

Financial Globalization, Governance, and the Evolution of the Home Bias

BONG-CHAN KHO,* RENÉ M. STULZ,†
AND FRANCIS E. WARNOCK‡

Received 14 February 2008; accepted 21 October 2008

ABSTRACT

We merge portfolio theories of home bias with corporate finance theories of insider ownership to create the optimal corporate ownership theory of the home bias. The theory has two components: (1) foreign portfolio investors exhibit a large home bias against countries with poor governance because their investment is limited by high optimal ownership by insiders (the “direct effect” of poor governance) and domestic monitoring shareholders (the “indirect effect”) in response to the governance and (2) foreign direct investors from “good governance” countries have a comparative advantage as insider monitors in “poor governance” countries, so that the relative importance of foreign direct investment is negatively related to the quality of governance. Using both country-level data on U.S. investors’ foreign investment allocations and Korean firm-level data, we find empirical evidence supporting our optimal corporate ownership theory of the home bias.

*Seoul National University; †Ohio State University, ECGI, and NBER; ‡University of Virginia, IIS, FRB-Dallas, and NBER. We are grateful to Ji-Woong Chung, Jin-Woo Kim, Carrie Pan, and Francesca Silvestrini for research assistance. We thank Craig Doidge for providing us with crosslisting data. We are grateful for helpful comments and suggestions of an anonymous referee, Doug Skinner (the editor), Heitor Almeida, John Ammer, Menzie Chinn, Josh Coval, Craig Doidge, Wayne Ferson, Mary Margaret Frank, Andrew Karolyi, Philip Lane, Christian Leuz, Marc Lipson, Chris Lundblad, Gregory Miller, Jim Shapiro, José Viñals, Daniel Wolfenson, seminar participants at Boston College, Darden, Ente “Luigi Einaudi” Institute, Federal Reserve Bank of New York, IMF, and the Ohio State University, and participants at the BIS Annual Conference, ECB Conference on Financial Globalization, JAR Annual Conference, NBER IFM Meeting, WFA, and Wharton Impact Conference on International Governance. For generous support, Kho thanks the Institute of Management Research at Seoul National University and Warnock thanks the Federal Reserve Bank of Dallas and the Darden School Foundation.

1. Introduction

Since the early 1990s, stock markets from developed countries as well as from a large number of emerging countries have been open to foreign investors. Yet, 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 ceased to be important for most countries with functioning stock markets. In this paper, we merge the portfolio approach to the home bias with the corporate finance literature on insider ownership to form what we call the optimal corporate ownership theory of the home bias. We show that this theory can help explain the evolution of the home bias of U.S. equity investors towards a wide range of countries from 1994 to 2004 and the evolution of foreigners' holdings of Korean stocks from 1998 to 2004.

The traditional portfolio approach to international investment predicts that if there are no barriers to international investment all investors hold the world market portfolio.¹ With this simple model, it would never be optimal for individuals' portfolios to hold more equity in a firm 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 portfolios. Though the portfolio model cannot explain this concentration, the corporate finance literature predicts that insider ownership should be larger when agency problems between those who control corporations and outside investors are stronger (see, e.g., Jensen and Meckling [1976], Demsetz and Lehn [1985]). These agency problems are stronger when the institutions that protect investors in a country are poorer.² Moreover, agency problems of controlling shareholders can be reduced by having investors who actively monitor the controlling shareholders (Shleifer and Vishny [1986]). The existence of an optimal level of insider ownership and of an important role for monitors forms the basis for the optimal corporate ownership theory of the home bias.

With our theory, the upper bound on foreign ownership through portfolio equity holdings is determined by the optimal size of insider ownership because, as pointed out by Dahlquist et al. [2003], foreign portfolio investors can only hold shares not held by insiders. Hence, foreign portfolio investors cannot hold the world market portfolio, but only the world market portfolio of shares not held by insiders (the float-adjusted world market portfolio). In addition, two types of investors can have a comparative advantage in monitoring. First, local investors who, because of proximity, have access to more information, some of it costless, have a comparative advantage in monitoring compared to foreign portfolio investors (Giannetti and

¹ See Lewis [1999] and Karolyi and Stulz [2003] for reviews of that approach and of the literature on the home bias more generally.

² See Stulz [2005] for references.

Simonov [2006]). Second, foreign investors from countries with better institutions, if they become part of the controlling block, can be valuable inside monitors because the laws of their home countries limit their ability to consume private benefits, making it optimal for them to limit the consumption of private benefits by other insiders. As a result of these forces, we expect that local investors with monitoring ability would overweight domestic securities (thereby further limiting the holdings of atomistic foreign portfolio investors) and foreigners who become part of the controlling coalition (foreign direct investors) would be valuable as monitors.

Governance, thus, has two main effects on the home bias. The first is what we call the “direct effect” of governance on the home bias: Poorer governance leads to a higher level of insider ownership, which limits portfolio holdings by foreign investors. The second effect we call the “indirect effect” of governance on the home bias: Poorer governance also implies higher ownership by domestic monitoring shareholders and, as the ownership of these investors increases, domestic investors (in aggregate) become more overweight in domestic stocks, further limiting the portfolio investment of foreigners.

Governance also impacts the composition of foreign investment. Foreign direct investment (FDI) investors from countries with better governance—to the extent they become insiders and are limited in their consumption of private benefits by the governance of their home country—have a comparative advantage in monitoring controlling shareholders and strong incentives to use their information as insiders to limit the consumption of private benefits by other insiders. As governance improves, the benefits of monitoring fall and FDI becomes less advantageous relative to portfolio investment. Consequently, the forces that make high insider ownership optimal also increase the reward to FDI compared to the reward to portfolio investment. We therefore expect portfolio investment to be more important compared to FDI for countries with better governance and the relative importance of portfolio investment to increase as governance improves.

We use data from 1994 to 2004 to investigate the evolution of the home bias. Because our sample starts after a period of liberalization of equity markets in emerging countries, we can consider a large number of countries whose equity markets are reasonably open to foreign investors.³ We first show that there is no evidence of a systematic decrease in ownership concentration across the world. Consequently, the upper bound on international risk sharing has not increased systematically. We then investigate how the holdings of U.S. investors in foreign countries changed from 1994 to

³ 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. On the evolution of the *extent* of liberalization in a range of emerging market countries, see Edison and Warnock [2003].

2004 using the U.S. Treasury's comprehensive and high quality benchmark surveys of ownership of foreign securities by U.S. residents. For a sample of 46 destination countries, we find that the average change in U.S. home bias toward each country is not significantly different from zero. Strikingly, we find that from 1994 to 2004 the home bias decreases in countries where the stake of insiders falls. This result is robust when taking into account the endogeneity of insider holdings predicted by our theory. A complementary prediction of our theory is that the ratio of FDI to total foreign investment should fall as ownership by insiders falls. We test this prediction as well using U.S. FDI data and find support for it.

The disadvantage of the U.S. data set is that it provides data only for U.S. investors. Further, the insider ownership data set we use allows us to neither identify the residence of insiders nor identify blockholders who may not be insiders. Few countries have detailed data over time that enable the identification of ownership by both foreign investors and blockholders. Korea does. We therefore use a firm-level data set from Korea that has ownership data for foreign investors, includes as insiders only the controlling shareholder and affiliated shareholders, provides the residence of insiders, and allows us to identify domestic monitoring shareholders. The results using this data set support the results we find using the foreign ownership of U.S. investors. We find that the foreign ownership of Korean firms grows in firms in which insider ownership falls and in firms for which holdings by domestic monitoring shareholders fall.

The paper proceeds as follows. In section 2, we review portfolio theories of the home bias. In section 3, we develop the implications of the optimal theory of corporate ownership for the home bias. In section 4, we show that there is no evidence that insider ownership falls 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, 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, and show that the evolution of FDI as a component of total foreign investment is consistent with our predictions. 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 that 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 indirect utility functions 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 focuses on the role of barriers to international investment (see, e.g., Black [1974], Stulz [1981a], Errunza and Losq [1985]). In testing these models, the literature looks 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, e.g., Bekaert and Harvey [1995]).

As barriers to international investment became less important but the home bias persisted, authors focused more on alternative explanations for the home bias. 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], Adler and Dumas [1983]). The literature on hedging focuses either on inflation risk directly or on the role of nontraded 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, e.g., Pesenti and van Wincoop [2002], van Wincoop and Warnock [2006]). Finally, investors are subject to various risks that they might want to hedge. Human capital risks, for example, may lead investors to short domestic stocks (Baxter and Jermann [1997]), making the home bias even more puzzling.

Investors may have different expectations about stock returns, volatilities, and covariances. If investors are more uncertain about the expected returns for foreign stocks, these stocks will appear riskier 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 an important weakness. If information asymmetry is the only reason that the portfolios of foreign and resident investors differ, we would expect that local investors at times receive negative signals that justify a low allocation to their home market, yet almost everywhere allocations to home countries always exhibit a home bias and change little (see Jeske [2001]).

Behavioral finance points to another possible explanation for the home bias: Investors may simply 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 such behavioral explanations. For instance, using survey data from the United States and Japan, Shiller, Kon-Ya, and Tsutsui [1996] show that investors are more optimistic about their home equity markets than about foreign markets.⁴ Graham, Harvey, and

⁴ See also Kilka and Weber [2000] and Strong and Xu [2003].

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.

3. *The Optimal Corporate Ownership Theory of the Home Bias*

The corporate finance literature shows that, when minority shareholders are poorly protected, firm value is maximized when corporate insiders (those who control the corporation) own a large ownership stake, because this stake helps align their incentives with the interests of minority shareholders.⁵ Such a result is inconsistent with the atomistic ownership of corporations that follows from the portfolio theories discussed in the previous section, but it has far-reaching implications for the home bias. In this section, we first briefly review the determinants of the optimal stake of the insiders. We consider next the implications of poor institutions and high optimal insider ownership for the portfolios of investors who are not insiders (such as large monitors and more dispersed atomistic investors) and then show that our approach implies that, everything else equal, foreign direct investment as a fraction of total foreign investment and insider ownership are correlated. Finally, we discuss some limitations of the optimal corporate ownership theory.

3.1 THE OPTIMAL INSIDER OWNERSHIP

If a country's institutions that protect investors are poor, insiders who control corporations can extract large private benefits.⁶ However, insiders incur deadweight costs for the extraction of these private benefits, and the deadweight costs are higher in countries that protect investors better: Laws and regulations that protect outside investors from expropriation by insiders increase the costs of extracting private benefits of control. The laws include laws that make it harder for insiders to expropriate resources by allowing a greater say for outside shareholders, laws that make it easier for outside shareholders to recover damages from insiders, as well as laws that require more disclosure from the firm.⁷

In countries with poor institutions, if insiders do not take steps to commit to consume fewer private benefits, their firms are not able to access the equity markets on acceptable terms. Portfolio investors only buy equity from

⁵ See Stulz [2005] for references.

⁶ See Johnson et al. [2000].

⁷ On the role of disclosure laws, see Stulz [2008] and references therein. We view a country's disclosure laws as an element of country-level governance and firm-level disclosure policies as part of a firm's corporate governance. Leuz, Nanda, and Wysocki [2003] and others show that country-level governance affects the information conveyed to investors through accounting numbers. Though greater transparency has both costs and benefits, it makes it harder for insiders to hide the consumption of private benefits and hence imposes a cost on the consumption of such benefits. Jin and Myers [2006] emphasize the critical role of lack of transparency for the consumption of private benefits.

such firms at a discount that reflects the anticipated consumption of private benefits. For a given level of investor protection, extraction of private benefits is inversely related to the level of insider ownership.⁸ If the individuals who control corporations hold a large stake in the firm, they incur more of the cost of the consumption of private benefits since it reduces the value of their stake; the lower the ownership of the insiders, the less they pay for their private benefits out of their own pocket. Irrespective of the country in which a firm is located, insider ownership has a cost in that it reduces the diversification of the portfolio of the insiders.

As investor protection improves, insider ownership falls because the benefits of insider ownership (aligning the interests of insiders with those of minority shareholders) fall as it becomes harder for insiders to take advantage of minority shareholders, but the cost of insider ownership (the underdiversification of insiders) does not.

3.2 THE DIRECT AND INDIRECT EFFECTS OF GOVERNANCE ON FOREIGN OWNERSHIP

Consider a world in which dispersed portfolio investors are price takers and face the same opportunity sets if they are residents or foreigners. Suppose, too, that the optimal insider ownership for a firm is α^* . As pointed out by Dahlquist et al. [2003], it immediately follows that portfolio investors can only hold $(1 - \alpha^*)$ of the firm in the aggregate. Assume now that foreign portfolio investors represent a fraction b of the equity market wealth of portfolio investors. In this case, foreign portfolio investors own a fraction $b(1 - \alpha^*)$ of the firm if they have no home bias. For a given weight of the firm in the world market portfolio, the weight of the firm in the portfolio of atomistic foreign portfolio investors falls as insider ownership of the firm increases. This is the direct effect of poor governance on foreign ownership.

Another important group of investors includes the monitoring shareholders. Insider ownership in a country is high if the extraction of private benefits is cheap. Because insider ownership is costly, we therefore expect consumption of private benefits to be high when equilibrium insider ownership is high. Consequently, monitoring of, and private information about, that consumption can be more valuable when ownership by insiders is higher. While atomistic shareholders have no reason to monitor since they can free-ride on the monitoring of other shareholders,⁹ monitoring is worthwhile for some shareholders—those who are large enough to be able to gain enough on their shares through monitoring actions to pay for their costs. Likely monitors are large resident shareholders, who typically have lower monitoring costs because of proximity and may also be able to influence controlling shareholders through social networks. Moreover, some corporate policies, such as payout policies, may be designed to attract such large resident shareholders since firm value benefits from having such shareholders.

⁸ See, e.g., Shleifer and Wolfenzon [2002].

⁹ See Shleifer and Vishny [1986] and Admati, Pfleiderer, and Zechner [1994].

These monitoring shareholders may also profit from exiting (when they do exit) because of private information they have acquired.¹⁰

Consider the (likely) scenario in which resident investors have more precise information about private benefits. If some residents have a comparative advantage at monitoring the consumption of private benefits by insiders, we expect, as argued by Giannetti and Simonov [2006], that these residents build positions large enough to take advantage of their monitoring advantage.¹¹ Foreign investors, who are at an information disadvantage, are reluctant to trade with the informed residents and, if trading takes place, it is 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 resident investors have valuable information, then trade will take place as long as these investors can hide their trades among liquidity traders.

Because domestic monitoring shareholders increase firm value and benefit from doing so, firm value is maximized when a fraction of the shares is held by monitoring shareholders rather than by nonmonitoring foreign investors. In equilibrium, therefore, the fraction of shares not held by nonmonitoring foreign investors is higher than α^* . This is the indirect effect of poor governance on foreign ownership.¹²

Our theory implies that an improvement in governance has a direct effect on the home bias as firm value is maximized with less insider ownership and therefore greater holdings of portfolio investors, including foreign portfolio investors. In addition, such an improvement can have an indirect effect as it typically reduces the fraction of shares held by domestic monitoring shareholders and increases the fraction of shares held by foreign portfolio investors.¹³ Some empirical evidence is consistent with the existence of an indirect effect that decreases the home bias. Leuz, Lins, and Warnock [2008] show that, in countries with poor disclosure, U.S. investors hold less

¹⁰ See Edmans and Manso [2008] for a model of monitoring blockholders who benefit from exit.

¹¹ See also the Giannetti and Koskinen [2008] model in which wealthy investors bid up share prices in countries with poor investor protection because they can obtain benefits from control by holding a large stake in a corporation, so that small investors find equity investment less profitable because share prices are not fully discounted to reflect the consumption of private benefits by insiders.

¹² However, the fraction of shares held by monitoring shareholders does not necessarily increase with α^* . Though monitoring shareholders can make large gains by taking actions that reduce the consumption of private benefits when that consumption is large, such actions may be more costly in countries in which optimal insider ownership is high because some monitoring technologies may not be available or may be inefficient in such countries—for instance, the legal system may not work well for private enforcement. For the argument that poor governance leads to less monitoring, see Li et al. [2006].

¹³ An explicit model of the indirect effect is required to reach more definite conclusions because an improvement in governance could lead to a decrease in monitoring costs. This would, for instance, be the case for an increase in disclosure quality. It is possible that under some circumstances greater monitoring would follow a decrease in monitoring costs.

of the float in firms in which the controlling shareholder holds more control rights. Giannetti and Simonov [2006] show that this result holds for foreign investors and small investors in Sweden.

3.3 OPTIMAL INSIDER OWNERSHIP AND THE COMPOSITION OF FOREIGN INVESTMENT

Poor institutions should lead to higher insider ownership. In the above discussion, foreigners are mentioned only in the context of dispersed, atomistic investors. But some foreigners can also become large blockholders who, to the extent that they are subject to regulations and laws from their country of origin that are stronger than the laws and regulations from the host country, may be more limited in their consumption of private benefits from the corporation. If they cannot share in the consumption of private benefits equally, it is in their interest to monitor and limit that consumption. Antras, Desai, and Foley [2009] give such a monitoring role to multinational companies.¹⁴ Consequently, firms that attract foreigners as large blockholders can increase their value by doing so because they signal a commitment to consume fewer private benefits. Since the foreign investors incur fewer deadweight costs from the consumption of private benefits, they can offer higher prices to acquire companies and hence may have an advantage in the market for corporate control. Finally, to the extent that information asymmetries result from poor institutions and that such asymmetries make it more valuable for investors to expend resources in monitoring and enforcement, poor institutions imply that large shareholders earn a higher expected return than atomistic shareholders (because monitoring and enforcement are not worthwhile for dispersed atomistic shareholders).

We therefore expect foreign investors to be more likely to be large inside or outside shareholders in countries with poor institutions than to be atomistic portfolio investors. In practice, foreign blockholders whose ownership exceeds a threshold, typically 10%, are classified as foreign direct investors. While in general we will not be able to determine if foreign direct investors are insiders or monitors, with either role we expect the ratio of foreign direct investment to total foreign investment to be inversely related to the quality of institutions and positively related to the fraction of shares held by insiders.

3.4 THE LIMITS OF THE OPTIMAL CORPORATE OWNERSHIP THEORY

The key insight of the optimal corporate ownership theory of the home bias is that, in equilibrium, share ownership does not depend on the demand for shares by portfolio investors alone. There is an optimal level of ownership by insiders and by monitoring shareholders and the shares of the

¹⁴ Hausmann and Fernández-Arias [2001] also point out that “the fact that international firms have access to better foreign institutions and markets may be a source of value that can be extracted by purchasing firms in the local market.”

corporation held by those two groups are not held by portfolio investors. To the extent that insiders and monitoring shareholders are mostly resident investors because of the informational advantage of proximity, holdings by these investors are associated with lower holdings by foreign investors and, hence, with a higher home bias by foreign investors.

In our empirical work, presented below in section 5 and section 6, we do not test directly the optimal corporate ownership theory, but rather we test whether the relation between changes in insider ownership and monitoring shareholder ownership on the one hand, and changes in foreign ownership on the other hand, is consistent with our optimal corporate ownership theory. It is therefore important to point out that our empirical work could be supportive of the optimal corporate ownership theory of the home bias even if insider and monitoring ownership is driven by other factors than those we focus on in this section.

Though the evidence we cite earlier is supportive of the optimal corporate ownership theory we present, not all existing evidence is supportive. Evidence on the determinants of insider ownership in the United States often finds a limited influence of variables that models based on private benefits consider important (see, e.g., Helwege, Pirinsky, and Stulz [2009]). For instance, proxies for information asymmetries and stock volatility often do not appear to be related to stock ownership in ways predicted by agency models, but proxies for the liquidity of the market of a stock are (see Fahlenbrach and Stulz [2008] for a possible explanation). A possible explanation for such results is that they are U.S. based and the United States has good institutions of investor protection. It is also possible, as argued by Gilson [2006] and others, that control has nonpecuniary benefits that lead insiders to have large holdings in some firms. Further, in an international setting, some argue that improvements in investor protection cannot explain the increase in diffuse ownership in some countries (see Franks, Mayer, and Rossi [2009]). At the very least, therefore, future work should investigate the extent to which insider ownership and ownership by monitoring shareholders is influenced by institutions that affect insiders' ability to consume private benefits.

4. Financial Globalization and the Evolution of the Upper Bound on International Risk Sharing through Portfolio Equity Ownership

For investors to hold the world market portfolio, corporate ownership has to be highly dispersed, so that all shares can potentially be acquired by foreign investors. In most countries, however, insiders own large stakes in most corporations.¹⁵ In equilibrium, the shares held by foreign investors have to come from the shares not held by insiders (the float). Though in many countries insiders control more votes than cash flow rights, the cash

¹⁵ See La Porta, Lopez-de-Silanes, and Shleifer [1999].

flow rights held by insiders are relevant for evaluating the upper bound on risk sharing, since the risks of cash flows are shared.

We discuss, in section 3, how insider ownership is determined. In this section, we examine whether it evolves across countries from 1994 through 2004 in a way that makes 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 nonexistent. Further, the cash flow rights of insiders result not only from their direct ownership of shares but also 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 could own an additional 10% of the shares; direct insider ownership understates the extent to which insiders own cash flow rights in the firm if the 10% owned through a different firm is not taken into account. Various authors have painstakingly identified the direct and indirect ownership of cash flows of controlling shareholders for subsets of firms to estimate the ultimate ownership of these shareholders.¹⁶ In this paper, because we focus on aggregate insider ownership, knowledge of the ultimate ownership of the controlling shareholders is not necessary to estimate the number of shares held by insiders as long as all shares held by insiders at the firm level are taken into account.¹⁷ To obtain country-level aggregate insider ownership, we aggregate firm-level block holdings reported by Worldscope. We include only firms for which insider ownership is available, does not exceed 100%, and is not equal to zero.

The Worldscope data have 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.¹⁸ Second, the approach of focusing on the controlling shareholder alone assumes that blocks are independent from the controlling shareholder, but in many cases this is unlikely; our approach may better capture 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; if some of the blocks are not part of the controlling coalition, we overstate the holdings of the controlling coalition. Fourth, some equity stakes that are indirect equity stakes of the controlling shareholder or stakes from allies of the controlling shareholder may be too small to be counted as blocks; if so, we understate the holdings of the controlling coalition. Fifth, reporting requirements and the enforcement of reporting requirements vary across the world. Sixth, Worldscope at times includes shares held by depository banks in the insider category. Though we attempt to correct for this problem, which is more severe in 1994 than in 2004, the correction is imperfect since some shares

¹⁶ See Claessens, Djankov, and Lang [2000], Faccio and Lang [2002], Lins [2003], and La Porta, Lopez-de-Silanes, Shleifer [1999].

¹⁷ We thank Daniel Wolfenzon for his insights on this issue.

¹⁸ See, e.g., Franks, Mayer, and Rossi [2009].

held by these banks may actually be held by insiders. Our results are not sensitive to this correction. Seventh, 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.¹⁹ It could therefore be that as firms are added to *Worldscope* average insider ownership increases because the new firms are smaller. This is less of a problem with a value-weighted measure of insider ownership, which is the measure we utilize in our empirical work.

To check the *Worldscope* data, we compare insider ownership computed from *Worldscope* with insider ownership computed from the firm-level Korean data set we use in section 6. For 2004, our Korea data set has 571 firms with an equally weighted average insider ownership of 39.38%, while *Worldscope* has 564 observations with an average insider ownership of 39.8%. We look at a sample of individual firms. For some, the insider ownership data are exactly the same in both databases, for others they are not, and on average any 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 estimate insider ownership using the median of the year before, the year after, and the year considered (though we do not have 2005 available for all firms). Doing so does 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 report two measures of insider ownership for each country. The first measure is the equally weighted average of insider ownership for the firms for which data are available. The second measure is the value-weighted average of insider ownership. If we have insider ownership for all firms in a country, one minus the value-weighted average of insider ownership is 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 49.0%, while the average of the value-weighted averages is 43.2%. The distribution of the insider ownership measures across countries conforms to the results obtained in other studies.²⁰ In particular, in 1994 the United States and United Kingdom have the lowest value-weighted insider ownerships at 12.5% and 13.0%, respectively. Turkey has the highest value-weighted insider ownership at 72.5%. Comparing 2004 to 1994, we find no evidence of a systematic decrease in insider ownership across countries, as both the equally weighted and value-weighted averages increase slightly. We note that Argentina experiences a dramatic increase in ownership concentration over the period, but both average measures of insider ownership are higher in 2004 than in 1994 even when we exclude

¹⁹ See, for instance, Demsetz and Lehn [1985].

²⁰ See La Porta, Lopez-de-Silanes, and Shleifer [1999].

TABLE 1
Insider Ownership and Changes in Insider Ownership

Country (1)	1994						2004					
	# Firms in WS			Insider Ownership (%)			# Firms in WS			Insider Ownership (%)		
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Argentina	31	9	57.1	55.7	80	9	71.7	93.9	14.6*	38.2*		
Australia	238	220	36.8	27.7	1,571	1,209	40.8	31.6	4.1*	3.8*		
Austria	85	36	57.9	55.1	101	53	62.4	55.8	4.6	0.7		
Belgium	108	97	57.5	51.1	144	90	52.5	45.8	-5.1*	-5.4		
Brazil	110	69	46.3	57.4	344	139	64.5	52.2	18.3*	-5.1		
Canada	439	150	33.0	31.8	1,482	453	24.8	18.2	-8.2*	-13.6*		
Chile	69	53	58.5	51.9	197	98	67.1	63.7	8.6*	11.8*		
China	37	9	56.7	59.1	1,554	433	61.5	72.5	4.8	13.4*		
Denmark	168	94	25.6	28.0	178	105	43.8	40.8	18.1*	12.7*		
Finland	94	84	43.3	24.1	145	102	36.1	17.9	-7.2*	-6.1		
France	557	502	61.7	41.2	834	486	58.1	33.1	-3.6*	-8.1*		
Germany	599	459	68.2	54.5	910	461	59.2	44.3	-9.0*	-10.2*		
Greece	122	38	65.7	70.8	315	55	54.7	44.7	-11.0*	-26.1*		
Hong Kong	180	167	54.6	45.5	1,026	837	59.3	46.6	4.7*	1.1		
India	204	13	52.7	57.0	527	304	55.5	60.5	2.8	3.5		
Indonesia	98	83	65.5	66.3	339	279	65.7	63.8	0.2	-2.5		
Ireland	55	52	35.9	19.8	77	55	28.9	10.3	-7.0	-9.5*		
Israel	35	7	56.3	55.6	185	98	57.1	43.6	0.8	-11.9		
Italy	207	96	57.2	49.5	273	225	46.9	33.7	-10.3*	-15.8*		
Japan	2,429	2,202	47.6	37.2	3,959	1,730	42.1	34.0	-5.4*	-3.2*		

(Continued)

TABLE 1 — Continued

Country (1)	1994				2004				Difference (9) - (5)	
	Insider Ownership (%)				Insider Ownership (%)					
	# Firms in WS (2)	# Firms with IO (3)	Equally Weighted (4)	Value Weighted (5)	# Firms in WS (6)	# Firms with IO (7)	Equally Weighted (8)	Value Weighted (9)		
Korea	241	227	27.9	36.1	891	564	39.8	34.5	11.8*	-1.7
Luxembourg	18	6	65.7	66.4	46	8	50.4	68.7	-15.3	2.3
Malaysia	238	221	52.0	52.7	1,033	770	49.1	49.7	-2.9	-2.9*
Mexico	79	9	60.1	30.5	138	24	73.9	66.4	13.7	36.0*
Netherlands	184	138	51.0	42.5	211	126	42.0	29.2	-8.9*	-13.2*
New Zealand	48	46	51.6	54.2	119	78	49.6	53.5	-2.0	-0.7
Norway	114	102	44.9	43.7	175	105	43.3	51.1	-1.7	7.4*
Pakistan	75	18	58.3	57.6	122	58	54.7	76.3	-3.6	18.7*
Peru	25	6	66.9	47.3	77	12	77.5	82.3	10.6	34.9*
Poland	15	5	39.9	45.6	111	74	59.3	53.9	19.4*	8.3
Portugal	73	48	50.4	56.3	65	36	61.7	38.6	11.3*	-17.6*
Singapore	135	133	54.8	57.4	620	461	54.8	57.9	0.0	0.5
South Africa	193	172	51.1	43.5	355	169	45.6	42.5	-5.5	-1.0
Spain	140	107	53.9	47.7	159	111	49.7	37.6	-4.1	-10.1*
Sri Lanka	17	11	19.8	21.6	31	13	50.1	53.2	30.3*	31.6*
Sweden	164	152	39.3	22.0	326	159	32.5	21.5	-6.8*	-0.5
Switzerland	190	128	46.7	23.6	282	225	43.5	23.9	-3.2	0.3
Taiwan	113	20	18.1	15.0	1,455	567	25.7	28.8	7.6*	13.9*
Thailand	245	35	36.7	21.8	519	313	57.0	53.6	20.2*	31.8*
Turkey	47	24	71.7	72.5	216	195	62.0	66.3	-9.7*	-6.2
U.K.	1,588	1,538	30.6	13.0	2,354	1,997	32.4	12.3	1.8*	-0.7
U.S.	2,541	2,323	29.7	12.5	8,927	6,075	31.6	12.2	1.9*	-0.2
Average			49.0	43.4			50.9	45.7	1.9	2.3

The table shows the average insider ownership (IO) for each of 42 countries in 1994 and 2004 and their changes for that period, using the information on closely held shares reported by Worldscope (WS). Firms with both closely held shares and December market value in a given year are included in the sample, whereas those with no such information or with insider ownership exceeding 100% or equal to 0% are excluded.

* indicates significance at the 10% level, testing the mean difference from zero.

Argentina. In 2004, Ireland has the most diffuse ownership in value-weighted terms followed by the United States and the United Kingdom, and Argentina replaces Turkey as the country with the most concentrated ownership.

5. *The Evolution of the Home Bias of U.S. Investors*

In this section, we illustrate the main points of our theory using a country-level data set of U.S. investment abroad.

5.1 HOLDINGS DATA

The data on holdings of U.S. investors in foreign countries are collected through comprehensive surveys conducted by the Treasury Department, the Federal Reserve Bank of New York, and the Federal Reserve Board in 1994 and 2004.²¹ These so-called benchmark surveys provide the most reliable data on the holdings of U.S. investors, who comprise the largest group of foreign investors in the world. We focus on high-quality U.S. data because data on international portfolios that are not carefully collected tend to be of uneven quality.²²

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 report investments in Belgium and Luxembourg together for 1994, we combine these two countries for 2004 as well and thus have 46 countries. Table 2 reports the weight of each of these 46 countries in the portfolio of stocks of U.S. investors. The sum of the weights increases from 9.8% in 1994 to 13.4% in 2004.²³ With the portfolio model, in the absence of a home bias, the sum of the weights of

²¹ 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 Griever, Lee, and Warnock [2001].

²² There are other country-level data sets. One, the International Monetary Fund's Coordinated Portfolio Investment Survey (CPIS), starts too late for our study (in 1997), is complete starting only in 2001, and, most importantly, is on average of relatively poor quality as the vast majority of countries do not conduct careful security-level surveys. For example, CPIS data for 2004 suggest that other euro area residents hold 1,189% of the Luxembourg equity market. Clearly, the vast majority of those positions are held with Luxembourg custodians, not in Luxembourg equities, but this raises serious questions about the geographic accuracy of much of the CPIS data. We do not use the long time series of international equity holdings available through countries' International Investment Position (IIP) data—used in Sorensen et al. [2007], Mondria and Wu [2007], and Baele, Pungulescu, and Ter Horst [2007]—because in the IIP data most countries report holdings data years (and, in some cases, decades) before such data are actually collected. On some of the possible ramifications of using IIP data, see Warnock [2002] and Curcuru, Dvorak, and Warnock [2008].

²³ In table 2, the fraction of all foreign stocks in the equity portfolio of U.S. investors increases from 10.25% to 15.27%. Consequently, it appears that the fraction of the portfolio of U.S. investors invested in countries other than the 46 we focus on increases from 0.48% to 1.83%. However, this increase is misleading, as it is mainly due to U.S. companies that reincorporate or create special-purpose vehicles (or corporations) in tax havens. Excluding Caribbean financial centers, countries we include constitute 100% (99%) of U.S. holdings in countries in 1994 (2004).

TABLE 2
The Evolution of the Home Bias

	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)
Developed countries	0.419	0.491	0.113	0.078	0.73	0.84	-0.11
Euro area	0.162	0.108	0.039	0.024	0.76	0.78	-0.02
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
Other Europe	0.111	0.105	0.040	0.025	0.64	0.76	-0.12
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
Other developed	0.146	0.278	0.034	0.029	0.77	0.90	-0.13
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
Emerging markets	0.126	0.132	0.021	0.020	0.83	0.85	-0.02
Latin America	0.018	0.030	0.005	0.010	0.72	0.67	0.06
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
Emerging Asia	0.060	0.058	0.009	0.004	0.84	0.92	-0.08
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

(Continued)

TABLE 2—Continued

	Weight in World Market Portfolio		Weight in U.S. Equity Portfolio		Bias		
	2004 (1)	1994 (2)	2004 (3)	1994 (4)	2004 (5)	1994 (6)	Change (7)
Financial centers	0.027	0.028	0.004	0.004	0.87	0.84	0.02
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
Emerging Europe	0.005	0.002	0.001	0.000	0.85	0.90	-0.05
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
Other emerging	0.016	0.014	0.003	0.001	0.84	0.91	-0.06
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	0.85	-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
Total (above listed)	0.545	0.623	0.134	0.098	0.75	0.84	-0.09
Total rest of world	0.580	0.631	0.153	0.102	0.74	0.84	-0.10
Equally weighted average	0.012 (4.31)	0.014 (2.52)	0.003 (3.78)	0.0021 (3.69)	0.787 (36.0)	0.814 (40.3)	-0.027 (1.45)

The 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 (S&P [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, Warnock, and Wongswan [2006]). 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, (column (5)) = 1 - (column (3))/(column (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.

these countries in the stock portfolio of U.S. investors should be 62.3% in 1994 and 54.5% in 2004.²⁴ A simple way to evaluate the extent of the home bias that U.S. investors exhibit toward a foreign country *i* is to compute the ratio of the portfolio weight of country *i* in the portfolio of U.S. investors

²⁴ 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 (S&P [2005, 2003]), 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 (EMDB). For industrial countries and the rest of the world aggregate, market capitalizations for March 1994 are December 1993 amounts (from EMDB) plus country-specific Morgan Stanley Capital International (MSCI) price changes. For industrial countries for months in 2004 (explained below), data are from <http://www.fibv.com>. Exceptions are the following, for which December 2004 and MSCI price returns are used: France (no entry in FIBV), The 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 are \$9.2 billion and \$1.9 billion, respectively, in Israeli stocks listed on the National Association of Securities Dealers Automated Quotations (NASDAQ) but not the Tel Aviv Stock Exchange (TASE). These are omitted from typical market capitalization data; we add them to the end-2004 and end-1994 amounts from Standard & Poors.

(w_i^{US}) relative to the portfolio weight of that country in the world market portfolio (w_i^{world}). In 1994, the allocation to these 46 countries from U.S. investors represents 15.7% of what it would have been had they held the world market portfolio. In 2004, that allocation was 24.6% of the portfolio share of these countries in the world market portfolio. Home bias is often measured as one minus the decimal value of that percentage or, specifically:

$$BIAS_i = 1 - w_i^{US}/w_i^{world}.$$

The home bias is zero when investors hold the world portfolio and one if they hold no equities in country i . Measured this way, the aggregate U.S. home bias is far from zero but does fall from 0.84 to 0.75 from 1994 to 2004.

If what happens over these 10 years is 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 change in the home bias measure for each country. As also illustrated in figure 1, the home bias does not

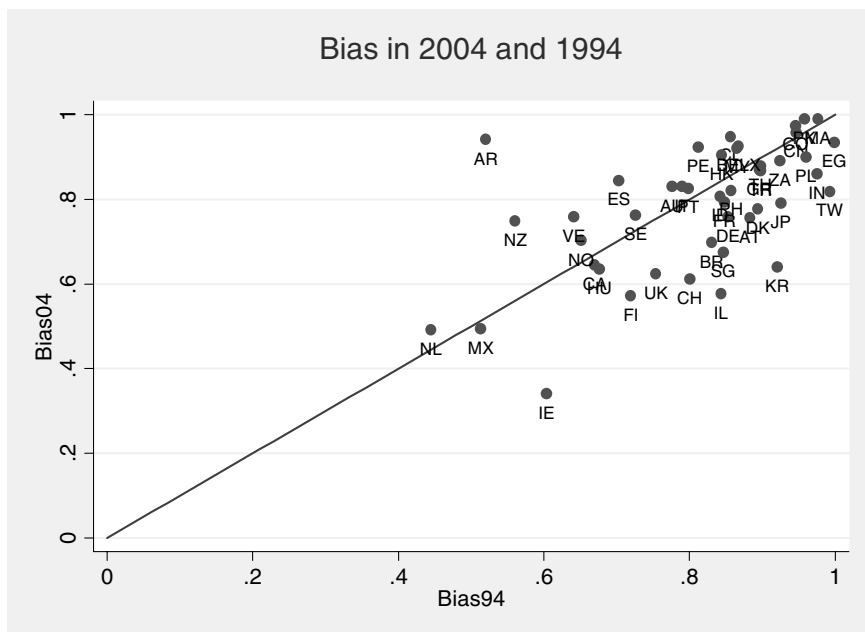


FIG. 1.—The evolution of U.S. home bias. Each point on the graph plots the home bias of U.S. investors toward a country as of two points in time, 1994 (on the horizontal axis) and 2004 (on the vertical axis). Home bias at a point in time is defined as one minus the ratio of the weight in U.S. portfolios to the weight in the world portfolio, or

$$BIAS_i = 1 - w_i^{US}/w_i^{world}.$$

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 vertical distance from the 45° line to its point. The home bias declines for the 27 countries below the 45° line and increases for the 19 countries above it.

decrease systematically across countries. In fact, it does not decrease systematically even within regions, decreasing in 7 euro area countries (but increasing in 4), 5 of 9 other developed countries, and 8 of 17 Latin American and emerging Asian countries. In all, of the 46 countries with complete data, U.S. home bias increases for 19 countries and decreases for 27 countries, increasing the most for Argentina and decreasing the most for Korea. The average reduction in the home bias is 0.027 (p -value = 0.155). Consequently, one cannot reject the hypothesis that there is no change in the average home bias between 1994 and 2004.²⁵

5.2 DESCRIPTION OF VARIABLES

In table 3, for the 40 countries for which we have complete insider ownership and U.S. 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 change in 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.

The main variable predicted by our theory is insider ownership. As expected, there is a strong positive correlation between the change in insider ownership (Δio) and the change in the home bias. We also consider other variables included in home bias studies (although not necessarily related to our theory). Not surprisingly in light of the earlier results of Ahearne, Grier, and Warnock [2004], Edison and Warnock [2004], and Ammer et al. [2006], we find that an increase in the fraction of a market's capitalization that is available in the United States through a cross-listing ($\Delta xlist$) is associated with a decrease in the home bias. We next use the Edison and Warnock [2003] measure of the change in the fraction of a market's capitalization unavailable for investment by foreign investors (Δfor). The change in the home bias does not have a significant correlation with the change in that measure, perhaps because—as we note in the introduction—many countries are completely open to foreign investment by the beginning of our sample. We next examine whether changes in the home bias are related to destination-country size as measured by changes in relative market capitalizations ($\Delta wgtw$). They are not. We then consider six governance measures from Kaufmann, Kraay, and Mastruzzi [2005]. A higher value for

²⁵ The home bias measured using the aggregate portfolio share of the 46 countries in the portfolio of stocks of U.S. investors decreases more (by 0.09) because the home bias of U.S. investors decreases towards each of the four largest foreign countries from 1994 to 2004.

TABLE 3
Correlations

	$\Delta bias$	$\Delta bias^F$	$bias94$	$biasF94$	Δio	$\Delta xist$	Δfor	$\Delta wgtw$	Δva	$\Delta \beta s$	Δge	$\Delta \eta$	Δrl	Δcc	$\Delta illiq$
$\Delta bias^F$	0.720***														
$bias94$	-0.390**	-0.206													
$biasF94$	-0.543***	-0.356**	0.915***												
Δio	0.360**	-0.215	0.002	0.045											
$\Delta xist$	-0.346**	-0.446***	-0.072	0.008	-0.077										
Δfor	0.243	0.219	-0.236	-0.195	0.010	-0.200									
$\Delta wgtw$	0.139	0.168	-0.132	-0.143	-0.021	0.032	-0.050								
Δva	0.112	-0.162	0.053	0.028	0.380**	0.125	-0.338**	-0.016							
$\Delta \beta s$	-0.025	-0.039	0.063	0.129	0.062	-0.126	0.133	-0.004	0.032						
Δge	-0.338**	-0.275*	0.309**	0.442***	-0.048	0.094	-0.228	-0.006	0.079	0.562***					
$\Delta \eta$	-0.434***	-0.118	0.111	0.344**	-0.368**	0.070	-0.044	-0.116	-0.033	0.342**	0.566***				
Δrl	-0.363**	-0.087	0.190	0.296*	-0.417***	0.094	-0.108	0.062	0.028	0.445***	0.644***	0.762***			
Δcc	0.134	0.201	-0.104	-0.042	-0.121	-0.134	0.267	0.046	-0.151	0.163	0.087	0.388**	0.213		
$\Delta illiq$	0.358**	0.043	0.226	-0.068	0.292*	-0.049	-0.015	-0.040	-0.019	0.006	-0.363**	-0.364**	-0.402***	-0.195	
rl	0.133	0.031	0.281*	0.169	0.292*	-0.372**	0.060	0.059	0.401***	-0.016	0.073	-0.190	-0.098	-0.024	-0.291*

The 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 ($bias^F$). Home bias measures are from table 2. Insider ownership (io) is described in table 1. Cross-list (rl) 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 (βs), government effectiveness (ge), regulatory quality (η), 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, Kraay, and Mastruzzi [2005]). Illiquidity ($illiq$) is from Bekaert, Harvey, and Lundblad [2007]. Recent returns (ret) are computed using three years of monthly MSCI returns. There are 40 observations. Correlations that are significantly different from zero at the 1%, 5%, and 10% levels are denoted by ***, **, and *, respectively.

these measures corresponds to a better governance outcome. We find that the home bias is significantly negatively correlated with three measures: governance effectiveness (Δge), regulatory quality (Δrq), and rule of law (Δrl). The other three measures do not have a significant correlation with the change in the home bias. Two of these measures, regulatory quality and rule of law, have a strong negative correlation with insider ownership, providing some support for the existence of a relation between insider ownership and governance. We discuss, in section 3, evidence that insider ownership is related to a stock's liquidity. Since our results are at the level of the country, we use the Bekaert, Harvey, and Lundblad [2007] country-level measure of illiquidity; changes in illiquidity ($\Delta illiq$) are highly correlated with changes in the home bias and changes in insider ownership. Finally, if foreign investors trade on momentum, their holdings will be heavily determined by recent returns. Using the return for the three years ending in 2004 as a proxy for recent returns, country-level returns do 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, which would be 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 (marginally significant at the 10% level) negative correlation with government effectiveness. In contrast, however, the correlation between the change in the float-adjusted home bias and the change in the fraction of the stock market cross-listed is quite strong. Finally, the correlation of changes in illiquidity with the float-adjusted measure of the bias is small, so that illiquidity does not seem to be directly related to foreign ownership when the market portfolio is adjusted for insider ownership.

5.3 REGRESSIONS OF U.S. HOME BIAS

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 in section 3, we expect improvements in governance to bring about a decrease in insider ownership. But it could also be the case that increases in foreign interest lead to decreases in insider ownership, as an exogenous shock to foreign demand will increase the price at which insiders can sell shares. 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 instrument

for the change in insider ownership using changes in the six governance variables.²⁶

We estimate all regressions twice. In model (1) to model (6) of table 4, we use the world market portfolio to calculate the home bias; in model (7) to model (12), we use the float-adjusted world market portfolio. Evidence of the direct effect of governance (through insider ownership) on foreign investment will come through a positive relationship between the change in insider ownership (instrumented using changes in the governance variables) and the home bias in model (1) to model (6). Though our data provide us with a measure of insider ownership, they do not give us a direct measure of the holdings of domestic monitoring shareholders (except that those monitoring shareholders who are blockholders are included as insiders). Thus, given the data limitations, evidence of the indirect effect of governance on foreign ownership brought about by a reduction in the fraction of shares held by domestic monitoring shareholders would come through either (1) in panel A, a positive relationship between the change in insider ownership (instrumented) and the float-adjusted home bias in model (7) to model (12) or (2) in panel B, a negative relationship between the governance variables and the home bias measures (i.e., an impact above and beyond the effect through insider ownership).

In panel A model (1) to model (6), the change in insider ownership (instrumented using changes in governance variables) is always positively related to the change in the home bias as predicted by the direct effect. Control variables included in model (2) to model (6) generally are not significant, with some exceptions discussed below. In panel B, the change in insider ownership is again strongly positively related to changes in the home bias in model (1) to model (6), while the governance variables are not. In fact, in all of 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. That the change in insider ownership (instrumented using the change in governance variables) is strongly related to the change in the market-capitalization-weighted home bias is strong evidence of the direct effect.

We do not, however, find evidence supportive of the indirect effect in these country-level regressions, as the change in insider ownership is never significant in regressions that use the float-adjusted home bias (the right-hand side columns of table 4). As noted above, evidence of the indirect effect could also come through the governance variables themselves (after controlling for insider ownership). These variables are shown in panel B; none are

²⁶ The governance variables explain close to 40% 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 could include as an additional instrument the Pagano and Volpin [2005] measure of the evolution of shareholder protection, which is available through only 2002 and for a slightly smaller set of countries. As it would not change any of our main results, we omit it and thus maintain our sample of 40 countries.

TABLE 4
Regressions of U.S. Home Bias

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Instrumental variable regressions												
Bias 1994 (market capitalization)	-0.460 (-3.40)	-0.105 (-0.67)	-0.440 (-3.14)	-0.458 (-3.38)	-0.464 (-3.86)	-0.455 (-3.32)						
Bias 1994 (float)							-0.300 (-1.79)	0.073 (0.23)	-0.456 (-2.97)	-0.292 (-1.67)	-0.293 (-1.82)	-0.327 (-1.96)
Insider ownership (1994)	0.394 (3.95)	0.401 (3.98)	0.392 (3.79)	0.458 (3.83)	0.348 (3.63)	0.392 (3.25)	0.183 (1.16)	0.364 (1.43)	0.070 (0.44)	0.246 (1.33)	0.095 (0.66)	0.118 (0.65)
ΔInsider ownership	0.440 (3.03)	0.494 (3.62)	0.445 (2.44)	0.494 (3.13)	0.325 (2.02)	0.420 (2.85)	-0.227 (-0.90)	-0.088 (-0.37)	-0.557 (-1.63)	-0.161 (-0.65)	-0.451 (-1.50)	-0.273 (-0.90)
Cross-listing (1994)		0.361 (1.88)						0.564 (1.59)				
ΔCross-listing		-0.094 (-0.84)						-0.307 (-1.95)				
Restrictions (1994)			0.015 (0.20)						0.387 (2.81)			
ΔRestrictions			0.078 (1.07)						0.411 (3.08)			
Illiquidity (1994)					0.046 (0.31)						0.169 (0.74)	
ΔIlliquidity					0.193 (1.42)						0.418 (1.64)	
Weight in world market (1994)				1.813 (1.58)						1.782 (1.04)		
ΔWeight in world market				2.967 (1.71)						3.521 (1.29)		
Momentum (three year)						-0.004 (-0.13)						0.042 (0.74)
Adj. R^2	0.471	0.606	0.488	0.508	0.445	0.411	0.186	0.429	0.309	0.215	0.143	0.105

(Continued)

TABLE 4—Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel B: Ordinary least squares (OLS) regressions												
Bias 1994 (market capitalization)	-0.405 (-2.80)	-0.426 (-2.77)	-0.421 (-2.65)	-0.451 (-2.37)	-0.425 (-2.71)	-0.468 (-2.59)						
Bias 1994 (float)							-0.287 (-1.54)	-0.284 (-1.40)	-0.242 (-0.99)	-0.305 (-1.05)	-0.262 (-1.06)	-0.308 (-1.37)
Insider ownership (1994)	0.463 (3.68)	0.427 (3.26)	0.368 (2.40)	0.394 (2.70)	0.406 (2.86)	0.383 (2.72)	0.224 (0.94)	0.230 (0.89)	0.169 (0.58)	0.180 (0.72)	0.237 (0.80)	0.183 (0.58)
ΔInsider ownership	0.510 (3.61)	0.464 (3.00)	0.410 (2.40)	0.423 (2.30)	0.419 (2.34)	0.400 (2.69)	-0.133 (-0.63)	-0.169 (-0.61)	-0.222 (-0.76)	-0.217 (-0.51)	-0.194 (-0.56)	-0.225 (-0.91)
Voice and accountability (1996)	0.030 (1.15)						0.009 (0.19)					
ΔVoice and accountability	0.010 (0.14)						-0.061 (-0.40)					
Political stability (1996)		0.018 (0.59)						0.015 (0.26)				
ΔPolitical stability		0.015 (0.33)						0.021 (0.27)				
Government effectiveness (1996)			0.002 (0.05)						0.002 (0.03)			
ΔGovernment effectiveness			-0.057 (-0.64)						-0.121 (-0.69)			
Regulatory quality (1996)				0.004 (0.12)						-0.004 (-0.05)		

(Continued)

TABLE 4 — *Continued*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel B: Ordinary least squares (OLS) regressions												
Δ Regulatory quality				0.001 (0.01)						0.000 (0.00)		
Rule of law (1996)					0.011 (0.36)						0.018 (0.29)	
Δ Rule of law					-0.056 (0.51)						-0.075 (-0.30)	
Control of corruption (1996)						-0.013 (-0.44)						-0.016 (-0.26)
Δ Control of corruption						0.116 (1.70)						0.157 (1.27)
Adj. R^2	0.411	0.403	0.404	0.394	0.403	0.449	0.077	0.070	0.086	0.067	0.075	0.113

In panel A, model (1) to model (6) are instrumental variable 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. Model (7) to model (12) are identical to model (1) to model (6) except that home bias is calculated using float data. Insider ownership, described in table 1 (but expressed in decimal form here), is instrumented for using the six governance variables from Kaufmann, Kraay, and Mastruzzi [2005], which are described in table 3. The other variables are also described in table 3. The models in panel B are similar in structure except that they show simple ordinary least squares (OLS) rather than instrumental variable regressions. In both panels, all regressions have 40 observations, and reported in parentheses are t -statistics computed using heteroskedasticity-consistent standard errors.

significant. Moreover, if we include all changes in each of the governance measures—which together explain nearly 40% of the variation in insider ownership—in a regression (not shown) with changes in insider ownership, insider ownership remains highly significant while none of the governance variables are significant either alone or jointly. Thus, our evidence indicates that *at the country level* governance affects the home bias through its impact on insider ownership and, thus, the fraction of shares available for portfolio investment. These results are consistent with the prediction of the analysis in section 3 that, if insider ownership is at its equilibrium level, foreign equity portfolio investment is naturally limited by the extent of insider holdings.²⁷

Focusing on the “changes” variables in panel A regression (8), regression (9), and regression (11), we see that, all else equal, U.S. investors’ holdings as a share of countries’ free float increase more in countries whose firms crosslist on U.S. exchanges, countries that relax capital controls, or countries whose liquidity increases, but only the first two variables are statistically significant at conventional levels of significance.²⁸ A U.S. cross-listing is associated with improved information flow (Lang, Lins, and Miller [2003]) and the cross-listing–associated increase in U.S. holdings is greatest in firms that have poor accounting standards prior to the cross-listing (Ammer et al. [2006]), so our results suggest that at least part of the evolution of U.S. investors’ holdings of the rest of the world free float is owed to improved disclosure or information flow.

In summary, we find that changes in insider ownership are negatively related to changes in foreign ownership. Of all the variables we consider, it is the most important in explaining changes in the home bias. It is important to note, however, that the regressions should not be interpreted as implying that a decrease in insider ownership causes an increase in foreign ownership. The proper interpretation is that the equilibrium level of insider ownership is negatively related to the equilibrium level of foreign ownership. Both ownership measures depend on governance, so that changes in governance lead to a new equilibrium for both measures. Because there are domestic shareholders—both monitoring and atomistic portfolio investors—the relation between foreign ownership and insider ownership is not mechanical.

Our regressions in table 4 have three important limitations that should be emphasized. The first limitation is that we have only 40 countries in our regressions, so that the power of our tests is limited. Adding additional countries, if the required data were available, would not necessarily help because the stock market would be unimportant in these countries. Second, time-series data on governance measures are sparse. It would be especially helpful to have data on corporate disclosure; we know it often improves with

²⁷ We re-estimate our regressions without Argentina, which experiences a large increase in insider ownership; our results hold. Our results also hold if we estimate our regressions without Japan or the United Kingdom.

²⁸ In unreported results, we also try the Sarkissian and Schill [2004] measures of geographic, cultural, economic, and industrial proximity. None are significant.

a cross-listing, but we lack a direct measure of the evolution of country-level disclosure. Third, as already stressed in section 3, our regressions are consistent with the optimal corporate ownership theory of the home bias, but do not test directly whether differences in insider ownership result from differences in investor protection across countries. It is possible that changes in insider ownership explained by reasons other than changes in governance could explain our results. Further, changes in governance could be correlated with other changes in a country—for instance, changes in trade policies or political risk—which could affect the demand of that country's equity by foreign investors.

5.4 THE COMPOSITION OF U.S. INVESTMENT ABROAD

Our prediction is that the importance of foreign direct investment relative to foreign portfolio investment should fall as institutions improve and as insider ownership falls. To investigate this possibility, we use the data on U.S. foreign direct investment of the Bureau of Economic Analysis (BEA) for 1994 and 2004. Definitions of foreign direct investment vary around the world but an important component everywhere is that FDI investors have intentions of participating in the management of the firm. In practice, many countries use a 10% cutoff to capture this intention. For example, the U.S. BEA states that FDI is “the ownership or control, directly or indirectly, by one U.S. person of 10% or more of the voting securities of an incorporated foreign business enterprise or an equivalent interest in an unincorporated foreign business enterprise. . . . Direct investment refers to ownership by a single person, not to the combined ownership of all persons in a country.”²⁹ While 10% is a rule of thumb, the intention of participating in management is the guiding principle behind the FDI classification. Note that the portfolio investment benchmark survey data used in the previous section explicitly omit FDI.

Using the reported data on foreign direct investment, we construct a variable that captures, for each country, the importance of U.S. residents' foreign portfolio investment (FPI) relative to their FDI. Specifically, the variable is the ratio of FPI to the sum of FDI and FPI. Difficulties with the data are that FDI is reported at historical cost while FPI is reported at market value and that BEA's disclosure rules limit the sample size to only 34 observations. Table 5 is tailored after Table 4 but with the change in $FPI/(FDI + FPI)$ as the dependent variable and controlling for the 1994 level of that variable. We find a strong negative relation between the change in insider ownership and the change in $FPI/(FDI + FPI)$; as predicted, a decrease in insider ownership is associated with an increase in the importance of FPI relative to FDI. The coefficient on the change in insider ownership is negative in all the regressions and is significant at the 5% level or better in all regressions but one. Two control variables are also significant: countries with higher

²⁹ United States Direct Investment Abroad: 1999 Benchmark Survey, M-4.

TABLE 5
Regressions of the Ratio of FPI to Total Foreign Investment

	(1)	(2)	(3)	(4)	(5)	(6)
FPI/(FPI + FDI) (1994)	-0.441 (-2.22)	-0.391 (-2.05)	-0.406 (-1.95)	-0.405 (-2.08)	-0.482 (-2.57)	-0.458 (-2.10)
Insider ownership (1994)	-0.096 (-0.48)	-0.129 (-0.77)	-0.171 (-0.84)	-0.193 (-0.99)	0.02 (0.09)	-0.059 (-0.23)
Δ Insider ownership	-0.763 (-3.28)	-0.771 (-5.17)	-0.964 (-4.37)	-0.947 (-5.95)	-0.504 (-1.65)	-0.742 (-2.74)
Crosslisting (1994)		-0.350 (-1.90)				
Δ Crosslisting		0.113 (0.75)				
Restrictions (1994)			0.374 (1.65)			
Δ Restrictions			0.30 (0.88)			
Momentum (three year)				0.122 (2.80)		
Illiquidity (1994)					-0.286 (-1.11)	
Δ Illiquidity					-0.417 (-2.03)	
Weight in world market (1994)						0.732 (0.42)
Δ Weight in world market						0.466 (0.18)
Adj. R^2	0.375	0.475	0.378	0.423	0.386	0.341

Each panel shows instrumental variable regressions of the change in FPI (foreign portfolio investment) as a share of total foreign investment (FPI + FDI) from 1994 to 2004 on the 1994 levels in, and changes from 1994 to 2004 of, several variables. Throughout, the change in insider ownership, described in table 1 (but expressed in decimal form here), is instrumented for using changes in the six governance variables from Kaufmann, Kraay, and Mastruzzi [2005], which are described in table 3. The other variables are also described in table 3. Reported in parentheses are t -statistics computed using heteroskedasticity-consistent standard errors. All regressions have 34 observations.

recent returns or with more liquid markets have more U.S. FPI relative to U.S. FDI. In general, the results in table 5 are consistent with the prediction that the importance of foreign direct investment relative to foreign portfolio investment should fall as institutions improve and as insider ownership falls.

6. Understanding the Evolution of the Home Bias towards Korea

In this section, we test many of our predictions on firm-level data from Korea. Foreign ownership increases dramatically in Korea from 1998 to 2004; table 6 documents this evolution using year-end foreign ownership data from the FnGuide. Over this time period, foreign ownership in Korean firms roughly doubles in both equally weighted terms (from 5.8% in 1998 to 11.3% by 2004) and value-weighted terms (21.0% to 41.3%). At the same time, insider ownership decreases from 35% to 26%. For the firm-level analysis, we

TABLE 6
Foreign Ownership for All KSE Common Stocks

	1998			2004		
	All KSE	FDI Firms	Non-FDI Firms	All KSE	FDI Firms	Non-FDI Firms
Number of firms	729	74	655	666	102	564
Market cap (\$bil)	91.3	14.1	77.2	381.0	121.1	259.9
Foreign ownership						
EW mean (%)	5.8	23.2	3.8	11.3	32.4	7.4
VW mean (%)	21.0	29.4	19.5	41.3	48.8	37.9

The table shows summary statistics of foreign ownership observed at year-end 1998 and 2004 for all KSE common stocks. 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.

focus on firms that do not receive FDI (“non-FDI firms”) by separating them from the firms that do receive FDI (“FDI firms”).³⁰ While it is true that firms that receive FDI have more foreign investment, other Korean firms also receive substantial foreign investment, as the value-weighted average of 19.5% in 1998 increases to 37.9% by 2004. To be sure, the median Korean firm does not receive quite as much foreign investment—as is true all over the world, foreigners tend to focus more on the larger firms—but even the equally weighted foreign investment in non-FDI firms surges.³¹

We show, in section 3, that 100% minus the percentage of insider ownership constitutes an upper bound for foreign ownership. With the Korean data, we can verify that 100% minus the percentage of insider ownership is indeed an upper bound for the fractional ownership of foreign portfolio investors.³² First, we check 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, because some foreigners become insiders

³⁰ The list of firms that receive FDI is 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 of September 16, 1998, which defines FDI in Korean firms. The main criterion for FDI 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.” The list includes all firms that have a record as an FDI as of 2005 year-end, among which we identify 102 Korea Stock Exchange (KSE) listed-firms included in our sample as of 2004 year-end.

³¹ We note that limits on foreign investment are removed by the beginning of our sample for most companies and that in 2000 and 2001 foreign ownership limits on some recently privatized companies are increased substantially. While the relaxation of the limits likely explains some of the increase in foreign ownership, the coefficient on a firm-level investability measure obtained from EMDB—the firm-level equivalent of the Edison and Warnock [2003] country-level measure—would not be statistically significant in our regressions (and would greatly reduce the sample size).

³² We obtain insider ownership data from the TS2000 database maintained by the Korea Listed Companies Association.

there are some FDI firms (in 2004, 17 of 102) for which foreign ownership is greater than 100% minus the percentage of insider ownership.

We next explore the direct and indirect effects of governance on foreign portfolio investment. Because our predictions for FDI are at the country level and not at the firm level, we omit FDI firms and focus on all non-FDI firms listed on the KSE. Throughout, we control for firm size because a well-known result from the literature is that foreign investors overweight large firms.³³ Further, because institutional investors are typically reluctant to invest in small firms and most foreign investors are institutional investors, we use two samples: one with all non-FDI firms and another with non-FDI firms with capitalization in excess of \$100 million (“large firms” in what follows).

We are hindered in this sample because we do not have good instruments for the evolution of insider ownership. In particular, we do not have a firm-level measure of governance that can be considered to be exogenous and is available for a reasonably long time period.³⁴ That said, with the Korean data we can directly identify both insiders and other large shareholders. We define insiders as the largest insider owners and their affiliates as reported in annual reports each fiscal year-end. As suggested by theory (e.g., Kahn and Winton [1998]), we take the view that small shareholders are not monitoring shareholders, while large shareholders are. Thus, we define monitoring shareholders as large shareholders who have no affiliation with insiders but have ownership of 5% or more (“major shareholders”). Admittedly, such a classification is inexact. Later, we consider separately different types of large shareholders in an effort to make this classification more precise. However, in contrast to small shareholders, large shareholders have both the ability to monitor effectively and the incentive to do so. We identify domestic monitoring shareholders in the following way. According to the Securities and Exchange Act in Korea, any investors who purchase 5% or more are required to report it within five days after the purchase, and are also required to report any changes in their shareholdings that exceed 1%. These reports are disclosed immediately to the public, and the holdings information at the fiscal year-end is contained in the firm’s annual report. Based on their names as shown on the annual report, we further divide monitors into locals and foreigners.

We investigate, in table 7, whether changes in insider ownership, monitoring shareholders’ ownership, and other firm characteristics can help explain

³³ See Kang and Stulz [1997], Dahlquist and Robertsson [2001], Ammer et al. [2006], and Leuz, Lins, and Warnock [2008].

³⁴ Firm-level governance data from the Korea Corporate Governance Service (KCGS), which is established in June 2002 as an independent, nonprofit organization under the joint sponsorship of six member firms, including the KSE and Kosdaq Stock Market, begins only in 2002. At a point in time from 2002 to 2004, foreign investment in Korean firms is positively related to firm-level governance, even after controlling for insider ownership, but data limitations preclude us from using the governance indicator in our longer-term regressions.

TABLE 7
Regressions of Foreign Portfolio Ownership on Firm Characteristic Variables

	Panel Regressions (1998~2004)				Change Regressions (1998~2004)			
	All Non-FDI Firms		Large Non-FDI Firms		All Non-FDI Firms		Large Non-FDI Firms	
	MCap-Adj. (1)	Float-Adj. (2)	MCap-Adj. (3)	Float-Adj. (4)	MCap-Adj. (5)	Float-Adj. (6)	MCap-Adj. (7)	Float-Adj. (8)
Insider ownership	-0.085 (-4.76)	-0.006 (-0.21)	-0.190 (-4.41)	-0.015 (-0.18)	-0.134 (-4.65)	-0.050 (-1.19)	-0.344 (-4.26)	-0.157 (-1.21)
Monitor ownership	-0.073 (-4.47)	-0.074 (-4.05)	-0.148 (-3.21)	-0.147 (-3.05)	-0.170 (-4.02)	-0.156 (-4.07)	-0.282 (-2.56)	-0.303 (-2.95)
Log size	2.609 (8.00)	4.075 (7.86)	4.768 (5.68)	7.680 (5.45)	5.095 (9.67)	7.825 (10.05)	7.952 (5.35)	11.888 (5.27)
Tobin's <i>q</i>	2.010 (3.51)	3.349 (3.65)	1.053 (0.77)	3.208 (1.25)	0.769 (0.69)	2.021 (1.11)	-1.473 (-0.37)	0.239 (0.04)
Cash flow/assets	0.044 (3.99)	0.058 (2.70)	0.087 (1.30)	0.000 (0.00)	0.006 (0.18)	0.017 (0.33)	0.083 (0.44)	0.182 (0.65)
Momentum	-0.002 (-1.60)	-0.003 (-1.63)	-0.002 (-0.78)	-0.005 (-1.06)	0.012 (2.26)	0.021 (2.96)	0.021 (2.80)	0.034 (3.20)
Year dummies	Y	Y	Y	Y	Y	Y	Y	Y
Initial values in 1998								
Adj. R^2	0.181	0.156	0.367	0.322	0.521	0.542	0.553	0.527
Within R^2								
No. of Obs.	3,038	3,038	875	875	434	434	125	125

(Continued)

TABLE 7 — *Continued*

	Panel Regressions (1998~2004)				Change Regressions (1998~2004)			
	All Non-FDI Firms		Large Non-FDI Firms		All Non-FDI Firms		Large Non-FDI Firms	
	MCap-Adj. (1)	Float-Adj. (2)	MCap-Adj. (3)	Float-Adj. (4)	MCap-Adj. (5)	Float-Adj. (6)	MCap-Adj. (7)	Float-Adj. (8)
Insider ownership	-0.088 (-4.94)	-0.009 (-0.30)	-0.196 (-4.58)	-0.027 (-0.34)	-0.129 (-4.55)	-0.041 (-0.96)	-0.318 (-4.14)	-0.127 (-1.04)
Banks, investment trust, mutual funds, pensions	-0.115 (-3.35)	-0.120 (-2.96)	-0.292 (-2.86)	-0.313 (-2.53)	-0.269 (-3.35)	-0.220 (-2.70)	-0.649 (-3.53)	-0.691 (-4.28)
Securities, insurance, merchant banks	0.023 (0.59)	-0.001 (-0.04)	0.245 (1.45)	0.094 (0.59)	0.155 (0.93)	0.062 (0.39)	0.487 (1.01)	0.001 (0.00)
Other corporations	-0.126 (-4.17)	-0.094 (-3.30)	-0.235 (-3.53)	-0.141 (-2.06)	-0.260 (-4.05)	-0.214 (-3.68)	-0.398 (-2.90)	-0.376 (-2.94)
Individuals	-0.025 (-0.89)	-0.039 (-1.28)	-0.067 (-1.01)	-0.083 (-1.12)	-0.203 (-2.67)	-0.160 (-1.95)	-0.075 (-0.51)	-0.045 (-0.27)
Log size	2.632 (8.06)	4.107 (7.89)	4.808 (5.70)	7.798 (5.48)	5.101 (9.81)	7.819 (10.03)	8.097 (5.53)	12.258 (5.49)
Tobin's q	1.996 (3.49)	3.335 (3.64)	0.926 (0.67)	2.743 (1.06)	1.322 (1.23)	2.548 (1.42)	1.006 (0.30)	3.671 (0.69)
Cash flow/assets	0.045 (3.99)	0.059 (2.71)	0.084 (1.23)	-0.018 (-0.09)	0.023 (0.70)	0.033 (0.63)	0.181 (1.00)	0.265 (1.00)

(Continued)

TABLE 7 — Continued

	Panel Regressions (1998~2004)				Change Regressions (1998~2004)			
	All Non-FDI Firms		Large Non-FDI Firms		All Non-FDI Firms		Large Non-FDI Firms	
	MCap-Adj. (1)	Float-Adj. (2)	MCap-Adj. (3)	Float-Adj. (4)	MCap-Adj. (5)	Float-Adj. (6)	MCap-Adj. (7)	Float-Adj. (8)
Momentum	-0.002 (-1.61)	-0.003 (-1.59)	-0.002 (-0.67)	-0.004 (-0.82)	0.012 (2.34)	0.021 (3.11)	0.020 (3.14)	0.034 (3.78)
Year dummies	Y	Y	Y	Y	Y	Y	Y	Y
Initial values in 1998								
Adj. R ²	0.185	0.159	0.380	0.333	0.538	0.552	0.621	0.589
No. of Obs.	3,038	3,038	875	875	434	434	125	125

The table shows regression estimates of the foreign portfolio ownership on firm characteristics, using the sample of 434 KSE-listed, non-FDI-receiving firms over the sample period from 1998 to 2004. The regressions are estimated using two data sets: balanced panels using data from 1998 to 2004 and a cross-section of longer-term changes from 1998 to 2004. We also report results for samples restricted to the 125 larger firms with 2004 market capitalization greater than US\$100 million. All explanatory variables are measured at the end of each fiscal year. Insider ownership is the percentage share ownership of common stocks by the largest shareholder, families, and all affiliated shareholders at fiscal year-end. Monitor ownership is the percentage share ownership of common stocks by domestic major shareholders who have no direct affiliation with the firm's insiders. Log size is log of market value of common stocks in million dollars. 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. Momentum is one-year return measured at the end of the fiscal year (for the panel regressions) or three-year returns measured from 2002 to 2004 (for the changes regression). Fixed-effect panel regressions include a full set of year dummies (not reported). In parallel to table 4, the change 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. In panel B, monitor ownership is further classified into four types: banks, investment trusts, mutual funds, and pension funds; securities, insurance, and merchant banks; other corporations; and individuals. In both panels, MCap-Adj. indicates that ownership of a security is defined relative to the market value of the firm's capitalization, Float-Adj. denotes that ownership of a security is relative to the market capitalizations of the firm's free-floating shares.

the change in the home bias in Korea. 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], Dahlquist and Robertsson [2001]), as well as size and a measure of recent returns (to allow for a possible effect of momentum trading).

In panel A of table 7, we estimate fixed-effect panel regressions using balanced annual panel data for 434 non-FDI firms (125 large firms) from 1998 to 2004. We include a full set of year dummies. The fixed effects should capture unobserved firm heterogeneity and therefore help with potential endogeneity problems (see Himmelberg, Hubbard, and Palia [1999]). In this panel, we place all nonaffiliated major shareholders in one category that we call monitoring shareholders. In the panel regressions, insider ownership has a significant negative coefficient when foreign ownership is measured relative to market capitalization (model (1) and model (3)) but not when measured relative to float (model (2) and model (4)). This is consistent with the direct effect discussed in section 3. Throughout the panel regressions—whether scaled by market capitalization or float—greater monitoring ownership is associated with less foreign investment, which is consistent with the existence of the indirect effect of governance on foreign ownership. The coefficients on insider and monitoring ownership are larger in absolute value in the samples of large firms (model (3) and model (4)).³⁵ We then run “change” regressions that parallel the U.S. regressions from table 4. That is, 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 results for these longer-term changes, shown in the right half of table 7, are similar to those in the panel regressions. The change in insider ownership has a significant negative effect on foreign ownership scaled by market capitalization but not when scaled by float, while monitoring shareholders limit foreign investment however defined. The coefficients are again larger in absolute value for the large firms. For these firms, a decrease in insider ownership of 10% is associated with an increase in foreign ownership of 3.44%, while a decrease in monitor ownership of 10% corresponds to an increase in foreign ownership of 2.82%.

Because some types of major shareholders are more likely to be monitors than others, in panel B we consider separately four groups of large shareholders: (1) banks, investment trusts, mutual funds, and pension funds; (2) securities firms, insurance firms, and merchant banks; (3) other corporations; and (4) individuals. In both the panel and changes regressions, the coefficients on two groups are always negative and significant: a group that consists of banks, investment trusts, mutual funds, and pension funds and another group that includes the holdings of other corporations. We address

³⁵ Regarding the control variables, the only one that is consistently significant across specifications is size.

the latter group first. In the Korean context, other corporations are likely somewhat affiliated quasi-insiders. Thus, the negative coefficient on other corporations is very much like our main results on the direct effect. The first group—banks, investment trusts, mutual funds, and pension funds—includes institutional investors who are often considered to be potential monitoring shareholders who at times play an active role as shareholders in Korea.³⁶ Thus, separating the different types of major shareholders shows that increased holdings in the most likely set of monitoring shareholders are associated with decreased holdings by foreigners, as the indirect effect from our theory predicts.

Overall, the results in table 7 support and extend the U.S. results from table 4. Taking into account the coefficients on initial values (not shown), the changes regressions indicate that, over this period, foreign ownership increases in firms that have less insider ownership in 1998 and that reduce insider ownership between 1998 and 2004. The U.S. results are extended because using firm-level data we are able to identify monitoring shareholders and find evidence of the indirect effect of governance.

7. Conclusion

In this paper, we investigate the evolution of the home bias in the age of financial globalization. The average home bias by U.S. investors towards individual countries does not fall from 1994 to 2004, but the home bias of U.S. investors towards non-U.S. countries as a whole falls. To help explain this, we develop a theory—the optimal corporate ownership theory of the home bias—that is based on the existence of an optimal ownership for corporations that differs across countries. Foreign investment in a country depends crucially on the extent to which the institutions of that country support diffuse ownership of corporations. At one extreme, a country with very poor institutions has no publicly traded equity and no foreign portfolio equity investment. More generally, in most countries, high insider ownership is optimal as an endogenous response to poor investor protection and reduces the extent to which risks can be shared internationally.

We show that the home bias towards many countries can fall substantially only if the optimal insider ownership level of these countries falls substantially. Since, in our theory, high optimal insider ownership is a response to poor investor protection, it follows that insider ownership can only fall and foreign ownership increase if governance improves; we call this the direct effect of governance on the home bias. Our theory also shows that an improvement in governance has another effect—an indirect effect—on the home bias through its impact on the fraction of shares held by domestic monitoring shareholders.

³⁶ See Gillian and Starks [2003] for a review of the theoretical and empirical evidence on monitoring by institutional investors and banks across the world. Choi and Seo [2008] provide evidence of monitoring activities by institutional investors in Korea.

In our empirical work, we find strong evidence of the direct effect in a country-level data set of U.S. investors' equity holdings. While we cannot identify domestic monitoring shareholders in the country-level data set and, in part for that reason, we are not able to find evidence of the indirect effect, our theory has predictions for FDI. In equilibrium, the change in the fraction of FDI in total foreign equity investment should be positively related to the change in insider ownership because FDI has an advantage over portfolio investment from foreign investors when private benefits from control are significant. We find evidence supporting this prediction. We also find evidence of the indirect effect in a Korean firm-level data set in which we are able to identify domestic monitoring shareholders.

Throughout the paper we highlight potential limitations of our theory and the empirics. We reiterate here that we do not test directly our optimal corporate ownership theory and all our results focus on the implications of corporate ownership for foreign ownership. If investors hold large positions in corporations for reasons other than those we focus on, many of our results could still hold. While our empirical results show that governance variables mostly affect the home bias through corporate ownership by insiders and monitoring shareholders rather than directly, insider ownership could proxy for other determinants of stock ownership, which may not be directly related to governance but could have an impact on both ownership by insiders and ownership by foreign investors. We explicitly control for some of these determinants, such as liquidity.³⁷ We leave it to further research to investigate whether the relation between foreign ownership and insider ownership is partly due to proxy effects that we have not controlled for.

To the extent that the lack of diffuse ownership is driven by poor institutions, the road towards greater international risk sharing therefore goes through an improvement in institutions that makes diffuse ownership of firms possible in the countries where it is not. For the potential for risk sharing through portfolio equity holdings to improve, institutions have to improve so that decentralized ownership becomes optimal. For the home bias to have a chance to become small, institutions that support decentralized ownership have to become prevalent across the world.

REFERENCES

- ADLER, M., AND B. DUMAS. "International Portfolio Choice and Corporation Finance: A Synthesis." *Journal of Finance* 38 (1983): 925–84.

³⁷ For instance, it is known from the literature that insiders are less likely to sell stocks in companies whose stock is less liquid (Helwege, Pirinsky, and Stulz [2007]). To the extent that foreign investors have a preference for more liquid stocks, we could see a relation between changes in insider ownership and changes in foreign ownership due to the impact of changes in liquidity on foreign ownership. However, we control explicitly for a stock market's liquidity in our crosscountry regressions and our results remain unchanged.

- ADMATI, A. R.; P. PFLEIDERER; AND J. ZECHNER. "Large Shareholder Activism, Risk Sharing, and Financial Market Equilibrium." *Journal of Political Economy* 102 (1994): 1097–130.
- AHEARNE, A.; W. GRIEVER; AND F. E. WARNOCK. "Information Costs and Home Bias: An Analysis of U.S. Holdings of Foreign Equities." *Journal of International Economics* 62 (2004): 313–36.
- AMMER, J.; S. HOLLAND; D. SMITH; AND F. E. WARNOCK. "Look at Me Now: The Role of Cross-Listings in Attracting U.S. Shareholders." NBER Working Paper No. 12500. Cambridge, MA: NBER, 2006.
- ANTRÀS, P.; M. DESAI; AND C. F. FOLEY. "Multinational Firms, FDI Flows and Imperfect Capital Markets." Working paper, Harvard Business School, Boston, MA, 2007.
- BAELE, L.; C. PUNGULESCU; AND J. TER HORST. "Model Uncertainty, Financial Market Integration and the Home Bias Puzzle." *Journal of International Money and Finance* 26 (2007): 606–30.
- BAXTER, M., AND U. J. JERMANN. "The International Diversification Puzzle Is Worse Than You Think." *American Economic Review* 87 (1997): 170–80.
- BEKAERT, G., AND C. R. HARVEY. "Time-Varying World Market Integration." *Journal of Finance* 50 (1995): 403–44.
- BEKAERT, G., AND C. R. HARVEY. "Foreign Speculators and Emerging Equity Markets." *Journal of Finance* 55 (2000): 565–613.
- BEKAERT, G.; C. R. HARVEY; AND C. LUNDBLAD. "Liquidity and Expected Returns: Lessons from Emerging Markets." *Review of Financial Studies* 20 (2007): 1783–831.
- BLACK, F. "International Capital Market Equilibrium with Investment Barriers." *Journal of Financial Economics* 1 (1974): 337–52.
- CHOI, S. K., AND J. W. SEO. "Institutional Ownership and Accounting Transparency." *Asia-Pacific Journal of Financial Studies* 37 (2008): 627–73.
- CLAESSENS, S.; S. DJANKOV; AND L. H. P. LANG. "The Separation of Ownership and Control in East Asian Corporations." *Journal of Financial Economics* 58 (2000): 81–112.
- COOPER, I. A., AND E. KAPLANIS. "Home Bias in Equity Portfolios, Inflation Hedging and International Capital Market Equilibrium." *Review of Financial Studies* 7 (1994): 45–60.
- CURCURU, S.; T. DVORAK; AND F. E. WARNOCK. "Cross-Border Returns Differentials." *Quarterly Journal of Economics* 123 (2008): 1495–530.
- DAHLQUIST, M.; L. PINKOWITZ; R. M. STULZ; AND R. WILLIAMSON. "Corporate Governance and the Home Bias." *Journal of Financial and Quantitative Analysis* 38 (2003): 87–110.
- DAHLQUIST, M., AND G. ROBERTSSON. "Direct Foreign Ownership, Institutional Investors, and Firm Characteristics." *Journal of Financial Economics* 59 (2001): 413–40.
- DEMSETZ, H., AND K. LEHN. "The Structure of Corporate Ownership: Cause and Consequences." *Journal of Political Economy* 93 (1985): 1155–77.
- DEPARTMENT OF TREASURY, FEDERAL RESERVE BANK OF NEW YORK, AND BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM. Report on U.S. Portfolio Holdings of Foreign Equities as of December 31, 2004. Department of Treasury, Federal Reserve Bank of New York, and Board of Governors of the Federal Reserve System, 2005.
- EDISON, H. J., AND F. E. WARNOCK. "A Simple Measure of the Intensity of Capital Controls." *Journal of Empirical Finance* 10 (2003): 81–103.
- EDISON, H. J., AND F. E. WARNOCK. "U.S. Investors' Emerging Market Equity Portfolios: A Security-Level Analysis." *Review of Economics and Statistics* 86 (2004): 691–704.
- EDMANS, A., AND G. MANSO. "Governance Through Exit and Voice: A Theory of Multiple Blockholders." Working paper, The Wharton School, University of Pennsylvania, 2008.
- ERRUNZA, V., AND E. LOSQ. "International Asset Pricing Under Mild Segmentation: Theory and Test." *Journal of Finance* 40 (1985): 105–24.
- FACCIO, M., AND L. LANG. "The Ultimate Ownership of Western European Corporations." *Journal of Financial Economics* 65 (2002): 365–95.
- FAHLENBRACH, R., AND R. M. STULZ. "Managerial Ownership Dynamics and Firm Value." *Journal of Financial Economics* (2009): Forthcoming.
- FRANKS, J.; C. MAYER; AND S. ROSSI. "Ownership: Evolution and Regulation." *Review of Financial Studies* (2009): Forthcoming.
- GEHRIG, T. "An Information Based Explanation of Domestic Bias in International Equity Investment." *Scandinavian Journal of Economics* 95 (1993): 97–109.

- GIANNETTI, M., AND Y. KOSKINEN. "Investor Protection, Equity Returns, and Financial Globalization." *Journal of Financial and Quantitative Analysis* (2009): Forthcoming.
- GIANNETTI, M., AND A. SIMONOV. "Which Investors Fear Expropriation? Evidence from Portfolio Choices." *Journal of Finance* 61 (2006): 1507–47.
- GILLIAN, S. L., AND L. T. STARKS. "Corporate Governance, Corporate Ownership, and the Role of Institutional Investors: A Global Perspective." *Journal of Applied Finance* 13 (2003): 4–22.
- GILSON, R. J. "Controlling Shareholders and Corporate Governance: Complicating the Comparative Taxonomy." *Harvard Law Review* 119 (2006): 1641–79.
- GRAHAM, J. R.; C. R. HARVEY; AND H. HUANG. "Investor Competence, Trading Frequency, and Home Bias." Working paper, Duke University, 2005.
- GRIEVER, W. L.; G. A. LEE; AND F. E. WARNOCK. "The U.S. System for Measuring Cross-Border Investment in Securities: A Primer with a Discussion of Recent Developments." *Federal Reserve Bulletin* 87 (2001): 633–50.
- HAUSMANN, R., AND E. FERNÁNDEZ-ARIAS. "Foreign Direct Investment: Good Cholesterol?" in *Foreign Direct Investment Versus Other Flows to Latin America*, edited by Jorge Braga de Macedo and Enrique V. Iglesias. Paris, France: Inter-American Development Bank and OECD, 2001: 19–50.
- HELWEGE, J.; C. PIRINSKY; AND R. M. STULZ. "Why Do Firms Become Widely Held? An Analysis of the Dynamics of Corporate Ownership." *Journal of Finance* 62 (2007): 995–1028.
- HENRY, P. B. "Stock Market Liberalization, Economic Reform and Emerging Market Equity Prices." *Journal of Finance* 55 (2000): 529–64.
- HIMMELBERG, C. P. R.; G. HUBBARD; AND D. PALIA. "Understanding the Determinants of Managerial Ownership and the Link Between Ownership and Performance." *Journal of Financial Economics* 53 (1999): 353–84.
- JENSEN, M. C., AND W. MECKLING. "Theory of the Firm: Managerial Behavior, Agency Costs, and Capital Structure." *Journal of Financial Economics* 3 (1976): 305–60.
- JESKE, K. "Equity Home Bias: Can Information Cost Explain the Puzzle?" *Federal Reserve Bank of Atlanta Economic Review* (2001): 31–42.
- JIN, L., AND S. MYERS. "R-squared Around the World: New Theory and New Tests." *Journal of Financial Economics* 79 (2006): 257–92.
- JOHNSON, S.; R. LA PORTA; F. LOPEZ-DE-SILANES; AND A. SHLEIFER. "Tunneling." *American Economic Review* 90 (2000): 22–7.
- KAHN, C., AND A. WINTON. "Ownership Structure, Speculation, and Shareholder Intervention." *Journal of Finance* 53 (1998): 99–129.
- KANG, J., AND R. M. STULZ. "Why Is There a Home Bias? An Analysis of Foreign Portfolio Equity Ownership in Japan." *Journal of Financial Economics* 46 (1997): 3–28.
- KAROLYI, A., AND R. STULZ. "Are Assets Priced Locally or Globally?" in *The Handbook of the Economics of Finance*, edited by G. Constantinides, M. Harris, and R. Stulz. New York, NY: North-Holland Publishers, 2003: 975–1020.
- KAUFMANN, D.; A. KRAAY; AND M. MASTRUZZI. "Governance Matters IV: Governance Indicators for 1996–2004." Washington, DC: World Bank, 2005.
- KILKA, M., AND M. WEBER. "Home Bias in International Stock Return Expectations." *Journal of Psychology and Financial Markets* 1 (2000): 176–93.
- KIM, E. H., AND V. SINGAL. "Stock Markets Openings: Experience of Emerging Economies." *Journal of Business* 73 (2000): 25–66.
- LA PORTA, R.; F. LOPEZ-DE-SILANES; AND A. SHLEIFER. "Corporate Ownership Around the World." *Journal of Finance* 54 (1999): 471–517.
- LANG, M.; K. LINS; AND D. MILLER. "ADRs, Analysts, and Accuracy: Does Cross Listing in the United States Improve a Firm's Information Environment and Increase Market Value?" *Journal of Accounting Research* 41 (2003): 317–45.
- LEUZ, C.; K. V. LINS; AND F. E. WARNOCK. "Do Foreigners Invest Less in Poorly Governed Firms?" *Review of Financial Studies* (2009): Forthcoming.
- LEUZ, C.; D. NANDA; AND P. WYSOCKI. "Investor Protection and Earnings Management: An International Comparison." *Journal of Financial Economics* 69 (2003): 505–27.

- LEVINE, R., AND S. ZERVOS. "Capital Control Liberalization and Stock Market Development." *World Development* 26 (1998): 1169–83.
- LEWIS, K. K. "Trying to Explain Home Bias in Equities and Consumption." *Journal of Economic Literature* 37 (1999): 571–608.
- LI, D. K.; F. MOSHIRIAN; P. K. PHAM; AND J. ZEIN. "When Financial Institutions Are Large Shareholders—The Role of Macro Corporate Governance Environments." *Journal of Finance* 61 (2006): 2975–3007.
- LINS, K. "Equity Ownership and Firm Value in Emerging Markets." *Journal of Financial and Quantitative Analysis* 38 (2003): 159–84.
- MONDRIA, J., AND T. WU. "The Puzzling Evolution of the Home Bias, Information Processing and Financial Openness." Working paper. Santa Cruz Center for Economics. Paper 06-17, 2006 (revised 2007).
- PAGANO, M., AND P. VOLPIN. "The Political Economy of Corporate Governance." *American Economic Review* 95 (2005): 1005–30.
- PESENTI, P., AND E. VAN WINCOOP. "Can Nontradables Generate Substantial Home Bias?" *Journal of Money, Credit, and Banking* 34 (2002): 26–50.
- SARKISSIAN, S., AND M. SCHILL. 2004. "The Overseas Listing Decision: New Evidence of Proximity Preference." *Review of Financial Studies* 17 (2002): 769–810.
- SHILLER, R. J.; F. KON-YA; AND Y. TSUTSUI. "Why Did the Nikkei Crash? Expanding the Scope of Expectations Data Collection." *Review of Economic and Statistics* 78 (1996): 156–64.
- SHLEIFER, A., AND R. VISHNY. "Large Shareholders and Corporate Control." *Journal of Political Economy* 94 (1986): 461–88.
- SHLEIFER, A., AND D. WOLFENZON. "Investor Protection and Equity Markets." *Journal of Financial Economics* 66 (2002): 3–27.
- SORENSEN, B.; Y. WU; O. YOSHA; AND Y. ZHU. "Home Bias and International Risk Sharing: Twin Puzzles Separated at Birth." *Journal of International Money and Finance* 26 (2007): 587–605.
- STANDARD AND POORS (S&P). *Global Stock Markets Factbook*. New York, NY: S&P, 2003.
- STANDARD AND POORS (S&P). *Global Stock Markets Factbook*. New York, NY: S&P, 2005.
- STRONG, N.C., AND X. XU. "Understanding the Equity Home Bias: Evidence from Survey Data." *Review of Economics and Statistics* 85 (2003): 307–12.
- STULZ, R. M. "On Effects of Barriers to International Investment." *Journal of Finance* 36 (1981a): 923–34.
- STULZ, R. M. "A Model of International Asset Pricing." *Journal of Financial Economics* 9 (1981b): 383–406.
- STULZ, R. M. "The Limits of Financial Globalization." *Journal of Finance* 60 (2005): 1595–638.
- STULZ, R. M. "Securities Laws, Disclosure, and National Capital Markets in the Age of Financial Globalization." NBER Working Paper 14218. Cambridge, MA: NBER, 2008.
- THOMAS, C.; F. E. WARNOCK; AND J. WONGSWAN. "The Performance of International Equity Portfolios." NBER Working Paper 12346. Cambridge, MA: NBER, 2006.
- VAN WINCOOP, E., AND F. E. WARNOCK. "Is Home Bias in Assets Related to Home Bias in Goods?" NBER Working Paper 12728. Cambridge, MA: NBER, 2006.
- WARNOCK, F. E. "Home Bias and High Turnover Reconsidered." *Journal of International Money and Finance* 21 (2002): 795–805.