is the traditional approach of computing the world market portfolio including all outstanding shares. The second way, which we call the float-adjusted home bias, uses the float-adjusted world market portfolio to compute the home bias. The correlation between the changes in the two measures is 0.72. The first column shows the correlations of the home bias (measured the traditional way) with the variables of interest in our analysis. We see that the change in the home bias is negatively correlated with the bias in 1994, which is consistent with a catching up effect. Our next variable is the change in insider ownership. As expected, there is a strong positive correlation between the change in insider ownership ( $\Delta io$ ) and the change in the home bias. Not surprisingly in light of the earlier results of Ahearne, Grier and Warnock (2004), Edison and Warnock (2004), and Ammer, Holland, Smith and Warnock (2005), we find that an increase in the fraction of a market's capitalization that is available in the U.S. through a cross-listing ( $\Delta xlist$ ) is associated with a decrease in the home bias. We use next the Edison and Warnock (2003) measure of the change of the fraction of a market's capitalization unavailable for investment by foreign investors ( $\Delta for$ ). The change in the home bias does not have a significant correlation with the change in that measure. We then consider six governance measures from Kaufmann, Kraay, and Mastruzzi (2005). A higher value for these measures corresponds to a better governance outcome. We find that the home bias is significantly negatively correlated with three measures: governance effectiveness ( $\Delta ge$ ), regulatory quality ( $\Delta rq$ ), and rule of law ( $\Delta rl$ ). The other three measures do not have a significant correlation with the change in the home bias.

Next, we use the ICRG Political Risk index. We find that it is not significantly related to the change in the home bias. If foreign investors trade on momentum, their holdings would be heavily determined by recent returns. We use the return of the last three years as a proxy for recent returns. The market's return for the three years ending in 2004 does not have a significant correlation with the change in the home bias.

The float-adjusted measure of the change in the home bias has an insignificant correlation with the change in insider ownership. This is consistent with the hypothesis that insider ownership affects the home bias across countries primarily through its impact on the fraction of a market's capitalization available to foreign investors. We also see that the change in the float-adjusted home bias is not significantly correlated with the change in governance measures, except for the negative correlation with government effectiveness. In contrast, however, the correlation of the change in the float-adjusted home bias with the change in the fraction of the stock market cross-listed is stronger than the same correlation for the change in the conventional measure of the home bias.

The change in insider ownership is strongly negatively correlated with regulatory quality, rule of law, and political risk. Surprisingly, there is a positive relation between voice and accountability and insider ownership.

The correlation table shows that the change in the home bias is strongly negatively correlated with the change in several governance variables and with the change in cross-listing, and is positively correlated with the change in insider ownership. Following our discussion of Section 3, we would expect improvements in governance to bring about a decrease in insider ownership, but it could also be the case that increases in foreign interest led to decreases in insider ownership. To disentangle these effects, we estimate regressions of the change in the home bias on the level of the home bias in 1994, the level of insider ownership in 1994, the change in insider ownership, and various other control variables. To account for the possible endogeneity of the change in insider ownership, we report regressions where we instrument the change in insider ownership.

Our instrumental variables are the changes in the governance variables.<sup>21</sup> We estimate all regressions twice. The first estimate of a regression uses the world market portfolio to calculate the home bias, while the second estimate uses the float-adjusted world market portfolio. If insider ownership plays a role only because it limits the shares available for investment for portfolio investors, we would expect insider ownership not to be significant in regressions that use the float-adjusted portfolio. In contrast, if insider ownership is significant for other reasons, perhaps because it proxies for governance and governance affects foreign holdings directly, then we would expect insider ownership to be significant in the regressions that use the float-adjusted portfolio.

Regression (1) of Panel A in Table 4 shows that the change in the home bias is negatively related to the home bias in 1994, positively related to the insider ownership in 1994 and positively related to the change in insider ownership over the sample period. Regression (5) is the same regression using the float-adjusted home bias. In that regression, neither of the insider ownership variables is significant. This confirms the result we found with the correlation table, namely that insider ownership affects the home bias through its impact on the fraction of shares available for portfolio investment rather than for other reasons. In all the regressions shown in Table 4 that use the conventional measure of the home bias, insider ownership in 1994 and the change in insider ownership are significant. These results are consistent with the prediction of the analysis of Section 3 that foreign equity portfolio investment is naturally limited by the extent of insider holdings.<sup>22</sup> In contrast, the measures of insider ownership are never significant in the regressions that use the float-adjusted home bias.

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<sup>21</sup> The governance variables are good instruments because they explain close to 50% of the variation in the change in insider ownership but are not correlated with changes in foreign ownership once we account for changes in insider ownership. We also estimated the regressions without instrumenting insider ownership. The qualitative results are the same.

<sup>22</sup> Argentina experienced a large increase in insider ownership in our dataset. We re-estimated our regressions without Argentina and found that our results hold. Our results hold also if we estimate our regressions without Japan and also without the U.K.

We investigate next whether the insider ownership variables are significant in the regressions on the left-hand side of Table 4 because they proxy for omitted variables. First, we control for the fraction of a market available in the U.S. through cross-listings on Nasdaq and NYSE in 1994 and the change in that fraction. We see that these cross-listing variables remove the significance of the bias in 1994, consistent with the evidence in Ahearne, Grier, and Warnock (2004), but they have no impact on the insider ownership variables. Next, we add variables reflecting the extent to which restrictions limited foreign ownership in a country in 1994 and how these restrictions changed from 1994 to 2004. The restriction variables are not significant in regression (3), but they are significant and positive when we use the float-adjusted measure of the home bias in regression (7). Regressions (4) and (8) control for a country's weight in the world market portfolio in 1994 and the change in the weight. These variables have positive and marginally significant coefficients in regression (4), but they do not affect the insider ownership variables. They are not significant in regression (8) which uses the float-adjusted home bias. The coefficients on the weight in the world market portfolio show, however, that the home bias measured without a float adjustment increased more in countries with larger markets and in countries whose markets increased more in relative size. Panel B report results where we use the governance variables. Except for the significant positive sign on the change in the corruption control measure, the governance variables are not significant. Finally, Panel C uses the political risk index and our momentum variable. These variables are not significant either.

We find strong evidence that changes in the U.S. home bias towards a country are related to the size of insider holdings in that country and to the change in these holdings. Insider holdings could affect foreign ownership for two different reasons. In Section 3, they did so because they limit the shares available for other investors. Alternatively, it could be that foreign investors value the incentive effects of insider ownership. However, the latter explanation can be rejected because it would imply negative coefficients on the insider ownership variables in the float-adjusted regressions. Further, we would then expect governance variables to be significant after

controlling for the insider ownership variables. They are not. Of course, as already discussed in Section 3, equilibrium insider ownership depends on a country's institutions. Consequently, country governance variables do affect foreign ownership, but they do so through their impact on equilibrium insider ownership. We investigate this relationship further in the next section, using firm-level ownership data for foreign investors as well as corporate insiders in Korea.

## **6. Understanding the evolution of the home bias towards Korea**

In this section, we first show how foreign ownership increased dramatically in Korea from 1996 to 2004. We then investigate how insider ownership and governance can explain the current holdings of Korean shares by foreign investors. In the last part of the section, we show how changes in insider ownership and other firm characteristics can help explain changes in foreign ownership in Korea.

### **6.1. The growth in foreign ownership in Korea**

Table 5 documents the evolution of foreign ownership in Korea from 1996 to 2004. We obtain foreign ownership data from the FnGuide for the end of each year over the sample period. The equally-weighted average of the ownership share of foreign investors in Korean firms starts at 6.18% in 1996 and almost doubles by 2004, reaching 11.25% in 2004. The problem with including all firms in the average is that we include firms where foreigners have direct foreign investment stakes. For instance, the Hankuk Shell Oil Company Ltd. has foreign ownership of 70.91%. However, most of that ownership is in the form of foreign direct investment (FDI) by the corporate owner of the company. To look more directly at portfolio ownership by foreign investors, we separate the firms with FDI investment (the FDI firms in the following) from the other firms (the non-FDI firms) using a list of firms that benefited from FDI from the Ministry of Commerce, Industry and Energy, which administers the reporting requirement of a firm's foreign

investor pursuant to the Foreign Investment Promotion Act.<sup>23</sup> The list contains information about the company name, foreign investor, foreign country, and first reporting date from which we classify the firm as an FDI firm in our sample.<sup>24</sup> Based on this information, we divide our sample firms into two groups: FDI firms and non FDI firms.

As expected, foreign ownership is much higher on average in the FDI firms. Without the FDI firms, the equally-weighted average of foreign ownership increases from 5.12% to 7.44%, or by 45.31%. Strikingly, the number of FDI firms increases by 64.51% from 1996 to 2004. Further, the market capitalization of these firms relative to the market capitalization of the Korean stock market increased from 11.6% to 31.8%. Consequently, the economic importance of firms with FDI increased sharply.

We turn next to the value-weighted average of the investment shares of foreign investors in Korean firms. The value-weighted average experiences a much more dramatic increase than the equally-weighted average since it increases from 13.50% to 41.33%, or by 206%. The investment share of foreign investors does not increase monotonically over time. There are large increases in 1998, 2000, and 2001. There is essentially no increase in 1997 and 1999, a trivial increase in 2004, and a drop in 2002. Limits on foreign investment were removed in 1998 for most companies. In 2000 and 2001, limits on some privatized companies were increased substantially. The evidence seems to indicate that limits were binding for some companies, so that the relaxation of the limits explains some of the increase in foreign ownership. For instance, for Korea Telecom, the limit was 20% in 2000 and foreign ownership was 19.43%. The limit was increased to 49% in 2001 and foreign ownership jumped that year to 37.22%. Further, the

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<sup>23</sup> The Foreign Investment Promotion Act of September 16, 1998, defines foreign direct investment in Korean firms. The firms with foreign direct investment are classified as FDI firms. The main criterion for foreign direct investment is that it involves the purchase of stock for “the purpose of establishing a continuous relationship with and participating in the management of said Korean corporation or company”.

<sup>24</sup> The list includes all firms that have a record as an FDI as of 2005 year-end, among which we identify 102 KSE listed-firms included in our sample as of 2004 year-end.

government sold its remaining stakes in some of the privatized companies during that period of time.

The difference between the value-weighted measure of foreign investment and the equally-weighted measure indicates that foreign investors concentrate their holdings in large firms. Figure 2 demonstrate the concentration of foreign holdings in 2004. It turns out that foreign investment in the five largest Korean firms with insider ownership below 20% represents 61.78% of the foreign investment in the Korean firms in our sample including all firms traded on the main exchange. Firms with insider ownership of less than 20% would meet the least restrictive criterion used by LaPorta, Lopez-de-Silanes, and Shleifer (1999) to identify firms with dispersed ownership. These five firms are Samsung Electronics, POSCO, Kookmin Bank, Korea Telecom Corp., and SK Corporation. Two of these five firms are privatized firms.

## **6.2. Insider ownership, governance, and the home bias in Korea**

We showed in Section 3 that 100% minus the percentage insider ownership constitutes an upper bound for foreign ownership. Consequently, firms with small insider ownership are firms in which foreign ownership can potentially be very large. We obtain insider ownership data from the TS2000 database maintained by the Korea Listed Companies Association. Strikingly, for the five firms discussed in the previous section, the average foreign ownership was 60.51% in 2004. These firms had average insider ownership of 8.57%. Three of these firms had insider ownership below 5%. A random sample of five large U.S. firms would most likely yield a group of firms with similar insider ownership. In this section we explore more directly the role of insider ownership and corporate governance as determinants of foreign ownership in 2004. We use all firms with no FDI on the main exchange and use size as our only firm characteristic that is not governance related.

With the Korean data, we can verify that 100% minus the percentage insider ownership is indeed an upper bound for the fractional ownership of foreign portfolio investors. First, we checked this for firms with no FDI. All Korean firms with no FDI have a fractional ownership by

foreign investors lower than this bound. Second, not surprisingly, there are some FDI firms where foreign ownership is greater than 100% minus the percentage of insider ownership. There are 102 firms with FDI and 17 have foreign ownership in 2004 greater than 100% minus insider ownership.

We investigate in 2004 the relation between foreign portfolio investment and its upper-bound across firms. To do this, we regress the foreigners' share of firm ownership on (100 - insider ownership).<sup>25</sup> Institutional investors are typically reluctant to invest in small firms and most foreign investors are institutional investors. We therefore estimate a regression with all non-FDI firms and a regression with non-FDI firms with capitalization in excess of \$100 million. Table 6 shows the regression estimates. The coefficient on (100 - insider ownership) is positive and highly statistically significant in regressions (1) and (7). The economic significance of the coefficients is also substantial. In regression (7), we find that a firm that has insider ownership greater than the other firm by 10% of the firm's shares would have lower foreign ownership by 4.13% for firms with capitalization greater than \$100 million.<sup>26</sup>

Regressions (2) and (8) use the direct ownership of the controlling shareholder as an explanatory variable. We see that an increase in the direct ownership of the controlling shareholder has a negative impact on foreign ownership. This is a striking result because it suggests that the incentive effects of greater cash flow rights for the controlling shareholder have at most a second-order effect for foreign investors. If these effects had a first-order effect, we would expect direct ownership to have a positive coefficient.

We construct data on corporate governance rankings based on the surveys of corporate governance practices conducted by the Korea Corporate Governance Service (KCGS) for the

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<sup>25</sup> In contrast to the regressions in Section 5, we do not report results with insider ownership instrumented because there are no natural instruments available. We did estimate regressions with insider ownership instrumented and our qualitative conclusions stand with these regressions.

<sup>26</sup> One could argue that our measure of the fraction of shares potentially available to foreign investors should take into account the shares held by the government and government-related entities. When we use the variable (100 - insiders - shares held by the government or government entities), the coefficient on that variable is 0.357 and significant.

years from 2002 to 2004.<sup>27</sup> The survey contains over 100 questions each year that are divided into five categories: shareholder rights, board of directors, disclosure, audit system, and dividend payments. For each of the questionnaires, different weights are assigned toward a total of 300 points by the KCGS. For the purpose of our analysis, we rank each firm based on its total scores for each year, and scale the ranks by the number of responding firms to get percentage ranks ranging from 0 to 100. If a firm is ranked 10, this means that 90% of the Korean firms that responded to the survey have worse governance. This ranking makes it possible to investigate the relation between foreign ownership and corporate governance. The average governance ranking of the five firms discussed earlier in this section is 2.20 in 2004. This means that 97.80% of the firms with a governance ranking had worse governance than the average of these five firms. We reproduce in Table 6 regressions of the foreign ownership on the corporate governance rankings. The coefficient on the corporate governance ranking is negative and significant in regressions (3) and (9). An increase in a firm's governance ranking from the 50<sup>th</sup> percentile to the top of the ranking would increase foreign ownership by 15.65% if the firm had market capitalization in excess of \$100 million.

In Korea, all shares of common stock have the same voting rights. Consequently, for the controlling shareholder of a firm to own more control rights than cash flow rights, he has to own stakes in other affiliated firms that own shares in the firm considered. Ownership parity, introduced by Black, Jang, and Kim (2005), measures the extent to which the controlling shareholder exerts his control through related parties. It is defined as  $100 - (\text{Insider ownership} - \text{Largest shareholder direct ownership})$ . If the ownership parity is 100, there are no related parties, so that the controlling shareholder owns the shares through which he exerts control. If the controlling shareholder were to own less shares, ownership parity would be less than 100 and

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<sup>27</sup> The KCGS was established in June 2002 as an independent, nonprofit organization under the joint sponsorship of six member firms, including the Korea Stock Exchange and Kosdaq Stock Market. The KCGS performs annual surveys to award the top 10 best governed listed-companies since Spring 2003, based on the criteria contained in the Code of Best Practice available at [www.cgs.or.kr/eng/](http://www.cgs.or.kr/eng/). The reliability of the responses is carefully verified by the KCGS with the evidence documentation provided by the responding firms. The response rate is very high: 426, 672, 528 KSE-listed firms for the years of 2002, 2003, and 2004, respectively.

would fall as the related parties held more shares. An increase in ownership parity is expected to reduce the controlling shareholder agency costs. In regressions (4) and (10), we regress foreign ownership on the ownership parity. Though the coefficient on ownership parity is positive, it is significant only when we use the whole sample.

It is well-known from the literature that foreign investors overweight large firms.<sup>28</sup> Regressions (5) and (11) verify this. Not only is the coefficient on size highly significant, the R-square of these regressions is extremely high. In Korea, large firms are subject to a higher standard for many governance attributes, which creates a negative correlation between size and the governance index.<sup>29</sup> For instance, firms with assets above 2 trillion Kwon have to have at least 50% of outside directors. This negative correlation is high since, for the sample of all firms, it amounts to -0.460. Consequently, we have to make sure that the governance index is significant because of size being an omitted variable.

In regressions (6) and (12), we regress foreign ownership on the logarithm of the firm's total capitalization, (100 – insider ownership), ownership parity, and the governance rating. All the variables are statistically significant in both regressions. The economic significance of the variable (100 – insider ownership) is still large: for the firms with market capitalization in excess of \$100 million, a decrease in insider holdings from the median (38%) to the smallest amount (3.6%) would translate into an increase in foreign ownership of 11.39%. An increase in the corporate governance ranking from the median to the highest score would increase foreign ownership by 6.4%. The coefficient on ownership parity is negative in that regression. This negative coefficient is inconsistent with the hypothesis that foreign investors reduce their holdings of shares when they are concerned about the intensity of the agency conflict between the controlling shareholder and minority shareholder as proxied by the ownership parity measure. Since we control for (100 – insider ownership), the coefficient on ownership parity reflects the

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<sup>28</sup> See Kang and Stulz (1997), Dahlquist and Robertsson (2001), Ammer, Holland, Smith, and Warnock (2005), and Leuz, Lins, and Warnock (2006).

<sup>29</sup> See Black, Jang, and Kim (2005) and Nam (2004).

relation between foreign ownership and the direct ownership by the controlling shareholder. An increase in shares held directly by the controlling shareholder reduces the number of shares available for foreign investors, which explains the negative coefficient on ownership parity in the regression in which we control for  $(100 - \text{insider ownership})$ . Importantly, the coefficient on  $(100 - \text{insider ownership})$  is not sensitive to the inclusion of ownership parity in the regression.

### **6.3. The evolution of the home bias in Korea**

We now investigate whether changes in insider ownership and other firm characteristics can help explain the change in the home bias in Korea. We first estimate regressions similar to those of Table 6 for every year in our sample. We add two firm characteristics that have been shown to help explain foreign ownership, namely Tobin's  $q$  and the ratio of cash flow to assets (see Kang and Stulz (1997) and Dahlquist and Robertsson (2001)). We see that every year after 1998  $(100 - \text{insider ownership})$  has a positive significant coefficient. Before the end of 1998, foreigners still faced restrictions in investing in the typical Korea firm. Not surprisingly, size has a positive significant coefficient. Tobin's  $q$  and cash flow have positive coefficients, but they are not always significant. The coefficient on changes in ownership parity is negative when it is significant. We estimated all the regressions without ownership parity; when ownership parity is omitted,  $(100 - \text{insider ownership})$  has a positive significant coefficient every year except for 1996 but the absolute value of the coefficient drops slightly. In contrast, when we omit insider  $(100 - \text{insider ownership})$  instead, the coefficient on ownership parity is significant in some years, but the sign is positive in these years. For the last three years, we add the governance index to the regressions. The index is not significant in 2002, but it is significantly negative in 2003 and 2004. This evidence indicates that firm-level governance is related to foreign ownership. This result is related to the evidence in Leuz, Lins and Warnock (2006) that foreign investors invest less in firms where the agency conflict between the controlling shareholder and minority investors is stronger when these firms are located in countries with poor disclosure. In their paper, they use a

proxy for the intensity of the agency conflict that is related to ownership parity in this paper.<sup>30</sup>

Our evidence shows that more nuanced measures of governance could uncover a relation between governance and foreign ownership in countries with relatively good disclosure and governance institutions. Finally, it is useful to note that the yearly regressions explain a substantial fraction of the variation in foreign ownership across firms. The highest adjusted  $R^2$  is 0.601 for 2004.

We then estimate fixed-effect panel regressions that also include a full set of year dummies. We are hoping that these fixed effects will capture unobserved firm heterogeneity and therefore help with potential endogeneity problems (see Himmelberg, Hubbard and Palia (1999)). We estimate these regressions using the sample from 1998 to 2004. We see that (100 - insider ownership) has a significant positive coefficient. As in Table 6, we also use a sample of large firms. The coefficient on (100 - insider ownership) is larger in absolute value for these firms.

The last two regressions in Table 7 parallel the U.S. regressions in Table 4. We regress the change in foreign ownership from 1998 to 2004 on changes in firm characteristics as well as the initial (1998) values of each firm characteristic and foreign ownership. The change in (100 - insider ownership) has a significant positive coefficient. The coefficient is strikingly large in absolute value for the large firms. For these firms, a decrease in insider ownership of 10% corresponds to an increase in foreign ownership of 5.20%. We show in the last two columns only the estimates for the changes variables. Similar to the U.S. results in Table 4, taking into account the coefficients on initial values, these regressions indicate that over this period foreign ownership increased in firms that had less insider ownership in 1998, that reduced insider ownership between 1998 and 2004, or that had a low level of foreign ownership in 1998. The evidence we find at the firm level for Korea is therefore wholly consistent with the evidence we find using data on U.S. investors' foreign equity holdings.

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<sup>30</sup> See also Dahlquist, Pinkowitz, Stulz and Williamson (2003) and Gianetti and Simonov (2006) for evidence on Sweden showing that foreign investors invest less in firms where the difference between the voting rights and cash flow rights held by the controlling shareholder is greater.

## 7. Conclusion

In this paper, we investigate the evolution of the home bias in the age of financial globalization. We document that the average bias of U.S. investors towards the countries that have the largest capital markets in the world did not fall significantly from 1994 to 2004. However, if the home bias is estimated from aggregate data of U.S. investment to the rest of the world, the home bias fell. The explanation for these findings is that foreign investment in a country depends crucially on the extent to which the institutions of that country support diffuse ownership of corporations. If the institutions of a country are extremely poor, a country has no publicly traded equity and there will be no foreign portfolio equity investment. In most countries, insider ownership is concentrated because the institutions of the country do not support diffuse ownership. This insider ownership concentration is an obstacle to international risk-sharing. We develop a theory of the home bias based on the existence of an optimal level of insider ownership that differs across countries and call it the optimal insider ownership theory of the home bias. We show that the home bias towards many countries could fall substantially only if the optimal insider ownership level of these countries were to fall substantially. The road towards greater risk-sharing therefore goes through an improvement in institutions that make diffuse ownership of firms possible in the countries where it is not. We provide evidence at the firm level for Korea showing that foreign investors invest more in firms with lower insider ownership and better governance. The experience of the large Korean firms with diffuse ownership shows that when such firms exist, foreign portfolio investors can end up owning a majority of the firms' shares.

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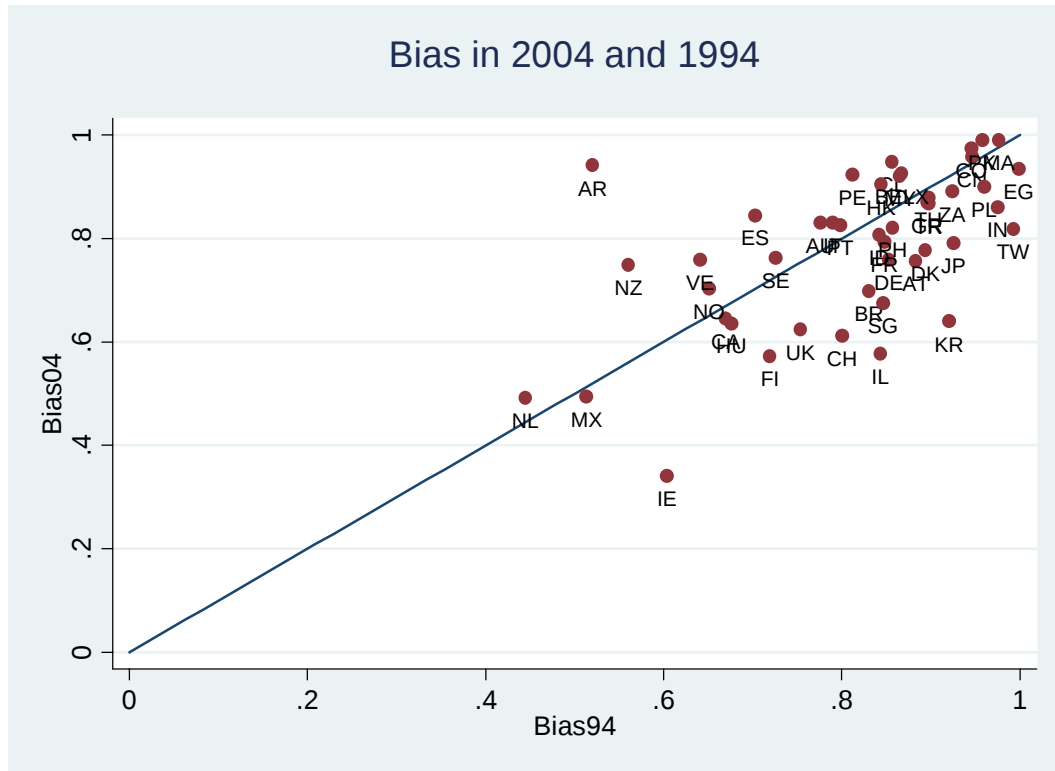
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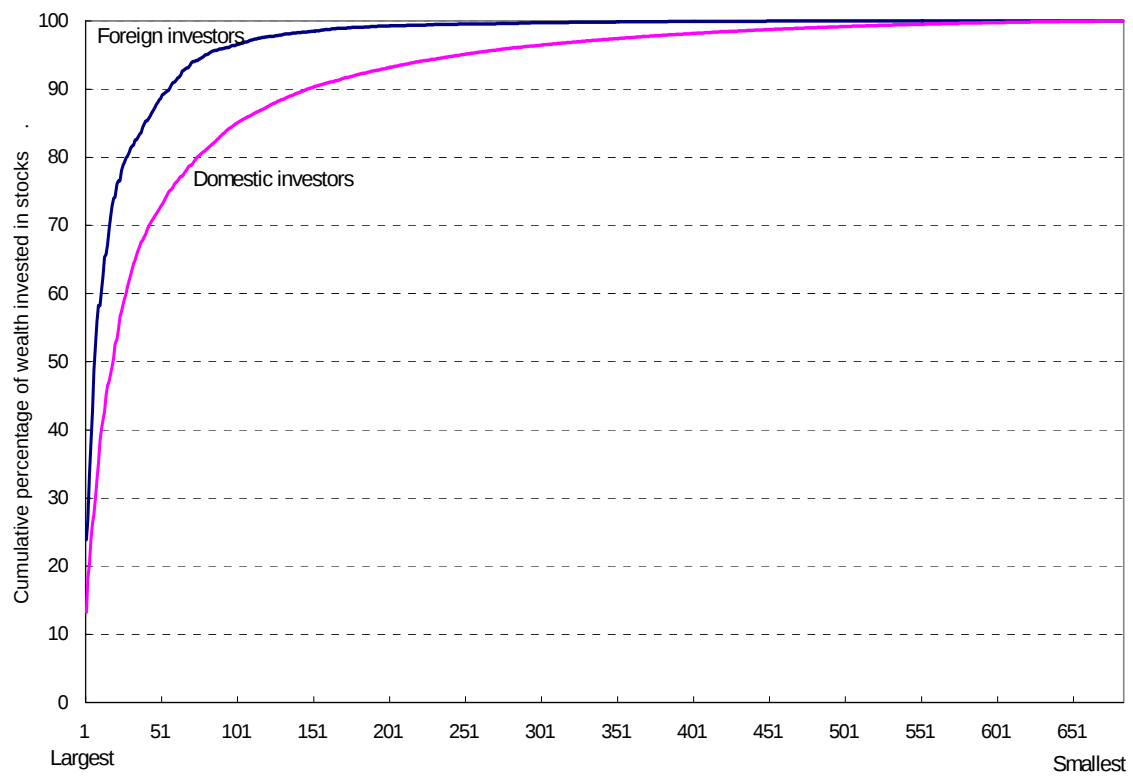
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**Figure 1. The Evolution of the Home Bias**



Along the 45° line, home bias is unchanged between 1994 and 2004. For any country, the change in U.S investors' home bias toward it can be read from the distance from its point to the 45° line. The home bias has declined for the 27 countries below the 45° line and increased for the 19 countries above it.

**Figure 2. Cumulative percentage (from the largest firm to the smallest firm) of wealth invested in all KSE stocks as of the end of 2004**



**Table 1. Insider ownership and changes in insider ownership**

The table uses the information reported by Worldscope on the firms for which Worldscope has information in a given year. We exclude firms with no insider ownership data and with insider ownership exceeding 100% or equal to 0%.

| Country    | 1994                                    |                                       |                                     |                    | 2004                                    |                                       |                                     |                    | Diff<br>(8)-(4) | Diff<br>(9)-(5) |
|------------|-----------------------------------------|---------------------------------------|-------------------------------------|--------------------|-----------------------------------------|---------------------------------------|-------------------------------------|--------------------|-----------------|-----------------|
|            | # Firms in<br>Worldscope <sup>(a)</sup> | # Firms<br>w/ownership <sup>(b)</sup> | Insider ownership(%) <sup>(c)</sup> |                    | # Firms in<br>Worldscope <sup>(a)</sup> | # Firms<br>w/ownership <sup>(b)</sup> | Insider ownership(%) <sup>(c)</sup> |                    |                 |                 |
|            |                                         |                                       | Equally-<br>weighted                | Value-<br>weighted |                                         |                                       | Equally-<br>weighted                | Value-<br>weighted |                 |                 |
| (1)        | (2)                                     | (3)                                   | (4)                                 | (5)                | (6)                                     | (7)                                   | (8)                                 | (9)                |                 |                 |
| Argentina  | 31                                      | 9                                     | 57.1                                | 56.6               | 80                                      | 11                                    | 73.3                                | 95.7               | 16.3            | 39.1            |
| Australia  | 238                                     | 223                                   | 37.0                                | 30.7               | 1571                                    | 1219                                  | 40.5                                | 33.7               | 3.5             | 3.0             |
| Austria    | 85                                      | 36                                    | 56.8                                | 54.9               | 101                                     | 58                                    | 60.7                                | 68.3               | 3.8             | 13.4            |
| Belgium    | 108                                     | 98                                    | 57.5                                | 54.5               | 144                                     | 90                                    | 52.6                                | 50.4               | -4.9            | -4.2            |
| Brazil     | 110                                     | 69                                    | 47.0                                | 49.3               | 344                                     | 140                                   | 64.7                                | 57.1               | 17.6            | 7.8             |
| Canada     | 439                                     | 150                                   | 32.8                                | 32.2               | 1482                                    | 456                                   | 24.9                                | 19.2               | -7.9            | -13.0           |
| Chile      | 69                                      | 53                                    | 58.6                                | 49.5               | 197                                     | 98                                    | 66.7                                | 65.3               | 8.0             | 15.8            |
| China      | 37                                      | 9                                     | 53.3                                | 50.4               | 1554                                    | 447                                   | 61.5                                | 76.6               | 8.1             | 26.2            |
| Denmark    | 168                                     | 94                                    | 25.4                                | 29.0               | 178                                     | 105                                   | 44.4                                | 45.5               | 19.0            | 16.5            |
| Finland    | 94                                      | 84                                    | 43.9                                | 23.4               | 145                                     | 102                                   | 37.4                                | 18.2               | -6.4            | -5.2            |
| France     | 557                                     | 502                                   | 61.6                                | 41.8               | 834                                     | 486                                   | 58.3                                | 34.7               | -3.3            | -7.1            |
| Germany    | 599                                     | 459                                   | 68.6                                | 54.9               | 910                                     | 461                                   | 59.3                                | 49.4               | -9.3            | -5.5            |
| Greece     | 122                                     | 38                                    | 63.9                                | 68.4               | 315                                     | 56                                    | 54.6                                | 47.8               | -9.3            | -20.6           |
| Hong Kong  | 180                                     | 169                                   | 54.6                                | 52.3               | 1026                                    | 855                                   | 58.3                                | 49.0               | 3.7             | -3.3            |
| India      | 204                                     | 13                                    | 51.8                                | 51.5               | 527                                     | 304                                   | 55.2                                | 69.9               | 3.4             | 18.4            |
| Indonesia  | 98                                      | 83                                    | 65.7                                | 68.1               | 339                                     | 279                                   | 66.0                                | 63.8               | 0.3             | -4.3            |
| Ireland    | 55                                      | 52                                    | 36.1                                | 20.9               | 77                                      | 61                                    | 28.8                                | 10.2               | -7.4            | -10.6           |
| Israel     | 35                                      | 8                                     | 52.3                                | 66.7               | 185                                     | 104                                   | 57.0                                | 46.2               | 4.6             | -20.4           |
| Italy      | 207                                     | 96                                    | 57.9                                | 44.3               | 273                                     | 225                                   | 48.4                                | 33.8               | -9.5            | -10.4           |
| Japan      | 2429                                    | 2203                                  | 47.6                                | 36.3               | 3959                                    | 1730                                  | 41.9                                | 39.5               | -5.7            | 3.2             |
| Korea      | 241                                     | 227                                   | 27.6                                | 32.5               | 891                                     | 564                                   | 39.1                                | 32.7               | 11.4            | 0.2             |
| Luxembourg | 18                                      | 6                                     | 63.0                                | 68.9               | 46                                      | 15                                    | 41.9                                | 49.0               | -21.1           | -20.0           |
| Malaysia   | 238                                     | 224                                   | 50.6                                | 55.0               | 1033                                    | 774                                   | 48.5                                | 48.6               | -2.1            | -6.3            |

Table 1. continued

| Country               | 1994                                    |                                       |                                     |                    | 2004                                    |                                       |                                     |                    | Diff<br>(8)-(4) | Diff<br>(9)-(5) |
|-----------------------|-----------------------------------------|---------------------------------------|-------------------------------------|--------------------|-----------------------------------------|---------------------------------------|-------------------------------------|--------------------|-----------------|-----------------|
|                       | # Firms in<br>Worldscope <sup>(a)</sup> | # Firms<br>w/ownership <sup>(b)</sup> | Insider ownership(%) <sup>(c)</sup> |                    | # Firms in<br>Worldscope <sup>(a)</sup> | # Firms<br>w/ownership <sup>(b)</sup> | Insider ownership(%) <sup>(c)</sup> |                    |                 |                 |
|                       |                                         |                                       | Equally-<br>weighted                | Value-<br>weighted |                                         |                                       | Equally-<br>weighted                | Value-<br>weighted |                 |                 |
| (1)                   | (2)                                     | (3)                                   | (4)                                 | (5)                | (6)                                     | (7)                                   | (8)                                 | (9)                |                 |                 |
| Mexico                | 79                                      | 9                                     | 60.7                                | 30.0               | 138                                     | 24                                    | 74.0                                | 66.4               | 13.3            | 36.4            |
| Netherlands           | 184                                     | 138                                   | 51.3                                | 42.5               | 211                                     | 139                                   | 42.9                                | 33.2               | -8.4            | -9.4            |
| New Zealand           | 48                                      | 48                                    | 52.7                                | 54.6               | 119                                     | 79                                    | 48.8                                | 54.9               | -3.8            | 0.3             |
| Norway                | 114                                     | 103                                   | 45.6                                | 44.0               | 175                                     | 105                                   | 42.7                                | 59.2               | -2.9            | 15.2            |
| Pakistan              | 75                                      | 18                                    | 59.6                                | 52.8               | 122                                     | 58                                    | 55.0                                | 76.3               | -4.6            | 23.5            |
| Peru                  | 25                                      | 6                                     | 67.4                                | 46.9               | 77                                      | 12                                    | 77.0                                | 79.5               | 9.6             | 32.7            |
| Poland                | 15                                      | 5                                     | 41.0                                | 51.8               | 111                                     | 74                                    | 62.8                                | 59.7               | 21.8            | 7.9             |
| Portugal              | 73                                      | 48                                    | 49.0                                | 49.5               | 65                                      | 36                                    | 61.7                                | 38.7               | 12.7            | -10.8           |
| Singapore             | 135                                     | 133                                   | 55.2                                | 57.0               | 620                                     | 472                                   | 55.6                                | 61.5               | 0.4             | 4.5             |
| South Africa          | 193                                     | 173                                   | 51.6                                | 42.1               | 355                                     | 170                                   | 46.3                                | 50.6               | -5.3            | 8.4             |
| Spain                 | 140                                     | 107                                   | 54.1                                | 50.5               | 159                                     | 113                                   | 49.0                                | 39.4               | -5.1            | -11.1           |
| Sri Lanka             | 17                                      | 11                                    | 20.1                                | 19.3               | 31                                      | 13                                    | 51.1                                | 56.9               | 30.9            | 37.5            |
| Sweden                | 164                                     | 153                                   | 39.9                                | 22.6               | 326                                     | 160                                   | 33.1                                | 24.5               | -6.8            | 1.9             |
| Switzerland           | 190                                     | 128                                   | 46.6                                | 24.5               | 282                                     | 227                                   | 43.6                                | 30.9               | -2.9            | 6.5             |
| Taiwan                | 113                                     | 20                                    | 17.9                                | 13.9               | 1455                                    | 568                                   | 25.9                                | 28.8               | 8.0             | 14.9            |
| Thailand              | 245                                     | 35                                    | 37.4                                | 21.1               | 519                                     | 313                                   | 56.3                                | 54.3               | 18.9            | 33.2            |
| Turkey                | 47                                      | 24                                    | 73.6                                | 72.7               | 216                                     | 195                                   | 62.3                                | 73.0               | -11.3           | 0.3             |
| U.K.                  | 1588                                    | 1541                                  | 30.3                                | 12.9               | 2354                                    | 2007                                  | 32.3                                | 13.0               | 2.0             | 0.0             |
| U.S.                  | 2541                                    | 2323                                  | 29.0                                | 12.7               | 8927                                    | 6092                                  | 31.7                                | 12.5               | 2.7             | -0.2            |
| Average               |                                         |                                       | 48.9                                | 43.2               |                                         |                                       | 50.9                                | 48.1               | 2.0             | 4.9             |
| t-stat for difference |                                         |                                       |                                     |                    |                                         |                                       |                                     |                    | 0.24            | 0.06            |

Note: (a) A firm is covered by Worldscope if it has either shares outstanding or December stock price.

(b) Ownership data is set missing if it exceeds 100%. A firm is included in the analysis if it has both ownership data and Dec. market value.

(c) Assuming ownership is 0 if Worldscope reports 0.

**Table 2. The Evolution of the Home Bias**

Table shows the home bias in U.S. investors' equity portfolios as of 1994 and 2004. Weight in world market portfolio is calculated from market capitalization as given in Standard & Poors (2003, 2005). U.S. portfolio is calculated as U.S. market capitalization plus U.S. holdings of foreign equities less foreign holdings of U.S. equities (which is from Thomas et al. (2004)). Country-level holdings data are as of December 31, 2004 and March 31, 1994, as reported in Table 18 of Department of Treasury et al. (2005). Bias is calculated as one minus the ratio of the weights of the country in U.S. equity portfolios and in the world market portfolio; that is,  $(\text{col. 5}) = 1 - (\text{col. 3}) / (\text{col. 1})$ . Excluding holdings of companies that are incorporated in the Caribbean, the listed countries represent 100% of U.S. investors' foreign holdings in 1994 and 99% in 2004. Equally weighted averages, and t-statistics testing the difference from zero, are provided in parentheses at the bottom of the table.

|                            | Weight in World Market Portfolio |              | Weight in U.S. Equity Portfolio |              | Bias        |             |               |
|----------------------------|----------------------------------|--------------|---------------------------------|--------------|-------------|-------------|---------------|
|                            | 2004<br>(1)                      | 1994<br>(2)  | 2004<br>(3)                     | 1994<br>(4)  | 2004<br>(5) | 1994<br>(6) | Change<br>(7) |
| <b>Developed Countries</b> | <b>0.419</b>                     | <b>0.491</b> | <b>0.113</b>                    | <b>0.078</b> | <b>0.73</b> | <b>0.84</b> | <b>-0.11</b>  |
| <b>Euro Area</b>           | <b>0.162</b>                     | <b>0.108</b> | <b>0.039</b>                    | <b>0.024</b> | <b>0.76</b> | <b>0.78</b> | <b>-0.02</b>  |
| Austria                    | 0.002                            | 0.002        | 0.001                           | 0.000        | 0.76        | 0.88        | -0.13         |
| Belgium-Luxembourg         | 0.008                            | 0.007        | 0.002                           | 0.001        | 0.82        | 0.87        | -0.05         |
| Finland                    | 0.005                            | 0.002        | 0.002                           | 0.001        | 0.57        | 0.72        | -0.15         |
| France                     | 0.048                            | 0.031        | 0.010                           | 0.005        | 0.79        | 0.85        | -0.05         |
| Germany                    | 0.031                            | 0.031        | 0.007                           | 0.005        | 0.76        | 0.85        | -0.09         |
| Greece                     | 0.003                            | 0.001        | 0.000                           | 0.000        | 0.87        | 0.90        | -0.03         |
| Ireland                    | 0.003                            | 0.001        | 0.002                           | 0.000        | 0.34        | 0.60        | -0.26         |
| Italy                      | 0.020                            | 0.012        | 0.003                           | 0.002        | 0.83        | 0.79        | 0.04          |
| Netherlands                | 0.016                            | 0.012        | 0.008                           | 0.007        | 0.49        | 0.44        | 0.05          |
| Portugal                   | 0.002                            | 0.001        | 0.000                           | 0.000        | 0.83        | 0.80        | 0.03          |
| Spain                      | 0.024                            | 0.008        | 0.004                           | 0.002        | 0.84        | 0.70        | 0.14          |
| <b>Other Europe</b>        | <b>0.111</b>                     | <b>0.105</b> | <b>0.040</b>                    | <b>0.025</b> | <b>0.64</b> | <b>0.76</b> | <b>-0.12</b>  |
| Denmark                    | 0.004                            | 0.003        | 0.001                           | 0.000        | 0.78        | 0.89        | -0.12         |
| Norway                     | 0.004                            | 0.002        | 0.001                           | 0.001        | 0.70        | 0.65        | 0.05          |
| Sweden                     | 0.010                            | 0.008        | 0.002                           | 0.002        | 0.76        | 0.73        | 0.04          |
| Switzerland                | 0.021                            | 0.019        | 0.008                           | 0.004        | 0.61        | 0.80        | -0.19         |
| United Kingdom             | 0.072                            | 0.073        | 0.027                           | 0.018        | 0.62        | 0.75        | -0.13         |
| <b>Other Developed</b>     | <b>0.146</b>                     | <b>0.278</b> | <b>0.034</b>                    | <b>0.029</b> | <b>0.77</b> | <b>0.90</b> | <b>-0.13</b>  |
| Australia                  | 0.020                            | 0.014        | 0.003                           | 0.003        | 0.83        | 0.78        | 0.05          |
| Canada                     | 0.030                            | 0.022        | 0.011                           | 0.007        | 0.64        | 0.67        | -0.03         |
| Japan                      | 0.095                            | 0.240        | 0.020                           | 0.018        | 0.79        | 0.93        | -0.13         |
| New Zealand                | 0.001                            | 0.002        | 0.000                           | 0.001        | 0.75        | 0.56        | 0.19          |

Table 2. continued

|                                 | Weight in World Market Portfolio |               | Weight in U.S. Equity Portfolio |               | Bias          |               |               |
|---------------------------------|----------------------------------|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|                                 | 2004                             | 1994          | 2004                            | 1994          | 2004          | 1994          | Change        |
|                                 | (1)                              | (2)           | (3)                             | (4)           | (5)           | (6)           | (7)           |
| <b>Emerging Markets</b>         | <b>0.126</b>                     | <b>0.132</b>  | <b>0.021</b>                    | <b>0.020</b>  | <b>0.83</b>   | <b>0.85</b>   | <b>-0.02</b>  |
| <b>Latin America</b>            | <b>0.018</b>                     | <b>0.030</b>  | <b>0.005</b>                    | <b>0.010</b>  | <b>0.72</b>   | <b>0.67</b>   | <b>0.06</b>   |
| Argentina                       | 0.001                            | 0.003         | 0.000                           | 0.001         | 0.94          | 0.52          | 0.42          |
| Brazil                          | 0.008                            | 0.009         | 0.003                           | 0.002         | 0.70          | 0.83          | -0.13         |
| Chile                           | 0.003                            | 0.003         | 0.000                           | 0.000         | 0.95          | 0.86          | 0.09          |
| Colombia                        | 0.001                            | 0.001         | 0.000                           | 0.000         | 0.98          | 0.95          | 0.03          |
| Mexico                          | 0.004                            | 0.013         | 0.002                           | 0.006         | 0.49          | 0.51          | -0.02         |
| Peru                            | 0.001                            | 0.000         | 0.000                           | 0.000         | 0.92          | 0.81          | 0.11          |
| Venezuela                       | 0.000                            | 0.000         | 0.000                           | 0.000         | 0.76          | 0.64          | 0.12          |
| <b>Emerging Asia</b>            | <b>0.060</b>                     | <b>0.058</b>  | <b>0.009</b>                    | <b>0.004</b>  | <b>0.84</b>   | <b>0.92</b>   | <b>-0.08</b>  |
| China                           | 0.016                            | 0.003         | 0.001                           | 0.000         | 0.96          | 0.95          | 0.01          |
| India                           | 0.010                            | 0.008         | 0.001                           | 0.000         | 0.86          | 0.97          | -0.11         |
| Indonesia                       | 0.002                            | 0.002         | 0.000                           | 0.000         | 0.81          | 0.84          | -0.04         |
| Korea                           | 0.011                            | 0.010         | 0.004                           | 0.001         | 0.64          | 0.92          | -0.28         |
| Malaysia                        | 0.005                            | 0.012         | 0.000                           | 0.002         | 0.92          | 0.87          | 0.06          |
| Pakistan                        | 0.001                            | 0.001         | 0.000                           | 0.000         | 0.99          | 0.96          | 0.03          |
| Philippines                     | 0.001                            | 0.002         | 0.000                           | 0.000         | 0.82          | 0.86          | -0.04         |
| Sri Lanka                       | 0.000                            | 0.000         | 0.000                           | 0.000         | 0.98          | 0.93          | 0.05          |
| Thailand                        | 0.003                            | 0.007         | 0.000                           | 0.001         | 0.88          | 0.90          | -0.02         |
| Taiwan                          | 0.011                            | 0.012         | 0.002                           | 0.000         | 0.82          | 0.99          | -0.17         |
| <b>Financial Centers</b>        | <b>0.027</b>                     | <b>0.028</b>  | <b>0.004</b>                    | <b>0.004</b>  | <b>0.87</b>   | <b>0.84</b>   | <b>0.02</b>   |
| Hong Kong                       | 0.022                            | 0.020         | 0.002                           | 0.003         | 0.90          | 0.84          | 0.06          |
| Singapore                       | 0.004                            | 0.008         | 0.001                           | 0.001         | 0.68          | 0.85          | -0.17         |
| <b>Emerging Europe</b>          | <b>0.005</b>                     | <b>0.002</b>  | <b>0.001</b>                    | <b>0.000</b>  | <b>0.85</b>   | <b>0.90</b>   | <b>-0.05</b>  |
| Hungary                         | 0.001                            | 0.000         | 0.000                           | 0.000         | 0.64          | 0.68          | -0.04         |
| Poland                          | 0.002                            | 0.000         | 0.000                           | 0.000         | 0.90          | 0.96          | -0.06         |
| Turkey                          | 0.003                            | 0.001         | 0.000                           | 0.000         | 0.87          | 0.90          | -0.03         |
| <b>Other Emerging</b>           | <b>0.016</b>                     | <b>0.014</b>  | <b>0.003</b>                    | <b>0.001</b>  | <b>0.84</b>   | <b>0.91</b>   | <b>-0.06</b>  |
| Egypt                           | 0.001                            | 0.000         | 0.000                           | 0.000         | 0.93          | 1.00          | -0.06         |
| Israel                          | 0.003                            | 0.003         | 0.001                           | 0.000         | 0.58          | 0.84          | -0.27         |
| Morocco                         | 0.001                            | 0.000         | 0.000                           | 0.000         | 0.99          | 0.98          | 0.02          |
| South Africa                    | 0.012                            | 0.011         | 0.001                           | 0.001         | 0.89          | 0.92          | -0.03         |
| <b>Total (above listed)</b>     | <b>0.545</b>                     | <b>0.623</b>  | <b>0.134</b>                    | <b>0.098</b>  | <b>0.75</b>   | <b>0.84</b>   | <b>-0.09</b>  |
| <b>Total Rest of World</b>      | <b>0.580</b>                     | <b>0.631</b>  | <b>0.153</b>                    | <b>0.102</b>  | <b>0.74</b>   | <b>0.84</b>   | <b>-0.10</b>  |
| <b>Equally Weighted Average</b> | <b>0.012</b>                     | <b>0.014</b>  | <b>0.003</b>                    | <b>0.0021</b> | <b>0.787</b>  | <b>0.814</b>  | <b>-0.027</b> |
|                                 | <b>(4.31)</b>                    | <b>(2.52)</b> | <b>(3.78)</b>                   | <b>(3.69)</b> | <b>(36.0)</b> | <b>(40.3)</b> | <b>(1.45)</b> |

**Table 3. Correlations**

Table shows correlations of changes, calculated from 1994 to 2004 (except for Governance Indicators, which are from 1996 to 2004), as well as of the 1994 levels of home bias calculated using market capitalization data (*bias*) and using float data (*biasF*). Home bias measures are from Table 2. Insider Ownership (*io*) is described in Table 1. Cross-list (*xl*) is the share (decimal from zero to one) of the foreign market that is available on the NYSE or Nasdaq. Foreign Ownership Restrictions (*for*) is the fraction of the market capitalization that is unavailable to foreigners. Weight in World Market (*wgtw*) is from Table 2. The six governance indicators—Voice and Accountability (*va*), Political Stability (*ps*), Government Effectiveness (*ge*), Regulatory Quality (*rq*), Rule of Law (*rl*), and Control of Corruption (*cc*)—are measured in units ranging from about -2.5 to 2.5, with higher values corresponding to better governance outcomes (Kaufmann et al 2005). The ICRG Political Risk (*icrg*) is a weighted average of 12 components with the highest value, 100, corresponding to the lowest amount of political risk. Recent returns (*ret*) are computed using three years of monthly MSCI returns. There are 40 observations; thus, correlations greater in magnitude than 0.4, 0.3, and 0.27 are significantly different from zero at the 1%, 5%, and 10% levels.

|                | $\Delta bias$ | $\Delta biasF$ | $bias_{94}$ | $biasF_{94}$ | $\Delta io$ | $\Delta xlist$ | $\Delta for$ | $\Delta wgtw$ | $\Delta va$ | $\Delta ps$ | $\Delta ge$ | $\Delta rq$ | $\Delta rl$ | $\Delta cc$ | $\Delta icrg$ |
|----------------|---------------|----------------|-------------|--------------|-------------|----------------|--------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|
| $\Delta biasF$ | 0.720         |                |             |              |             |                |              |               |             |             |             |             |             |             |               |
| $bias_{94}$    | -0.390        | -0.206         |             |              |             |                |              |               |             |             |             |             |             |             |               |
| $biasF_{94}$   | -0.543        | -0.356         | 0.915       |              |             |                |              |               |             |             |             |             |             |             |               |
| $\Delta io$    | 0.357         | -0.214         | -0.004      | 0.040        |             |                |              |               |             |             |             |             |             |             |               |
| $\Delta xlist$ | -0.346        | -0.446         | -0.072      | 0.008        | -0.078      |                |              |               |             |             |             |             |             |             |               |
| $\Delta for$   | 0.243         | 0.219          | -0.236      | -0.195       | 0.016       | -0.200         |              |               |             |             |             |             |             |             |               |
| $\Delta wgtw$  | 0.139         | 0.168          | -0.132      | -0.143       | -0.020      | 0.032          | -0.050       |               |             |             |             |             |             |             |               |
| $\Delta va$    | 0.112         | -0.162         | 0.053       | 0.028        | 0.383       | 0.125          | -0.338       | -0.016        |             |             |             |             |             |             |               |
| $\Delta ps$    | -0.025        | -0.039         | 0.063       | 0.129        | 0.054       | -0.126         | 0.133        | -0.004        | 0.032       |             |             |             |             |             |               |
| $\Delta ge$    | -0.338        | -0.275         | 0.309       | 0.442        | -0.055      | 0.094          | -0.228       | -0.006        | 0.079       | 0.562       |             |             |             |             |               |
| $\Delta rq$    | -0.434        | -0.118         | 0.111       | 0.344        | -0.356      | 0.070          | -0.044       | -0.116        | -0.033      | 0.342       | 0.566       |             |             |             |               |
| $\Delta rl$    | -0.363        | -0.087         | 0.190       | 0.296        | -0.403      | 0.094          | -0.108       | 0.062         | 0.028       | 0.445       | 0.644       | 0.762       |             |             |               |
| $\Delta cc$    | 0.134         | 0.201          | -0.104      | -0.042       | -0.134      | -0.134         | 0.267        | 0.046         | -0.151      | 0.163       | 0.087       | 0.388       | 0.213       |             |               |
| $\Delta icrg$  | -0.058        | 0.224          | -0.241      | -0.089       | -0.350      | -0.005         | 0.128        | -0.004        | -0.182      | 0.442       | 0.232       | 0.538       | 0.528       | 0.472       |               |
| $ret$          | 0.133         | 0.031          | 0.281       | 0.169        | 0.294       | -0.372         | 0.060        | 0.059         | 0.401       | -0.016      | 0.073       | -0.190      | -0.098      | -0.024      | -0.291        |

**Table 4. Home Bias Regressions**

The left half of each panel shows instrumental variables regressions of the change in bias from 1994 to 2004 (column 7 of Table 2) on the 1994 levels in, and changes from 1994 to 2004 of, several variables. The right half of each panel is identical except that home bias is calculated using float data. Throughout, Insider Ownership, described in Table 1 (but expressed in decimal form here), is instrumented for using the six governance variables from Kaufmann et al (2005), which are described in Table 3. Other variables are also described in Table 3. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors. All regressions have 40 observations.

**Panel A**

|                                   | (1)               | (2)               | (3)               | (4)               | (5)               | (6)               | (7)               | (8)               |
|-----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bias 1994 (market capitalization) | -0.460<br>(-3.40) | -0.108<br>(-0.44) | -0.443<br>(-3.18) | -0.457<br>(-3.38) |                   |                   |                   |                   |
| Bias 1994 (float)                 |                   |                   |                   |                   | -0.302<br>(-1.80) | 0.068<br>(0.21)   | -0.462<br>(-2.99) | -0.293<br>(-1.68) |
| Insider Ownership (1994)          | 0.399<br>(3.97)   | 0.406<br>(4.04)   | 0.396<br>(3.80)   | 0.464<br>(3.84)   | 0.179<br>(1.14)   | 0.360<br>(1.41)   | 0.059<br>(0.37)   | 0.239<br>(1.30)   |
| Insider Ownership (Change)        | 0.442<br>(2.98)   | 0.496<br>(3.57)   | 0.441<br>(2.38)   | 0.496<br>(3.09)   | -0.242<br>(-0.94) | -0.098<br>(-0.41) | -0.587<br>(-1.66) | -0.174<br>(-0.70) |
| Cross-Listing (1994)              |                   | 0.356<br>(1.86)   |                   |                   |                   | 0.559<br>(1.57)   |                   |                   |
| Cross-Listing (Change)            |                   | -0.095<br>(-0.85) |                   |                   |                   | -0.310<br>(-1.96) |                   |                   |
| Restrictions (1994)               |                   |                   | 0.019<br>(0.26)   |                   |                   |                   | 0.397<br>(2.82)   |                   |
| Restrictions (Change)             |                   |                   | 0.080<br>(1.08)   |                   |                   |                   | 0.420<br>(3.13)   |                   |
| Weight in World Market (1994)     |                   |                   |                   | 1.841<br>(1.61)   |                   |                   |                   | 1.711<br>(0.99)   |
| Weight in World Market (Change)   |                   |                   |                   | 3.001<br>(1.74)   |                   |                   |                   | 3.416<br>(1.25)   |
| R <sup>2</sup>                    | 0.469             | 0.602             | 0.486             | 0.507             | 0.186             | 0.430             | 0.306             | 0.214             |

**Table 4. continued. Panel B**

|                                   | (1)               | (2)               | (3)               | (4)               | (5)               | (6)               | (7)               | (8)               | (9)               | (10)              | (11)              | (12)              |
|-----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Bias 1994 (market capitalization) | -0.355<br>(-2.14) | -0.402<br>(-2.38) | -0.405<br>(-2.31) | -0.446<br>(-1.97) | -0.403<br>(-2.29) | -0.440<br>(-2.18) |                   |                   |                   |                   |                   |                   |
| Bias 1994 (float)                 |                   |                   |                   |                   |                   |                   | -0.248<br>(-1.00) | -0.277<br>(-1.16) | -0.232<br>(-0.86) | -0.303<br>(-0.98) | -0.244<br>(-0.91) | -0.290<br>(-1.03) |
| Insider Ownership (1994)          | 0.585<br>(3.70)   | 0.492<br>(2.95)   | 0.471<br>(2.17)   | 0.574<br>(2.31)   | 0.574<br>(2.44)   | 0.456<br>(2.19)   | 0.358<br>(0.88)   | 0.258<br>(0.69)   | 0.241<br>(0.56)   | 0.359<br>(0.97)   | 0.459<br>(1.01)   | 0.251<br>(0.49)   |
| Insider Ownership (Change)        | 0.768<br>(3.41)   | 0.613<br>(2.66)   | 0.602<br>(1.97)   | 0.725<br>(1.86)   | 0.758<br>(1.91)   | 0.548<br>(1.93)   | 0.118<br>(0.27)   | -0.109<br>(-0.27) | -0.088<br>(-0.18) | 0.083<br>(0.11)   | 0.251<br>(0.37)   | -0.094<br>(-0.19) |
| Voice and Accountability (1996)   | 0.059<br>(1.53)   |                   |                   |                   |                   |                   | 0.040<br>(0.48)   |                   |                   |                   |                   |                   |
| Voice and Accountability (Change) | -0.001<br>(-0.02) |                   |                   |                   |                   |                   | -0.067<br>(-0.42) |                   |                   |                   |                   |                   |
| Political Stability (1996)        |                   | 0.033<br>(0.80)   |                   |                   |                   |                   |                   | 0.021<br>(0.25)   |                   |                   |                   |                   |
| Political Stability (Change)      |                   | 0.024<br>(0.54)   |                   |                   |                   |                   |                   | 0.024<br>(0.29)   |                   |                   |                   |                   |
| Government Effectiveness (1996)   |                   |                   | 0.025<br>(0.48)   |                   |                   |                   |                   |                   | 0.018<br>(0.19)   |                   |                   |                   |
| Government Effectiveness (Change) |                   |                   | -0.020<br>(-0.21) |                   |                   |                   |                   |                   | -0.100<br>(-0.60) |                   |                   |                   |
| Regulatory Quality (1996)         |                   |                   |                   | 0.032<br>(0.71)   |                   |                   |                   |                   |                   | 0.023<br>(0.27)   |                   |                   |
| Regulatory Quality (Change)       |                   |                   |                   | 0.069<br>(0.54)   |                   |                   |                   |                   |                   | 0.071<br>(0.28)   |                   |                   |
| Rule of Law (1996)                |                   |                   |                   |                   | 0.047<br>(0.89)   |                   |                   |                   |                   |                   | 0.065<br>(0.66)   |                   |
| Rule of Law (Change)              |                   |                   |                   |                   | 0.033<br>(0.22)   |                   |                   |                   |                   |                   | 0.049<br>(0.17)   |                   |
| Control of Corruption (1996)      |                   |                   |                   |                   |                   | 0.002<br>(0.05)   |                   |                   |                   |                   |                   | -0.002<br>(-0.02) |
| Control of Corruption (Change)    |                   |                   |                   |                   |                   | 0.121<br>(1.74)   |                   |                   |                   |                   |                   | 0.156<br>(1.24)   |
| R <sup>2</sup>                    | 0.432             | 0.456             | 0.450             | 0.403             | 0.405             | 0.505             | 0.176             | 0.188             | 0.197             | 0.159             | 0.139             | 0.220             |

**Table 4. continued****Panel C**

|                                   | (1)               | (2)               | (3)               | (4)               |
|-----------------------------------|-------------------|-------------------|-------------------|-------------------|
| Bias 1994 (market capitalization) | -0.425<br>(-2.76) | -0.452<br>(-2.59) |                   |                   |
| Bias 1994 (float)                 |                   |                   | -0.383<br>(-1.93) | -0.332<br>(-1.91) |
| Insider Ownership (1994)          | 0.458<br>(2.35)   | 0.407<br>(3.14)   | 0.013<br>(0.04)   | 0.101<br>(0.49)   |
| Insider Ownership (Change)        | 0.550<br>(1.84)   | 0.445<br>(2.59)   | -0.440<br>(-0.83) | -0.314<br>(-1.08) |
| ICRG Political Risk (1994)        | 0.000<br>(0.02)   |                   | -0.008<br>(-1.25) |                   |
| ICRG Political Risk (Change)      | 0.004<br>(1.07)   |                   | 0.006<br>(0.85)   |                   |
| Momentum (3 year)                 |                   | -0.007<br>(-0.22) |                   | 0.047<br>(0.75)   |
| R <sup>2</sup>                    | 0.477             | 0.469             | 0.244             | 0.196             |

**Table 5. Foreign ownership for all KSE common stocks**

Table shows summary statistics of foreign ownership (“Fown”) observed at each year-end for all KSE common stocks from 1996 to 2004. FDI firms are identified from the year when their reports of foreign investments are made to the Ministry of Commerce, Industry and Energy in accordance with the Foreign Investment Promotion Act. “EW” denotes equal-weighted and “VW” denotes value-weighted.

| Foreign ownership (Fown)                            | Observed at each calendar year-end |        |        |         |         |         |         |         |         |
|-----------------------------------------------------|------------------------------------|--------|--------|---------|---------|---------|---------|---------|---------|
|                                                     | 1996                               | 1997   | 1998   | 1999    | 2000    | 2001    | 2002    | 2003    | 2004    |
| Number of all KSE firms                             | 724                                | 771    | 729    | 706     | 698     | 685     | 675     | 672     | 666     |
| Number of all KSE FDI firms                         | 62                                 | 66     | 74     | 73      | 79      | 82      | 88      | 96      | 102     |
| Number of all KSE Non-FDI firms                     | 662                                | 705    | 655    | 633     | 619     | 603     | 587     | 576     | 564     |
| EW mean Fown for all KSE firms (%)                  | 6.18                               | 5.03   | 5.81   | 5.82    | 5.83    | 6.52    | 7.24    | 9.37    | 11.25   |
| EW mean Fown for all KSE FDI firms                  | 17.51                              | 19.23  | 23.21  | 24.41   | 24.35   | 24.17   | 26.52   | 30.08   | 32.35   |
| EW mean Fown for all KSE Non-FDI firms              | 5.12                               | 3.70   | 3.84   | 3.68    | 3.47    | 4.12    | 4.35    | 5.91    | 7.44    |
| VW mean Fown for all KSE firms (%)                  | 13.50                              | 12.91  | 21.03  | 21.32   | 28.19   | 37.04   | 35.56   | 39.88   | 41.33   |
| VW mean Fown for all KSE FDI firms                  | 20.68                              | 22.81  | 29.38  | 35.90   | 42.45   | 51.52   | 44.37   | 47.89   | 48.80   |
| VW mean Fown for all KSE Non-FDI firms              | 12.55                              | 11.64  | 19.50  | 19.72   | 26.00   | 33.98   | 33.11   | 37.19   | 37.85   |
| Total market cap for all KSE FDI firms (mil.\$)     | 15,933                             | 6,509  | 14,098 | 28,536  | 19,539  | 31,695  | 46,624  | 71,085  | 121,096 |
| (% relative to KSE total market cap)                | (11.6)                             | (11.3) | (15.5) | (9.9)   | (13.3)  | (17.5)  | (21.8)  | (25.2)  | (31.8)  |
| Total market cap for all KSE Non-FDI firms (mil.\$) | 121,002                            | 50,956 | 77,162 | 260,452 | 126,959 | 149,688 | 167,783 | 211,279 | 259,939 |
| (% relative to KSE total market cap)                | (88.4)                             | (88.7) | (84.6) | (90.1)  | (86.7)  | (82.5)  | (78.3)  | (74.8)  | (68.2)  |

**Table 6. Regression estimates of the foreign ownership on insider ownership and governance rankings**

Table shows cross-sectional regression estimates of the foreign ownership on insider ownership and governance rankings, using all KSE common stocks in 2004. “Insider” ownership is the percentage share ownership of common stocks by the largest shareholder, families, and all affiliated shareholders at fiscal year-end; “Sole ownership” is the percentage share ownership of common stocks by the largest shareholder at fiscal year-end; “Gov. % ranks” are the percentage ranks based on the corporate governance survey scores for the year 2004, with low values representing better governance; “Ownership parity” is defined as  $100 - (\text{insider ownership} - \text{sole ownership})$ ; “Log size” is log of market value of common stocks in million dollars. T-statistics in parentheses are computed using heteroskedasticity-consistent standard errors.

|                     | All of No FDI firms |                   |                   |                   |                     |                    | All of No FDI firms with size $\geq 100$ mil.\$ |                   |                   |                 |                    |                    |
|---------------------|---------------------|-------------------|-------------------|-------------------|---------------------|--------------------|-------------------------------------------------|-------------------|-------------------|-----------------|--------------------|--------------------|
|                     | (1)                 | (2)               | (3)               | (4)               | (5)                 | (6)                | (7)                                             | (8)               | (9)               | (10)            | (11)               | (12)               |
| Intercept           | -3.027<br>(-1.73)   | 11.174<br>(8.96)  | 19.438<br>(11.91) | -0.549<br>(-0.19) | -13.466<br>(-11.99) | -15.340<br>(-5.30) | -5.951<br>(-1.67)                               | 29.001<br>(12.23) | 30.923<br>(13.83) | 6.712<br>(0.83) | -26.718<br>(-5.14) | -17.035<br>(-2.02) |
| 100 – Insider       | 0.174<br>(5.15)     |                   |                   |                   |                     | 0.170<br>(6.17)    | 0.413<br>(6.50)                                 |                   |                   |                 |                    | 0.331<br>(5.35)    |
| Sole ownership      |                     | -0.149<br>(-4.36) |                   |                   |                     |                    |                                                 | -0.375<br>(-5.76) |                   |                 |                    |                    |
| Gov. % ranks        |                     |                   | -0.225<br>(-9.52) |                   |                     | -0.053<br>(-3.40)  |                                                 |                   | -0.313<br>(-6.68) |                 |                    | -0.128<br>(-3.04)  |
| Ownership parity    |                     |                   |                   | 0.095<br>(2.69)   |                     | -0.068<br>(-2.00)  |                                                 |                   |                   | 0.154<br>(1.61) |                    | -0.243<br>(-3.05)  |
| Log size            |                     |                   |                   |                   | 5.349<br>(15.73)    | 5.367<br>(16.17)   |                                                 |                   |                   |                 | 7.633<br>(8.47)    | 6.846<br>(7.61)    |
| Adj. R <sup>2</sup> | 0.051               | 0.029             | 0.225             | 0.008             | 0.512               | 0.598              | 0.176                                           | 0.125             | 0.225             | 0.008           | 0.331              | 0.519              |
| Nobs                | 557                 | 557               | 449               | 557               | 564                 | 444                | 161                                             | 161               | 135               | 161             | 161                | 135                |

**Table 7. Regression estimates of the foreign ownership on firm characteristic variables**

Table shows regression estimates of the foreign ownership on firm characteristics, using the sample stocks of the non-FDI firms over the sample period from 1996 to 2004. The regressions are estimated using three main datasets: year-by-year for each year from 1996 to 2004; balanced panels using data from 1998 to 2004; and a cross-section of longer-term changes from 1998 to 2004. In the panel and “changes” regressions, we also report results for samples restricted to larger firms with 2004 market capitalization greater than US\$100 million. All explanatory variables are measured at the end of each year: “Insider” ownership, “Log size”, “Ownership parity”, and “Gov. % ranks” are described previously in Table 6; “Tobin’s q” is the market value of assets (= book value of total liabilities + market value of preferred stock + market value of common stock) divided by the book value of total assets; “Cash flow/assets” is the operating cash flows divided by total assets. Fixed-effect panel regressions include a full set of year dummies (not reported). In parallel to Table 4, the “changes” regressions also include (but do not report) initial (1998) values of each explanatory variable and of the dependent variable. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors; for the panel estimations, the standard errors are also adjusted for within-firm correlation.

|                     | 1996    | 1997    | 1998    | 1999    | 2000    | 2001    | 2002    | 2003    | 2004    | Panel<br>(1998~<br>2004)<br>Full<br>Sample | Panel<br>(1998~<br>2004)<br>Size><br>\$100m | Changes<br>(1998~<br>2004)<br>Full<br>Sample | Changes<br>(1998~<br>2004)<br>Size><br>\$100m |
|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------------------------------------------|---------------------------------------------|----------------------------------------------|-----------------------------------------------|
| Intercept           | -9.375  | -6.477  | -11.754 | -6.890  | -11.538 | -14.739 | -19.047 | -11.208 | -15.137 | .                                          | .                                           | -18.600                                      | -26.332                                       |
| 100 – Insider       | 0.016   | 0.018   | 0.042   | 0.050   | 0.060   | 0.080   | 0.110   | 0.165   | 0.169   | 0.106                                      | 0.324                                       | 0.141                                        | 0.520                                         |
| Log size            | 3.198   | 2.003   | 2.829   | 2.098   | 2.798   | 3.838   | 4.265   | 4.173   | 5.003   | 2.675                                      | 4.462                                       | 5.623                                        | 8.471                                         |
| Tobin’s q           | 0.686   | 0.219   | 1.735   | 1.350   | 0.128   | 2.037   | 3.021   | 3.084   | 3.257   | 1.572                                      | 0.775                                       | 1.342                                        | -3.758                                        |
| Cash flow/assets    | 0.037   | 0.052   | 0.043   | 0.074   | 0.018   | 0.057   | 0.141   | 0.039   | 0.053   | 0.035                                      | 0.114                                       | 0.019                                        | 0.297                                         |
| Ownership parity    | -0.012  | 0.028   | 0.025   | -0.024  | 0.025   | -0.015  | -0.019  | -0.101  | -0.086  | -0.050                                     | -0.235                                      | -0.054                                       | -0.273                                        |
| Gov. % ranks        | .       | .       | .       | .       | .       | .       | -0.005  | -0.047  | -0.056  | .                                          | .                                           | .                                            | .                                             |
| t(Intercept)        | (-3.40) | (-3.11) | (-4.68) | (-3.26) | (-4.69) | (-5.82) | (-7.14) | (-4.68) | (-5.14) | .                                          | .                                           | (-5.56)                                      | (-3.36)                                       |
| t(100 – Insider)    | (0.64)  | (0.76)  | (1.63)  | (2.12)  | (3.35)  | (4.33)  | (3.72)  | (6.61)  | (6.20)  | (4.91)                                     | (4.37)                                      | (4.14)                                       | (5.65)                                        |
| t(Log size)         | (14.44) | (9.26)  | (10.23) | (9.71)  | (9.09)  | (10.31) | (10.16) | (11.46) | (13.05) | (7.91)                                     | (4.91)                                      | (10.99)                                      | (4.85)                                        |
| t(Tobin’s q)        | (1.12)  | (0.33)  | (2.59)  | (3.21)  | (0.64)  | (2.57)  | (2.05)  | (2.41)  | (2.12)  | (2.64)                                     | (0.59)                                      | (1.09)                                       | (-0.83)                                       |
| t(Cash flow/assets) | (0.93)  | (1.35)  | (1.88)  | (2.71)  | (0.62)  | (1.52)  | (2.93)  | (1.25)  | (1.15)  | (2.88)                                     | (1.46)                                      | (0.52)                                       | (1.65)                                        |
| t(Ownership parity) | (-0.34) | (0.90)  | (0.74)  | (-0.99) | (1.01)  | (-0.66) | (-0.54) | (-3.42) | (-2.54) | (-2.10)                                    | (-3.23)                                     | (-1.34)                                      | (-2.41)                                       |
| t(Gov. % ranks)     | .       | .       | .       | .       | .       | .       | (-0.33) | (-3.29) | (-3.46) | .                                          | .                                           | .                                            | .                                             |
| Adj. R <sup>2</sup> | 0.324   | 0.201   | 0.302   | 0.324   | 0.287   | 0.417   | 0.531   | 0.531   | 0.601   | 0.471                                      | 0.502                                       | 0.474                                        | 0.457                                         |
| Nobs                | 647     | 659     | 608     | 617     | 610     | 593     | 360     | 571     | 444     | 2,842                                      | 833                                         | 406                                          | 119                                           |