

U.S. Investors' Emerging Market Equity Portfolios:
A Security-Level Analysis

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Abstract:

We use a comprehensive, security-level data set to analyze the determinants of U.S. investors' equity portfolios in emerging markets. We document that at a point in time U.S. portfolios are tilted towards firms that are large, have fewer restrictions on foreign ownership, or are cross-listed on a U.S. exchange. The size of the cross-listing effect is striking: In contrast to the severe underweighting of foreign stocks that is the home bias phenomenon, emerging market equities that are cross-listed on U.S. exchanges are incorporated into U.S. portfolios at full ICAPM weights. Our results suggest that in emerging market economies the benefits of international risk sharing are not widespread but are limited to select firms.

JEL Classification: F3, G15

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1. Introduction

Emerging market countries that liberalize their financial markets should experience a decrease in the cost of capital through improved international risk sharing. Moreover, this decrease should be dramatic: The risk premium, no longer determined locally by local market volatility, should drop substantially as it becomes determined by the (relatively low) covariance of local market returns with returns of the world market portfolio. To the contrary, the documented decrease in the cost of capital has been surprisingly small.¹ Liberalization does not necessarily imply integration, and the full benefits of international risk sharing in lowering a country's cost of capital are realized only if foreign investors begin to hold the local stocks in proportion to their weight in the world market portfolio. The extensive home bias literature that documents the underweighting of foreign securities in investors' portfolios suggests, however, that they do not.²

We use security-level data to analyze U.S. investors' equity positions in emerging markets. We find, not surprisingly, that U.S. investors tend to prefer large, liquid equities. Our most striking result, though, is that there exists a subset of emerging market firms—those that have cross-listed on a U.S. exchange—that are indeed incorporated into U.S. portfolios at full weights. The portfolio weights on cross-listed firms are in line with those predicted by the international capital asset pricing model (ICAPM) and are substantially higher than the weights on firms that have not cross-listed.

The finding that cross-listed equities are fully incorporated in U.S. portfolios suggests

¹ See Bekaert and Harvey (2000) and Henry (2000).

² See Lewis (1999) and Karolyi and Stulz (2002) for surveys of the home bias literature.

that financial liberalization is a necessary but not sufficient condition for international risk sharing. To realize the benefits of international risk sharing, the emerging market firm must cross-list. Cross-listed firm may have other attributes that make them desirable to global investors. For example, they tend to be larger and more liquid (Pagano, Roell, and Zechner (2002)).³ But even controlling for these and other firm characteristics, we find that a large cross-listing effect persists. As a percent of firm market capitalization, U.S. investors' holdings of cross-listed firms are four times greater than holdings of firms that are not cross-listed.

A plausible cause of the stark difference in the weights of cross-listed and non-cross-listed stocks in global investors' portfolios is the alleviation of information asymmetries. Lang, Lins, and Miller (forthcoming) provide evidence that the cross-listing is associated with an improvement in the quality of the firm's financial information. Opting into U.S. investor protection regulations—which include, as discussed in Coffee (2002), not only increased disclosure and reconciliation to U.S. GAAP, but also increased enforcement by the SEC and a more demanding litigation environment—bonds the firm to greater transparency. Consistent with the model of Merton (1987) and Barry and Brown (1985), the enhanced information environment should broaden the shareholder base and reduce the cost of capital, as the cost of following the firm falls and investors are better able to assess its prospects. Our results suggest that the shareholder base does indeed broaden after a cross-listing and provide further evidence of the prominent role of information asymmetries in the observed home bias phenomenon.⁴

³ Other papers that examine why firms cross-list include Lins, Strickland, and Zenner (2002) and Reese and Weisbach (2002).

⁴ A more basic familiarity effect, as in Coval and Moskowitz (1999) and Huberman (2001), could also be at work here. In support of the enhanced financial information hypothesis, though, we do not find increased weights in U.S. portfolios for the subset of foreign stocks that

The database we use to analyze U.S. portfolios in emerging markets is remarkable. For every equity in our sample of nine emerging markets, the security-level data set indicates U.S. investors' holdings as of two points in time, March 1994 and December 1997. It includes not only U.S. institutions' holdings of non-U.S. stocks that trade in the United States—as is available through SEC 13(f) filings—but holdings of *all* U.S. investors in *all* stocks from these emerging markets, regardless of where the stocks trade. The holdings data were collected in conjunction with benchmark surveys conducted by the U.S. Treasury Department and the Federal Reserve Board. U.S. institutions are, to be sure, important in this data set, but the data come primarily from the firms that are entrusted to keep the securities, the major custodians such as large banks and broker-dealers.

The paper proceeds as follows. In Section 2, we describe the data on U.S. holdings and the economic environment at the times of the two benchmark surveys. In Section 3, we outline the firm-level characteristics used in this study and present descriptive statistics on the relationship between U.S. holdings and firm characteristics. In Section 4, we more formally analyze the determinants of firms' weights in U.S. portfolios using multivariate regressions. Section 5 examines in more detail the result that for cross-listed firms there is no home bias and considers possible implications for policymakers. Section 6 concludes.

2. The Security-Level Holdings Data

We use confidential security-level data on U.S. holdings of emerging market stocks from comprehensive benchmark surveys conducted by the U.S. Treasury Department and the Federal

trade in the United States but not on exchanges and, hence, are not subject to U.S. investor protection regulations.

Reserve Board as of March 1994 and December 1997.⁵ Data are collected from two types of reporters: U.S. custodians and U.S. institutional investors.⁶ Reporting on the survey was mandatory, and penalties could have been imposed for noncompliance. Custodians—primarily banks but also some broker-dealers—are the main source of information, reporting 97 percent of the market value of U.S. holdings of foreign long-term securities measured on the 1997 survey. Institutional investors, such as mutual funds, pension funds, insurance companies, endowments, and foundations, report in detail on their ownership of foreign securities only if they do not entrust the safekeeping of these securities to U.S.-resident custodians. If they do use U.S.-resident custodians, institutional investors report only the name(s) of the custodian(s) and the amount(s) entrusted.⁷

The requirement that institutional investors identify their U.S.-resident custodian(s) has the beneficial side effect of ensuring that all sizable U.S.-resident custodians holding foreign securities are included in the survey, because any custodian identified by an institutional investor is instructed to report. The requirement also makes it possible to check on survey accuracy, as the amount of foreign holdings each custodian should report can be estimated by summing the amounts that institutional investors as a group have entrusted to each custodian.

Data from the asset surveys are considered accurate but difficulties and complexities

⁵ Publicly available country-level data from the benchmark surveys are presented in Treasury Department and Federal Reserve Board (2000) and analyzed in Ahearne, Grier, and Warnock (forthcoming) and Dahlquist, Pinkowitz, Stulz, and Williamson (forthcoming). For a primer on the benchmark surveys, see Grier, Lee, and Warnock (2001).

⁶ Holdings of private individuals are captured as long as they are through U.S. institutional investors or are entrusted to U.S.-resident custodians.

⁷ Of the 1209 U.S. firms that reported data in the survey, 863 reported the names and amounts they had entrusted to U.S. custodians.

mean that they are not likely perfect. Accurately pricing and categorizing the universe of foreign securities—370,000 records on equity holdings were collected in the 1997 survey—is very challenging, as commercial data used to cross-check data on foreign securities are generally less complete than for U.S. securities; custodian data in asset surveys tend to have some errors and omissions; and unexpected local market quirks can lead to misinterpretations of reported data. Because of the great number of records and the various complexities, the data were edited and cleansed by Federal Reserve and Treasury staff for eighteen months.

One of the cross-checks performed by Fed and Treasury staff involves holdings of U.S. institutional investors as reported to the SEC through Form 13(f) filings.⁸ The SEC only has jurisdiction over securities that trade in U.S. markets, so only U.S.-traded securities—or, to be more specific, so-called 13(f) securities—are reportable in 13(f) filings. Non-U.S. securities are reportable to 13(f) only if they trade in U.S. markets. Therefore, 13(f) filings include U.S. institutions' holdings of, for example, American Depositary Receipts (ADRs), but not holdings of the underlying foreign security.⁹ So one check is to confirm that all U.S. investors' holdings of a particular ADR as reported to the benchmark survey are greater than the amount of U.S. institutions' holdings of the same ADR from 13(f) data. Note that the cross-check involves only U.S. holdings of the ADR, because 13(f) does not include U.S. institutions' holdings of the underlying foreign security (except in the cases in which the underlying actually trades on a U.S. exchange). In contrast, the benchmark survey data we analyze in this paper include U.S. investors' holdings of the underlying foreign security as well as the ADR.

⁸ Commercial vendors sell 13(f) data in a user-friendly form. One example is the Thomson Financial Spectrum database.

⁹ See Miller (1999) and Karolyi (2003) for discussions of ADR programs.

Another piece of evidence that speaks to the comprehensiveness of the holdings database is the number of non-zero holdings. For the nine countries in our sample, at the end of 1997 the S&P/IFC Emerging Markets Database (EMDB) contained 727 firms; in the benchmark survey data set, only 7 of these 727 had zero U.S. holdings. The proportion of EMDB firms with zero U.S. holdings was higher in 1994 (40 of 345), but this higher proportion makes sense because at that time some Asian countries had extremely restrictive capital controls. By 1997, restrictions in Asia were relaxed and U.S. investment increased.

Between 1994 and 1997, the importance of U.S. investors increased in both regions. The dollar amount of U.S. holdings at the time of the two benchmark surveys are in parentheses in the left columns of Table 1. In dollar terms, U.S. positions in Latin America increased from \$53 billion in 1994 to \$84 billion in 1997. As a percent of the market capitalization in these countries, U.S. holdings amounted to 13 percent in 1994 and 15 percent in 1997. In emerging Asia, between 1994 and 1997 U.S. holdings fell from \$21 billion to \$17 billion; because market capitalizations fell much more sharply, U.S. positions increased from 4 to 8 percent in the inter-survey period.

Substantial changes in stock market development and financial liberalization occurred in between the two surveys. Stock market development, as measured by the number of listed firms, increased dramatically in emerging Asia, especially Indonesia, Korea, and Malaysia, but was roughly unchanged in Latin America (Table 1). Market capitalizations paint a different picture; some Latin American markets, such as Brazil and Chile, grew sharply between the surveys, but by end-1997 the Korean, Malaysian, and Thai equity markets were (in dollar terms) just 20 to 50 percent of their March 1994 sizes, primarily because of the crisis-related and currency

depreciations and drop in equity prices (Figure 1). All of the markets in our sample were open to foreign investment by March 1994 (Figure 2).¹⁰ At that time, Argentina, Mexico, and Malaysia had the fewest legal restrictions, but, by the end of 1997, the other countries had also dismantled the bulk of foreign ownership restrictions.¹¹ By 1997 firms from most of these countries—Thailand and Malaysia are the exceptions—had cross-listed on U.S. exchanges. Figure 3 shows the basic message from Ahearne et al (forthcoming): Countries whose firms tended to cross-list on U.S. exchanges had greater weights in U.S. portfolios. With the firm-level analysis of this paper, we will be able to discern whether this effect was limited to only the firms that cross-listed, or also extended to other firms in these countries.

3. Firm Characteristics and U.S. Ownership

This section describes the firm characteristics we will use and presents a first pass at their relationships with U.S. ownership.

3.1 Firm Characteristics

For data on firm characteristics we use balance sheet variables from Worldscope and returns and investability data from the S&P/IFC EMD; complete details are provided in Table

¹⁰ Financial liberalization in these countries has been studied by Bekaert and Harvey (2000), Chari and Henry (2002a,b), Edison and Warnock (2003), Henry (2000a,b), and Kim and Singal (2000).

¹¹ We should note that a reduction in foreign ownership restrictions need not be considered credible by investors. The reimposition of controls in Malaysia in 1998 provided an emphatic illustration of this point.

2.¹² The EMDB consists of all firms in the S&P/IFC Global index. All actively traded stocks of domestic companies are candidates for inclusion in a country's Global index; there are no liquidity or size screens. But the index and, hence, the database, is not comprehensive: It is constructed to represent a target 60 to 75 percent of the country's total market capitalization and an industrial composition similar to that of the overall market.¹³ For the nine emerging markets in our sample, EMDB firms comprise 68 percent of the \$767 billion in end-1997 market capitalization, but 88 percent of the \$100 billion in U.S. positions.¹⁴

We group our main explanatory variables in five categories. Our priors on these variables are formed from analyses of foreigners' investments in a particular country's equities—Kang and Stulz (1997), henceforth KS, for Japanese equities and Dahlquist and Robertsson (2001), henceforth DR, for Swedish equities—and the Falkenstein (1996) and Gompers and Metrick (2001), henceforth GM, findings on the composition of domestic institutions' investments in U.S. equities.

3.1.1 Liquidity and transaction costs. The typical U.S. international investor is likely an institution for which liquidity and low transaction costs are important. Large stocks with high turnover are more liquid, so we include *size* (log market capitalization) and *turnover* (value of trading over the previous twelve months as a percentage of market capitalization). These two variables also serve as proxies for firm-level transaction costs, for which we have no direct

¹² Glen and Singh (2003) provides a thorough analysis of accounting ratios in emerging markets.

¹³ See Standard & Poor's (2000) for a complete description of the IFC Global index and the EMDB.

¹⁴ Worldscope ostensibly includes a very broad range of firms, but the coverage differs greatly by variable and, after omitting firms that have poor coverage, it is Worldscope, not the EMDB, that constrains our data set.

measure.¹⁵

3.1.2 Prudence variables. *Dividend yield* (dividends per share over the year-end market price) has been used by Del Guercio (1996) and GM as a “prudence” proxy—stocks paying higher yields might be considered safer and some institutions cannot hold stocks that do not pay dividends. Yield also has predictive power for returns (Fama and French (1988), Campbell and Shiller (1988), Harvey (1995)). Another prudence proxy is the volatility of past returns, which we measure as the *residual variance* of a market model estimated over a 3-year period. We do not have a strong prior on this variable. From a prudence standpoint, U.S. ownership should be greater in firms with lower volatility. But investors may seek high risk high reward stocks; GM and Falkenstein (1996) find a positive impact of volatility on U.S. institutions’ domestic holdings.

3.1.3 Historical returns. Besides residual variance, we use four other variables that are based on historical returns: book-to-market, beta, Sharpe ratio, and momentum. *Book-to-market*, calculated as the book value per share over the year-end market price, can be viewed as a style variable; a tendency to hold low (high) book-to-market values indicates a preference for “growth” (“value”) stocks. We do not have a strong prior on book-to-market: U.S. institutions appear to favor domestic value stocks, but foreigners in Japan and Sweden reveal a preference for growth stocks. *Beta*, calculated from the same market model as residual variance, measures the systematic risk of a stock. We might expect a preference for high beta stocks; KS note that in the presence of proportional barriers to investment foreigners should hold high beta stocks.

¹⁵ Because lower priced stocks have, on a percentage basis, higher bid-ask spreads and therefore higher transaction costs, price has also been used as a proxy for transaction costs. We do not include price because many foreign stocks as held as ADRs, which often bundle underlying shares to produce a higher price.

Past performance in a reward-to-risk sense is captured by a *Sharpe ratio* calculated over a 3-year period; whether U.S. investors move into stocks with high reward-to-risk tradeoffs is an empirical question. We also include a *momentum* variable (mean monthly return over the preceding one-year period) that will provide an indication of whether U.S. investors can be characterized as momentum traders in emerging markets. Past evidence of momentum trading by foreigners seems to be sample-specific. Whereas KS, Falkenstein (1996), and Grinblatt and Keloharju (2000) find evidence of momentum investing, GM show strong evidence that institutions do not chase past returns.

3.1.4 Financial health. We use three measures of financial health. *Return on assets* (ROA) is an accounting performance measure calculated as net income over total assets. If there is persistence in accounting performance, U.S. investors might favor emerging market stocks with high ROA. Firms with higher *leverage*, calculated as the ratio of total debt to total assets, are more financially vulnerable and, thus, might attract less foreign investment. *Current ratio*, calculated as current assets over current liabilities, indicates the firm's ability to meet short-term obligations. Firms with a high current ratio are in better financial health (at least in the short-term) and, thus, might be more attractive to foreign investors.

3.1.5 Barriers to international investment. Barriers to international investment can be direct or indirect. Direct barriers, such as capital controls, are captured by a firm-level measure of the legal availability of a stock to foreigners, the *investable weight*. The investable weight, which is the basis of the Edison and Warnock (2003) capital controls measure, is an openness measure that represents the portion of a firm's equity that is legally available to a foreign investor. A barrier that is both direct and indirect is the extent to which a stock is held by

insiders—stocks with a high concentration of insiders are less available to foreign investors for algebraic reasons but also because insiders’ objectives might not align with those of atomistic investors. *Closely held* is calculated as the percent of outstanding common shares that are held by insiders, as in Dahlquist et al. (forthcoming), henceforth DPSW. However, as in Holland and Warnock (2003), we correct the closely held variable by subtracting the percentage closely held that Worldscope erroneously attributes to depository banks. We also include two cross-listing dummy variables. *US Listed* takes the value of one if the firm is listed on a U.S. exchange. Such a cross-listing alleviates two type of barriers to international investment: direct (through lower transaction costs and better settlement) and indirect (through an improved information environment due to stricter investor protection regulations). Some foreign firms trade in U.S. OTC markets as Level I ADRs or private placements (Rule 144a). For these firms, captured by a *Level I ADR* dummy, direct costs might be lower, but we expect no improvement in the information environment.

3.2 Holdings by Firm Characteristic¹⁶

Before discussing the relationship between firm characteristics and U.S. holdings, we first describe some of the features of the data. Summary statistics are provided for our full sample (Table 3a) and separately for each region (Tables 3b and 3c).¹⁷

¹⁶ Some variables used in previous studies are not available. Most importantly, adequate foreign sales data do not exist for these emerging market firms. DR find a significant relationship between foreign sales and foreign ownership, but in our sample U.S. investors tend to overweight some firms for which international trade is not important, such as transportation and communications firms.

¹⁷ To provide the reader a good understanding of the confidential holdings data, we err in this section on the side of providing too much information.

Information on the typical firm in our sample can be gleaned from the column in Table 3a labeled Average, which provides sample averages for each characteristic. Our sample contains at most 627 firms (the column labeled N) and that coverage is greatest for EMDB variables such as returns-based variables, market capitalization, and investability. The average firm in our sample has market capitalization of \$1016 million, of which 43 percent is held by insiders (the average of *Closely Held*), 62 percent can be held by foreigners (*Investability weight*), and 9 percent is held by U.S. investors. The typical firm has a turnover rate of just over one; a dividend rate of 2.3 percent; a Sharpe ratio over the 1994-1997 period of -0.48; negative returns (-7.6%) in 1997; a beta greater than one; and a book-to-market ratio greater than one. In 1997, the typical firm had total debt of about 39 percent of total assets; current assets that were 1.39 times current debt; and a return on assets of positive 2 percent. Nine percent of the firms are listed on U.S. exchanges and another 7 percent trade as Level I ADRs.

A comparison of Tables 3b and 3c shows that the sample is comprised mainly of Asian firms (445 of the 627). Compared to the typical Latin American firm in our sample, the typical Asian firm is about three times smaller; has an almost three times higher turnover rate; pays lower dividends; has slightly more volatile returns; has a worse reward-to-risk tradeoff, lower 1997 returns, and a lower beta; has a much higher book-to-market ratio; is in worse financial health with higher leverage, lower current ratio, and lower return on assets; is less closely held by insiders but less available to foreigners; and is less likely to be listed on a U.S. exchange or trade as a Level I ADR. Perhaps not surprising, U.S. investors hold less of the typical Asian firm (6 percent) than the typical firm in Latin America (16 percent).

Tables 3a - 3c also present two indicators of simple bivariate relationships between

holdings and firm characteristics: quintile analysis and t-statistics from regressions of y_i on a characteristic. In the quintile analysis, firms are ranked and sorted into quintiles based on the firm characteristics. For each quintile, we report the average of the characteristic and the percentage of the market capitalization held by U.S. investors. By design, the quintiles are increasing in the firm characteristic. If they are also increasing in U.S. ownership, a positive bilateral relationship is revealed.

The two liquidity variables show conflicting results in Table 3a. U.S. ownership is, as expected, increasing with firm size: U.S. investors hold only 4.0 percent of the smallest firms, but 14.4 percent of the largest firms, and this relationship is also evident from the positive and highly significant t-statistic (8.60) on a regression of U.S. ownership on firm size. However, there is also evidence that firms with higher turnover rates have lower U.S. ownership. The t-statistic on the turnover regression is negative and significant, and the quintile analysis shows that U.S. investors avoid the highest turnover stocks in this sample. Tables 3b and 3c provide further information on this counterintuitive result. In Latin America (Table 3b), U.S. positions are indeed increasing in turnover rates and the relationship is dramatic: U.S. ownership is only 5.3 percent in Latin American stocks that trade the least but increases to 24.6 percent in those that trade the most. The counterintuitive result from Table 3a owes to turnover rates in emerging Asia (Table 3c). Turnover rates can be very high in emerging Asia—in 1997 the 89 firms in the highest quintile had annual trading that was on average almost four times their market capitalization—but U.S. ownership is quite low (3.2 percent) in Asian firms with the highest turnover rates.

There is weak evidence of a role for prudence factors. In the whole sample, dividend

yields are positively related to U.S. ownership (t-stat=4.57), but the quintiles show that this is, in fact, a distaste for stocks that pay no dividends. If we omit stocks that do not pay dividends, the positive relationship disappears: U.S. ownership in dividend yield quintiles 2 through 5 varies little. At the regional level, we see that this avoidance of zero dividend stocks is actually an emerging Asian phenomenon. U.S. ownership in Latin American stocks that pay no dividends is 15 percent, in line with U.S. ownership in all Latin American firms, but is much lower in the many Asian firms that pay no dividends. For volatility (residual variance), there is little evidence of a significant relationship with U.S. ownership.

There is some evidence of a relationship between historical returns and U.S. ownership. Table 3a shows that at the end of 1997 U.S. investors had larger relative weights on stocks that had strong performance in a reward-to-risk sense over the past three years (high Sharpe ratio), strong returns over the past year (momentum), and a high beta. Momentum and beta are also important in both regions. The Sharpe ratio, however, is not significantly related to U.S. ownership in either region, suggesting the positive relationship apparent in Table 3a may be spurious: U.S. positions are greater in Latin America than in emerging Asia and Latin American stocks had higher Sharpe ratios from 1994 to 1997, but there is little evidence that within regions firms with higher Sharpe ratios had higher U.S. ownership. Similar reasoning applies to book-to-market, where the negative relationship in Table 3a does not appear in either region.

We see only weak evidence in the bivariate relationships that the financial health of the firm affects U.S. portfolio weights. Firms with higher return on assets, better current ratios, and less leverage have somewhat higher weights in U.S. portfolios (Table 3a), although the significance of the relationships is slightly weaker than for other variables. Indeed, within

regions, these relationships are not significant, suggesting that Table 3a might be picking up a preference for Latin American firms, which were in better financial health in 1997.

Among the variables that proxy for barriers to international investment, there is evidence of a striking effect of a cross-listing on a U.S. exchange. In the whole sample, U.S. ownership is 27 percent for those firms that have cross-listed on U.S. exchanges, but 20 percentage points lower (7 percent) for those that have not; this relationship is apparent at the regional level, too. Firms that trade in the United States as Level I ADRs see no such increase in U.S. participation; the increase is only 3 percentage points. For the other barriers variables, U.S. ownership is greater in firms that are more open, although this effect is much stronger in Latin America than in emerging Asia. U.S. ownership is also greater in firms that are more closely held. The regional breakdowns shed more light on this counterintuitive finding. In Latin America, U.S. ownership is indeed lower for firms that are more closely held, although the relationship is not statistically significant; the counterintuitive result comes from Asia, where U.S. ownership is greatest in firms that are the most closely held.

To sum up, simple bivariate statistics show that while there are important differences across regions, a few variables seem to transcend regional differences. U.S. investors prefer emerging market firms with the following characteristics: large, high returns over the past year, high beta, and cross-listed on a U.S. exchange. Other relationships are apparent—for example, a preference for firms that are financially healthy—but these may be capturing a preference for Latin American stocks. There is also evidence of two counterintuitive relationships in U.S. positions in emerging Asian stocks, where U.S. investors seem to reveal a preference for stocks that are illiquid and more closely held by insiders. In attempt to disentangle the various

relationships, we turn next to multivariate regressions.

4. U.S. Positions in Emerging Equity Markets – Regression Results

To analyze U.S. positions at a point in time, we define ownership by U.S. investors as the ratio of security i 's weight in U.S. equity portfolios to its weight in the world market portfolio, minus one:

$$y_i = \frac{\omega_i^{US}}{\omega_i^W} - 1 = \frac{\frac{H_i^{US}}{H^{US}}}{\frac{MCap^i}{MCap^W}} - 1 \quad (1)$$

where H_i^{US} is U.S. holdings of security i , H^{US} is the size of the U.S. equity portfolio, $MCAP^i$ is the market capitalization of security i , and $MCAP^W$ is the size of the world market portfolio. We refer to the term, ω_i^{US}/ω_i^W , as the relative portfolio weight. Foreign ownership is increasing in y , with a y -value of negative one (or relative portfolio weight of zero) indicating no foreign ownership, $y = 0$ (relative weight of one) indicating that the security's weight in U.S. portfolios is identical to its weight in the world market portfolio, and a positive y -value indicating that U.S. investors overweight the equity. This measure is identical to the home bias measure used in DR and, in cross-sectional analysis, observationally equivalent to the Falkenstein (1996) and GM measures of the importance of a type of investors in a particular market (in their cases, institutional investors in U.S. equities). In particular, the share of equity i that is held by U.S.

investors is

$$\frac{H_i^{US}}{MCap^i} = (y_i + 1) \frac{H^{US}}{MCap^W} \quad (2)$$

where $H^{US} / MCap^W$ is the share of the U.S. in the world portfolio, a constant (in the cross-section) that equaled about 0.48 in 1997.

4.1 What types of firms attract U.S. investors?

Results for U.S. positions in the full sample of nine countries as of 1997 are presented in Table 4a. We start in Column (1) with a parsimonious set of control variables in order to maximize the number of observations; we then add Worldscope variables with less coverage in Columns (2) - (4). The results correspond to a scenario in which investors first choose to invest in emerging markets (the sample) and then, given desired country allocations (captured by country dummies), select stocks based on firms' characteristics. The country dummies are important; the bottom rows of the table show that adjusted R^2 statistics are substantially smaller when the country dummies are omitted.^{18, 19}

The table suggests that U.S. investors prefer large stocks that have fewer ownership

¹⁸ We would prefer to include country-level variables that might affect U.S. investors' portfolio allocations, such as rule of law, shareholder protection, or country credit ratings, rather than country dummies. However, our sample only has nine country-level data points, limiting the usefulness of country-level variables.

¹⁹ The sectoral composition of U.S. holdings (not shown) indicates that U.S. investors overweight a "local" sector (transportation and communication) and a "tradable" sector (agriculture and mining firms), but underweight manufacturing. However, industry dummies, when included, provide no added information; the adjusted R^2 falls in most cases.

restrictions and are cross-listed. Also apparent is weak evidence of a preference for stocks with a high beta, stocks that performed well in 1997, stocks with low residual variance, and firms with lower leverage.

To interpret the size of the coefficients in Table 4a, note from equation (2) that because the U.S. market was about 48 percent of the world market in 1997, an increase in y_i of 0.10 corresponds with an increase in U.S. ownership of 0.048 percentage points. Thus, in column (1), the coefficient estimate for *US Listed* of 0.289 indicates that, compared to the non-cross-listed firms, firms that cross-listed on U.S. exchanges had y -values that were 0.289 higher and, hence, U.S. ownership that was 13.88 percentage points higher (0.289 times 0.48). Thus, even controlling for size, liquidity, and openness (and other firm characteristics in subsequent columns), emerging market firms that cross-listed on U.S. exchanges attracted much more U.S. investment. The coefficient on *Level I ADR*, on the other hand, is never significant.

4.2 Are U.S. investors attracted to different types of firms across regions?

We highlighted differences across regions in the bivariate relationships of Tables 3b and 3c. Now, in Tables 4b and 4c, we show the 1997 multivariate results for Latin America and emerging Asia. For Latin America (Table 4b), the most important characteristics appear to be liquidity (turnover), low residual variance, investability, and a cross-listing; size is significant in only some specifications. For emerging Asia (Table 4c), *US Listed* is again significant and size and openness are significant in all specifications. The most apparent differences between the regions are the effects of turnover and low returns volatility (positive in Latin America, insignificant in Asia), the greater importance of openness in Asia, and evidence that in Asian

portfolios U.S. investors avoid closely held stocks and stocks with low dividends. It should also be noted that our regressions explain much more of the variation of U.S. holdings in Latin America than in emerging Asia (e.g., 51 percent in column (1) of Table 4b compared to 29 percent in Table 4c).

4.3 Have U.S. investors' portfolios changed over time?

December 1997, when emerging Asia was in the midst of a severe financial crisis, may have been a non-standard time for emerging markets. To see if the factors that were important in 1997 were also important in 1994, we estimated similar regressions for 1994 (Table 5), but with a more limited set of explanatory variables.²⁰ In 1994, as in 1997, U.S. investors preferred cross-listed stocks. Size is also important in most regressions, but not in Latin America. The most noticeable difference between the two years is a lack of significance for 1994 firm-level investability. Since country-level capital controls are captured by the country dummies, this could be due to the limited variation in investability among firms within a country.

While Table 5 showed that the determinants of firm-level weights in U.S. portfolios in 1994 and 1997 were roughly similar, Table 6 examines the factors that explain reallocations in U.S. portfolios. We regress the change in y_i from 1994 to 1997 on the firm's 1994 y -value and the 1994 levels of and 1994-1997 changes in various firm characteristics.

The results in Table 6 show a catching up in U.S. portfolios; the negative coefficient on

²⁰ We do not include returns-based variables, such as beta, in our 1994 regressions because they would severely limit the sample—returns series for most of our firms do not start much before 1994. Nor do we have 1993 data on turnover or closely held. For emerging Asia, only one firm was cross-listed on a U.S. exchange as of March 1994, so to maintain legal confidentiality requirements, we cannot include a 1994 cross-listing variable.

the y^{1994} indicates firms that were more underweight in U.S. portfolios in 1994 saw greater increases by 1997. U.S. investors increased portfolio weights on firms that were larger and more open in 1994, but firm growth is not significant and an increase in openness corresponds with increased U.S. ownership in only some cases. There is also a noteworthy re-weighting of U.S. investors' portfolios towards firms that improved their financial health, either by reducing leverage or improving the current ratio.

Finally, Table 6 provides more evidence of a strong movement towards cross-listed firms. The coefficients on $USListed^{1994}$ and $\Delta USListed$ indicate that the y -values of firms that were already cross-listed in 1994 or cross-listed between 1994 and 1997 increased between 0.20 and 0.30. For the firms cross-listed before 1994, this appears to just counteract the catching-up effect. For example, compared to the typical non-cross-listed firm, the typical firm that was cross-listed in 1994 had a 1994 y -value that was 0.52 higher (-0.34 compared to -0.86). Thus, the coefficient estimate for y^{1994} (about -0.60) indicates that, all else equal, the cross-listed firm would have seen a 0.31 (=0.52 times -0.60) greater decrease in its y -value by 1997, offsetting the increase implied by the coefficient estimate on $USListed^{1994}$. One story that emerges is that stocks that cross-listed prior to 1994 experienced a large increase in U.S. portfolios by 1994 (Table 5) but no further increase by 1997 (Table 6), while those that cross-listed between 1994 and 1997 experienced increased U.S. participation by 1997.²¹ In the next section we discuss further the cross-listing effect.

²¹ Because the share of the U.S. in the world portfolio increased from 0.36 in 1994 to 0.48 in 1997, no change in a firm's y -value between 1994 and 1997 implies that U.S. investment in the firm increased over the period.

5. Where There is No Home Bias: Further on the Cross-Listing Effect

One of the least contentious empirical regularities in international finance is that there is a home bias in asset holdings. Researchers may disagree on their favorite reason for the home bias and whether it is rational or irrational, but there is general agreement that portfolios are not fully diversified internationally. The share of foreign securities in portfolios is much lower than predicted by the ICAPM and, equivalently, there appear to be substantial unexploited diversification benefits.

The most striking finding in this paper is that U.S. investors' holdings of emerging market equities that are cross-listed on U.S. exchanges are in line with the amount predicted by the ICAPM. Put another way, for the subset of emerging market firms that are cross-listed on U.S. exchanges, there is no home bias.

The ICAPM, based on traditional portfolio theory developed by Sharpe (1964) and Lintner (1965), predicts that mean-variance optimizing investors should hold the world market portfolio of risky assets. DPSW put a finer point on this, reminding us that it applies only to atomistic price-taking investors. Controlling shareholders are not price takers and, because they can extract private benefits to control, do not likely behave as mean-variance optimizers.²² Thus, the prediction from a float-adjusted ICAPM is that atomistic investors should hold the world float portfolio, which is the market portfolio excluding shares held by controlling insiders. Hence, one should analyze not deviations from ICAPM weights as in our equation (1), but rather deviations float-adjusted ICAPM allocations, or

²² For evidence of the private benefit to control, see Nenova (forthcoming) and Dyck and Zingales (2001).

$$y_i^\delta = \frac{\frac{H_i^{US}}{H^{US}(1-\delta^{US})}}{\frac{MCap^i(1-\delta^i)}{MCap^W(1-\delta^W)}} - 1 = \frac{\frac{H_i^{US}}{MCap^i(1-\delta^i)}}{\frac{H^{US}(1-\delta^{US})}{MCap^W(1-\delta^W)}} - 1 \quad (3)$$

where δ^k ($k=i, US, W$) is the percent of the market capitalization of firm i , the U.S. market, and the world market portfolio, respectively, that is held by controlling shareholders.

In our empirical work, however, we do not use equation (3) because of the poor quality and poor coverage of the closely held variable in the Worldscope database.²³ Caveats about the quality of the closely held variable aside, it can provide a useful metric to judge the size of U.S. holdings in a particular stock. The denominator of the last equality in equation (3) is the share of the U.S. in the world float portfolio, which DPSW put at 0.58 for 1997. Thus, if the numerator is also 0.58—that is, if U.S. investors hold 58 percent of firm i 's float— y_i^δ is zero and there is no home bias.

Table 3a showed that in our sample U.S. investors hold on average only 7 percent of the market capitalization of firms that are not cross-listed, but 27 percent of the market capitalization of those that are cross-listed. About 52 percent of the market capitalization of the average cross-listed firm in our sample is held by insiders, so the 27 percent of the market capitalization held by U.S. investors is about 56 percent of the float (27% / 48%). Thus, among emerging market firms cross-listed on U.S. exchanges, y_i^δ is approximately zero.

²³ We have corrected one known problem—the erroneous attribution of ADR shares as being held by the depository bank—but others could be lurking in the shadows. One example from an industrial country confirms our suspicion. Reported for Sweden in DPSW are the weighted average of closely-held shares from Worldscope (21 percent of the market) and from a more reliable Swedish source (29 percent). These aggregate differences could mask even greater data discrepancies at the firm-level.

The finding that U.S. investors have full (float-adjusted) ICAPM weights on emerging market stocks that are cross-listed on U.S. exchanges but much lower weights on all other emerging market stocks has implications for the home bias phenomenon. First, it should be noted that the 20 percentage point difference in U.S. holdings between cross-listed and non-cross-listed stocks did not disappear when other control variables were included in the regressions of Tables 4a-c. The typical coefficient on the *USListed* variable was between 0.25 and 0.30, implying a 12 to 14.4 percentage point increase (the coefficient estimate times 0.48, the share of the U.S. in the world portfolio) in U.S. holdings for cross-listed stocks, even after controlling for size, liquidity, and other characteristics. Second, no such effect is present for stocks that trade in the U.S. as Level I ADRs. The main difference between Level I ADRs and exchange-listed ADRs is that the exchange-listed stocks are subject to U.S. investor protection regulations, broadly defined to include its accounting standards, disclosure rules, and security laws. The information content inherent in such a listing arguably reduces information asymmetries and makes the stock more attractive to investors.²⁴

That emerging market stocks cross-listed on U.S. exchanges have full ICAPM weights in U.S. portfolios sheds some light on previous results. Coupled with the finding by Edison and Warnock (2002) of a sharp but short-lived increase in capital flows in the month of the cross-listing, it suggests that the cross-listing is associated with a discrete increase in demand for the stock. In light of the current results, that the equity inflows associated with a cross-listing are temporary is not surprising; after investors bring these stocks into their portfolios at full weights,

²⁴ Note, too, that the cross-listing effect does not appear to be an index-inclusion effect. For example, while firms that were in an Morgan Stanley Capital International (MSCI) index in 1997 had greater U.S. ownership than those that were not (11 percent versus 5 percent), an MSCI dummy variable is not significant in multivariate regressions (not shown).

there is little need for large subsequent purchases. The increased analyst coverage (Baker, Nofsinger, and Weaver (2002)) and concomitant improvement in forecast accuracy (Lang, Lins, and Miller (forthcoming)) could be due to the cross-listing or to the fact that large U.S. investors hold the stock and demand more coverage. And our result implies that the increase in the q-ratio of cross-listed stocks documented by Doidge et al. (forthcoming) is likely due to a broadened shareholder base.

The cross-listing result also has important implications for the benefits of financial liberalization. Liberalization benefits, such as a decrease in the cost of capital due to improved international risk sharing, are realized only if global investors bring the emerging market equities into their portfolios. The small size of the liberalization benefits found by Bekaert and Harvey (2000) and Henry (2000) have been surprising. Our findings suggest a explanation: Liberalization benefits are concentrated in only select firms—those that cross-list on U.S. exchanges. The majority of firms in the emerging market are much less than fully integrated into world capital markets.

6. Conclusions

This study uses a unique data set to analyze U.S. investors' equity positions in emerging markets. The results indicate that on the whole U.S. investors tend to have a strong preference for large stocks, stocks with fewer foreign ownership restrictions, and stocks that are cross-listed on U.S. exchanges. This should not be surprising; similar results are found in Kang and Stulz (1997) and Dahlquist and Robertsson (2001). In addition, we find that the effect of liquidity

varies across regions—high turnover stocks are preferred in Latin America, but turnover is not a significant factor in U.S. portfolios in Asia. In analyzing changes in portfolio allocations between the survey dates of 1994 and 1997, firms that cross-listed or improved their financial health saw increased U.S. investment.

The most striking result is that cross-listed firms are well integrated into U.S. portfolios, as weights in U.S. portfolios of cross-listed stocks are in line with the weights predicted by a float-adjusted ICAPM. This, along with the Edison and Warnock (2002) evidence of a sharp but temporary increase in emerging market equity flows at the time of a cross-listing, suggests that the cross-listing is associated with a discrete shift in demand. This demand shift, in turn, can help explain many recent results in the cross-listing literature, from a positive price impact (Foerster and Karolyi (1999) and Miller (1999)) to an increase in firm value (Doidge et al. (forthcoming)).

There are benefits to cross-listing, as the increased foreign ownership documented here reduces the cross-listed firm's cost of capital (Doidge et al. (forthcoming) and Lang et al. (forthcoming)). It is an open question, though, whether the emerging market country benefits from the cross-listing. There is mounting evidence that emerging market firms that do not cross-list face adverse consequences, from the lower U.S. investment documented here to decreased liquidity (Karolyi (2003) and Levine and Schmukler (2003)). But there is a solution. Our result, coupled with the Lang et al. (forthcoming) finding of an improvement in the information environment associated with a cross-listing, suggests that information asymmetries likely play a primary role in limiting international risk sharing. The implication is clear: Uniform investor protection regulations across countries may well result in greater capital market integration.

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Table 1. Stock Market Development and U.S. Holdings

	Market Capitalization (U.S. Holdings)		Number of Listed Firms (# in EMDB)	
	March 1994 \$ billions	Dec 1997 \$ billions	March 1994 # firms	Dec 1997 # firms
Latin America	403.8 (53.2)	543.4 (83.8)	1164 (174)	1165 (201)
Argentina	41.6 (7.6)	59.3 (12.9)	162 (23)	136 (29)
Brazil	130.5 (8.4)	255.5 (31.3)	541 (63)	536 (70)
Chile	45.4 (2.5)	72.0 (4.6)	268 (36)	295 (46)
Mexico	186.3 (34.7)	156.6 (35.0)	193 (52)	198 (56)
Emerging Asia	492.3 (21.4)	219.5 (16.6)	1843 (375)	2777 (526)
Indonesia	31.5 (1.9)	29.1 (2.5)	183 (42)	282 (59)
Korea	143.9 (4.4)	41.9 (4.4)	698 (142)	1135 (184)
Malaysia	176.8 (9.1)	93.6 (4.7)	423 (104)	708 (155)
Philippines	35.0 (1.9)	31.4 (2.8)	185 (27)	221 (54)
Thailand	105.1 (4.1)	23.5 (2.2)	354 (60)	431 (74)

Sources: Market capitalizations (in billions of dollars) and number of listed firms are from Emerging Stock Markets Factbook (various issues). Holdings (in billions of dollars) are from U.S. benchmark surveys. Of the 727 firms in the EMDB at the end of 1997, 7 had zero U.S. holdings. In 1994, the proportion was higher; of the 345 EMDB firms, 40 had zero U.S. holdings, and half of those were Korean.

Table 2. Variable Definitions and Sources

Variables from the S&P/IFC Emerging Markets Database*

Market Capitalization: To scale holdings, we use firm-level market capitalization as of the dates of the benchmark surveys. As a measure of *size* we use the log of market capitalization; for 1997, when valuations were decreasing rapidly in some countries, *size* is computed as the log of the average of the June and December market capitalizations.

Beta and *residual variance* are calculated from a market model that uses monthly firm-level and MSCI World returns and is estimated from January 1994 through December 1997. The *Sharpe ratio* is calculated as $(R_i - R_f) / \sigma(R_i)$ over the period from January 1994 through December 1997, with the one-month U.S. Treasury bill returns from CRSP as the risk-free return series. *Momentum* is returns over a twelve-month period preceding a benchmark survey date.

Turnover is the value of trading over a 12-month period divided by beginning of period market capitalization.

Investability or investable weight is the firm's openness factor in the IFC Investable index calculated as an average over a six month period.

Variables from Worldscope**

Return on Assets (%):*** $(\text{Net Income before Preferred Dividends} + ((\text{Interest Expense on Debt-Interest Capitalized}) * (1 - \text{Tax Rate}))) / \text{Last Year's Total Assets} * 100$

Dividend Yield (%): $\text{Dividends Per Share} / \text{Market Price-Year End} * 100$

Closely Held Shares (%): $(\text{Number of Closely Held Shares} / \text{Common Shares Outstanding}) * 100$, adjusted as in Holland and Warnock (2003)

Book-to-Market Ratio: $\text{Book Value Per Share} / \text{Market Price-Year End}$

Current Ratio: $\text{Current Assets-Total} / \text{Current Liabilities-Total}$

Leverage or *Debt-to-Assets Ratio (%)*:*** $(\text{Short Term Debt} + \text{Current Portion of Long Term Debt} + \text{Long Term Debt}) / \text{Total Assets} * 100$

Data on Cross-Listings

US Listed consists of all firms cross-listed on U.S. exchanges as Level II or III ADRs; the sources are NYSE and Nasdaq. *Level I ADR* consists of firms that trade in the United States (but not on exchanges) as Level I ADRs; the source is Bank of New York.

* In our 1997 analysis, we include all firms that were in the EMDB for all of 1997, except for nine firms that appear to have bad data. We used the April 2001 EMDB CD.

** We use the May 1999 Worldscope CD in an attempt to get complete coverage for 1997 while minimizing the loss of data due to "dead" companies.

*** For insurance companies, policyholders' surplus is added to the numerator. For banks and other financial companies, customer liabilities on acceptance and custody securities, respectively, are subtracted from the denominator.

Table 3a. U.S. Positions in Emerging Markets by Firm Characteristics, 1997

	Quintiles					Average	t-stat	N
	Q1	Q2	Q3	Q4	Q5			
U.S. Ownership Size (mkt cap, \$millions)	4.0 52	6.3 144	8.9 308	11.7 658	14.4 3900	9.1 1016	8.60***	627
U.S. Ownership Turnover rate	7.5 0.11	12.4 0.32	11.0 0.57	9.2 0.98	5.4 3.11	9.1 1.02	-3.50***	627
U.S. Ownership Dividend yield (%)	5.7 0.0	11.2 0.7	10.3 1.8	11.3 3.4	10.4 8.3	9.0 2.3	4.57***	498
U.S. Ownership Residual variance	12.6 92	8.1 151	10.2 200	8.2 271	9.7 741	9.7 292	-0.83	533
U.S. Ownership Sharpe Ratio	6.7 -0.72	7.6 -0.58	7.7 -0.50	12.2 -0.39	14.6 -0.21	9.7 -0.48	5.87***	533
U.S. Ownership Momentum (%)	5.0 -16.0	5.5 -11.8	7.3 -8.9	9.5 -4.4	18.1 3.1	9.1 -7.6	11.67***	627
U.S. Ownership Beta	5.3 0.10	7.9 0.76	8.7 1.16	12.1 1.57	14.6 2.43	9.7 1.21	6.71***	533
U.S. Ownership Book-to-market	10.5 -1.0	12.2 0.6	9.4 1.1	9.2 2.0	5.4 5.0	9.3 1.5	-2.54**	593
U.S. Ownership Debt-to-assets (%)	9.6 7.4	11.4 23.8	10.2 36.7	9.3 52.3	6.4 75.8	9.3 39.2	-2.41**	594
U.S. Ownership Current ratio	8.6 0.50	7.3 0.83	9.1 1.10	10.9 1.45	10.9 3.04	9.4 1.39	2.12**	457
U.S. Ownership Return on assets (%)	6.7 -16	8.5 0	6.7 4	11.6 7	13.2 15	9.4 2	2.48***	589
U.S. Ownership Closely held (%)	5.0 10	6.3 28	7.4 43	10.8 58	9.4 76	7.8 43	3.23***	428
U.S. Ownership Investable weight	8.2 0.22	2.7 0.35	10.2 0.47	11.4 0.85	11.6 1.00	9.1 0.62	5.53***	627
U.S. Ownership US Listed	7.4 0				26.7 1	9.1 0.09	13.62***	627
U.S. Ownership Level I ADR	8.9 0				11.8 1	9.1 0.07	1.58*	627

In Table 3a, firms are ranked and sorted into quintiles based on several characteristics. For each characteristic we report the number of observations; t-statistics from a regression of U.S. ownership on the characteristic (***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively); and, for each quintile and overall, the average of the characteristic and U.S. ownership. U.S. ownership is the percent of a firm's market capitalization held by U.S. investors. The first quintile for dividend yield contains the 179 that paid no dividends and the fifth quintile for investable weight contains the 170 firms that were fully investable.

Table 3b. U.S. Positions in Latin America by Firm Characteristics, 1997

	Quintiles					Average	t-stat	N
	Q1	Q2	Q3	Q4	Q5			
U.S. Ownership Size (mkt cap,\$millions)	10.0 83	12.4 267	17.2 461	20.5 1359	18.3 7442	15.7 1950	2.96***	182
U.S. Ownership Turnover rate	5.3 0.06	13.8 0.18	18.2 0.33	16.3 0.54	24.6 1.21	15.7 0.47	5.44***	182
U.S. Ownership Dividend yield (%)	15.1 0.0	20.2 1.1	18.1 2.7	13.7 4.6	14.8 11.4	16.4 4.0	0.96	159
U.S. Ownership Residual variance	15.8 70	14.5 129	20.1 179	12.1 244	15.3 625	15.6 250	-0.65	174
U.S. Ownership Sharpe Ratio	12.9 -0.58	16.1 -0.41	16.2 -0.33	15.2 -0.25	17.4 -0.11	15.6 -0.33	1.45	174
U.S. Ownership Momentum (%)	10.8 -5.6	12.5 -1.4	13.3 0.6	19.9 2.6	21.8 7.3	15.7 0.7	4.23***	182
U.S. Ownership Beta	8.0 0.22	10.0 0.83	13.0 1.21	21.4 1.61	25.1 2.52	15.6 1.28	6.02***	174
U.S. Ownership Book-to-market	19.4 -1.6	24.3 0.5	11.5 0.8	13.3 1.3	13.0 2.8	16.3 0.8	-0.78	171
U.S. Ownership Debt-to-assets (%)	14.3 6.2	13.5 18.7	15.9 27.5	20.7 37.2	17.2 56.1	16.4 29.3	0.99	172
U.S. Ownership Current ratio	16.8 0.55	16.2 1.05	15.5 1.33	10.9 1.72	16.7 3.82	15.2 1.71	0.31	153
U.S. Ownership Return on assets (%)	17.4 -4	12.5 5	17.9 8	15.7 11	18.5 18	16.4 8	0.86	168
U.S. Ownership Closely held (%)	22.3 24	24.2 48	13.1 58	17.7 68	9.6 77	17.3 56	-1.45	69
U.S. Ownership Investable weight	8.3 0.19	10.5 0.49	16.7 0.67	17.2 0.91	17.9 1.00	15.7 0.80	3.15***	182
U.S. Ownership US Listed	11.3 0				27.0 1	15.7 0.28	6.58***	182
U.S. Ownership Level I ADR	15.9 0				14.6 1	15.7 0.14	-0.39	182

Table 3b is limited to Latin American firms. See Table 3a for details. For investable weight, the fifth quintile includes the 96 firms that were fully investable.

Table 3c. U.S. Positions in Emerging Asia by Firm Characteristics, 1997

	Quintiles					Average	t-stat	N
	Q1	Q2	Q3	Q4	Q5			
U.S. Ownership Size (mkt cap,\$millions)	3.4 46	3.9 118	6.3 247	8.4 540	9.9 2223	6.4 635	7.10***	445
U.S. Ownership Turnover rate	7.2 0.16	8.3 0.41	7.9 0.72	5.3 1.21	3.2 3.73	6.4 1.25	-4.31***	445
U.S. Ownership Dividend yield (%)	4.0 0.0	7.3 0.6	7.1 1.5	6.7 2.8	5.8 5.9	5.5 1.5	1.26	339
U.S. Ownership Residual variance	8.0 107	5.8 161	7.3 210	5.0 285	8.6 793	6.9 312	0.68	359
U.S. Ownership Sharpe Ratio	6.5 -0.75	7.1 -0.62	6.5 -0.56	6.5 -0.49	8.1 -0.34	6.9 -0.55	0.68	359
U.S. Ownership Momentum (%)	4.7 -16.9	5.8 -13.1	5.5 -11.1	7.1 -8.9	8.8 -5.1	6.4 -11.0	4.15***	445
U.S. Ownership Beta	4.4 0.03	6.8 0.73	6.5 1.14	9.1 1.55	7.8 2.38	6.9 1.17	3.22***	359
U.S. Ownership Book-to-market	6.1 -0.8	6.6 0.7	7.7 1.4	7.4 2.3	4.7 5.7	6.5 1.9	-1.08	422
U.S. Ownership Debt-to-assets (%)	6.5 8.4	8.1 27.1	5.7 42.8	6.9 58.1	5.3 79.4	6.5 43.3	-1.21	422
U.S. Ownership Current ratio	6.2 0.48	3.7 0.79	7.6 1.00	7.2 1.28	7.5 2.59	6.4 1.23	1.13	304
U.S. Ownership Return on assets(%)	6.5 -19	6.7 -2	5.5 2	5.5 5	8.4 13	6.5 0	0.86	421
U.S. Ownership Closely held (%)	5.1 9	3.5 25	6.0 39	7.0 54	8.2 75	6.0 41	3.78***	359
U.S. Ownership Investable weight	6.7 0.23	3.6 0.35	8.0 0.39	9.4 0.75	4.2 1.00	6.4 0.54	-0.12	445
U.S. Ownership US Listed	6.2 0				24.1 1	6.4 0.01	5.39***	445
U.S. Ownership Level I ADR	6.3 0				7.5 1	6.4 0.04	0.62	445

Table 3c is limited to emerging Asian firms. See Table 3a for details. For dividend yield, the first quintile contains the 151 firms that paid no dividends.

Table 4a. Holdings 1997: Total All Firms with Country Dummies

	(1)	(2)	(3)	(4)
Size	0.037*** (5.65)	0.030*** (4.33)	0.023*** (3.16)	0.035*** (3.20)
Turnover	0.034 (1.47)	0.035 (1.59)	0.039* (1.80)	0.009 (1.16)
Investability	0.152*** (4.36)	0.158*** (4.13)	0.156*** (3.88)	0.126*** (2.88)
US Listed	0.289*** (7.05)	0.300*** (7.17)	0.292*** (6.76)	0.232*** (4.20)
Level I ADR	-0.017 (0.58)	-0.021 (0.65)	-0.010 (0.32)	0.004 (0.10)
Momentum		0.006** (2.27)	0.003 (1.11)	-0.0009 (0.26)
Book-to-Market		0.0004 (0.29)	-0.0004 (0.24)	0.0008 (0.36)
Leverage		-0.0008** (2.12)	-0.0009** (2.02)	-0.0005 (0.90)
Return on Assets		-0.0008 (1.07)	-0.0002 (0.18)	0.0004 (0.42)
Residual Variance			-0.00004 (0.99)	-0.0002** (1.99)
Beta			0.037** (2.54)	0.002 (0.11)
Closely held shares (adjusted)				-0.0007 (1.16)
Dividend Yield				0.005 (1.31)
Current Ratio				-0.007 (1.48)
No. of Observations	627	582	495	232
R ²	0.458	0.464	0.461	0.668
R ² w/out country dummies	0.305	0.331	0.348	0.452

Table 4a presents regression results where the dependent variable is the December 1997 value of $y_{it} = \omega_{it}^F / \omega_{it}^M - 1$, the ratio of the weight in the U.S. portfolio of security i to the market weight, minus one. Reported are parameter estimates, with the absolute value of t-statistics computed from robust standard errors in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. Country dummies are included but not reported. The bottom two rows of the table report the adjusted R² from the same regressions but excluding country dummies and including industry dummies.

Table 4b. Holdings 1997: Latin America with Country Dummies

	(1)	(2)	(3)	(4)
Size	0.025** (2.36)	0.020 (1.55)	0.011 (0.69)	0.014 (0.63)
Turnover	0.091*** (12.28)	0.090*** (8.75)	0.099*** (7.60)	0.146*** (3.57)
Investability	0.164*** (2.93)	0.180*** (2.66)	0.146** (2.18)	0.095 (0.68)
US Listed	0.297*** (6.64)	0.318*** (6.18)	0.292*** (5.93)	0.180** (2.51)
Level I ADR	-0.011 (0.23)	-0.012 (0.22)	0.003 (0.06)	-0.043 (0.41)
Momentum		0.006 (1.00)	-0.003 (0.69)	-0.010 (1.29)
Book-to-Market		-0.002 (0.46)	-0.001 (0.24)	-0.0008 (0.04)
Leverage		-0.002* (1.65)	-0.001 (1.22)	-0.0009 (0.34)
Return on Assets		-0.003* (1.84)	-0.002 (0.86)	0.001 (0.17)
Residual Variance			-0.0003* (1.68)	-0.0012** (2.61)
Beta			0.083** (2.33)	0.072 (1.31)
Closely held shares (adjusted)				-0.0001 (0.04)
Dividend Yield				0.0008 (0.07)
Current Ratio				-0.013 (1.48)
No. of Observations	182	168	160	60
R-squared	0.513	0.509	0.527	0.658
R ² w/out country dummies	0.421	0.415	0.450	0.455

Table 4b presents regression results where the dependent variable is the December 1997 value of $y_{it} = \omega_{it}^F / \omega_{it}^M - 1$, which is the ratio of the weight in the U.S. portfolio of security i to the market weight, minus one. Reported are the parameter estimates, with the absolute value of t-statistics computed from robust standard errors in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. Country dummies are included but not reported. The bottom two rows of the table report the adjusted R² from the same regressions but excluding country dummies and including industry dummies.

Table 4c. Holdings 1997: Emerging Asia with Country Dummies

	(1)	(2)	(3)	(4)
Size	0.034*** (5.75)	0.031*** (4.06)	0.027*** (3.23)	0.314*** (2.97)
Turnover	-0.004 (1.00)	-0.003 (0.63)	-0.002 (0.23)	-0.004 (0.79)
Investability	0.138*** (3.80)	0.146*** (3.81)	0.158*** (3.51)	0.123*** (3.15)
US Listed	0.231** (2.07)	0.226** (2.03)	0.232** (2.03)	0.278*** (2.71)
Level I ADR	-0.006 (0.23)	-0.016 (0.56)	-0.015 (0.47)	0.023 (0.92)
Momentum		0.003 (1.11)	0.002 (0.61)	0.002 (0.92)
Book-to-Market		0.0003 (0.26)	-0.0007 (0.57)	0.002 (0.97)
Leverage		-0.0003 (0.96)	-0.0003 (0.68)	0.0004 (1.11)
Return on Assets		-0.0003 (0.45)	0.0004 (0.43)	0.0003 (0.38)
Residual Variance			0.000009 (0.19)	-0.00004 (0.62)
Beta			0.008 (0.60)	0.018 (1.39)
Closely held shares (adjusted)				-0.0009* (1.90)
Dividend Yield				0.005** (2.20)
Current Ratio				-0.006 (0.56)
No. of Observations	445	414	335	172
R-squared	0.285	0.275	0.271	0.410
R ² w/out country dummies	0.133	0.128	0.134	0.297

Table 4c presents regression results where the dependent variable is the December 1997 value of $y_{it} = \omega_{it}^F / \omega_{it}^M - 1$, the ratio of the weight in the U.S. portfolio of security i to the market weight, minus one. Reported are the parameter estimates, with the absolute value of t-statistics computed from robust standard errors in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. Country dummies are included but not reported. The bottom two rows of the table report the adjusted R² from the same regressions but excluding country dummies and including industry dummies.

Table 5. Holdings 1994 with Country Dummies

	Total All Firms		Latin America		Emerging Asia	
	(1)	(2)	(3)	(4)	(5)	(6)
Size	0.017** (2.34)	0.018** (2.15)	0.012 (0.67)	0.020 (0.89)	0.018*** (3.77)	0.017*** (2.92)
Investability	-0.006 (0.07)	0.080 (1.39)	-0.010 (0.07)	0.103 (1.03)	0.008 (0.23)	0.022 (0.49)
Leverage	-0.0003 (0.49)	0.00002 (0.03)	-0.002 (0.78)	-0.0003 (0.13)	0.0002 (0.66)	0.0007 (0.99)
Book-to-Market	-0.014 (1.14)	-0.024** (2.13)	-0.024 (1.30)	-0.036** (2.26)	0.015 (0.84)	0.043 (1.37)
Current Ratio		0.004 (0.47)		-0.001 (0.12)		0.010 (1.06)
Return on Assets		0.00007 (0.10)		-0.0002 (0.25)		0.003* (1.86)
US Listed	0.349*** (4.18)	0.387*** (4.61)	0.381*** (4.27)	0.401*** (4.41)	n.a.	n.a.
No. of Observations	482	372	144	127	338	245
R-squared	0.436	0.462	0.331	0.377	0.305	0.312

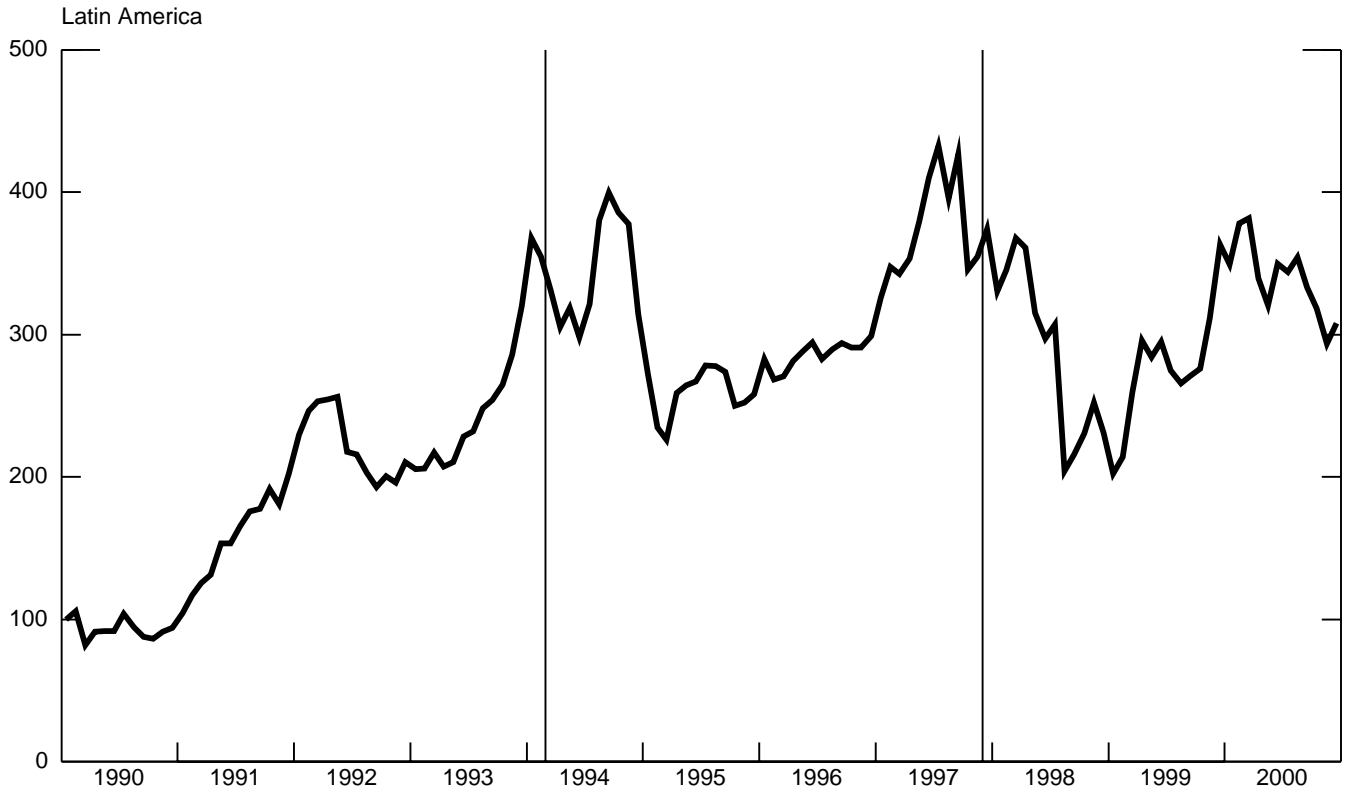
Table 5 presents regression results where the dependent variable is the March 1994 value of $y_{it} = \omega_{it}^F / \omega_{it}^M - 1$, which is the ratio of the weight in the foreign portfolio of security i to the market weight, minus one. Reported are the parameter estimates, with the absolute value of t-statistics computed from robust standard errors in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. For emerging Asia, US Listed is n.a. (not available); only one firm had cross-listed by March 1994 and including the US Listed variable would violate confidentiality requirements. Country dummies are included but not reported.

Table 6. Change in Holdings from 1994 to 1997 with Country Dummies

	Total All Firms		Latin America		Emerging Asia	
	(1)	(2)	(3)	(4)	(5)	(6)
Y 94	-0.632*** (8.76)	-0.601*** (7.68)	-0.625*** (6.55)	-0.573*** (5.33)	-0.578*** (8.24)	-0.619*** (8.41)
Size 94	0.026*** (3.66)	0.019** (2.42)	0.013 (1.01)	0.008 (0.55)	0.034*** (3.86)	0.018** (2.05)
Δ Size	0.020 (1.53)	0.008 (0.62)	0.006 (0.33)	-0.0005 (0.02)	0.015 (0.85)	0.007 (0.43)
Investability 94	0.162*** (3.41)	0.199*** (3.39)	0.152* (1.85)	0.253*** (3.02)	0.192*** (4.08)	0.154*** (2.65)
Δ Investability	0.074* (1.67)	0.115*** (2.81)	0.091 (1.26)	0.162*** (2.93)	0.018 (0.37)	0.037 (0.68)
Leverage 94	-0.001** (2.23)	-0.001** (2.18)	-0.002 (1.54)	-0.002* (1.85)	-0.001** (2.00)	-0.0006 (1.15)
Δ Leverage	-0.001*** (3.28)	-0.006 (1.47)	-0.003** (1.99)	-0.002 (1.36)	-0.001*** (3.39)	-0.006 (1.15)
Current Ratio 94		-0.004 (1.03)		-0.006 (1.11)		-0.023* (1.94)
Δ Current Ratio		0.023*** (3.06)		0.023** (2.34)		0.005 (0.37)
Return on Assets 94		0.001 (1.37)		0.0003 (0.15)		0.006*** (2.80)
Δ Return on Assets		-0.0001 (0.16)		-0.0007 (0.31)		0.000003 (0.00)
US Listed 94	0.284*** (4.63)	0.250*** (4.70)	0.251*** (4.00)	0.235*** (3.57)		
Δ US Listed	0.207*** (3.94)	0.199*** (3.81)	0.190*** (3.03)	0.160*** (2.72)	0.271*** (2.70)	0.319*** (3.30)
No. of Observations	383	292	120	104	263	188
R-squared	0.491	0.555	0.528	0.537	0.439	0.589

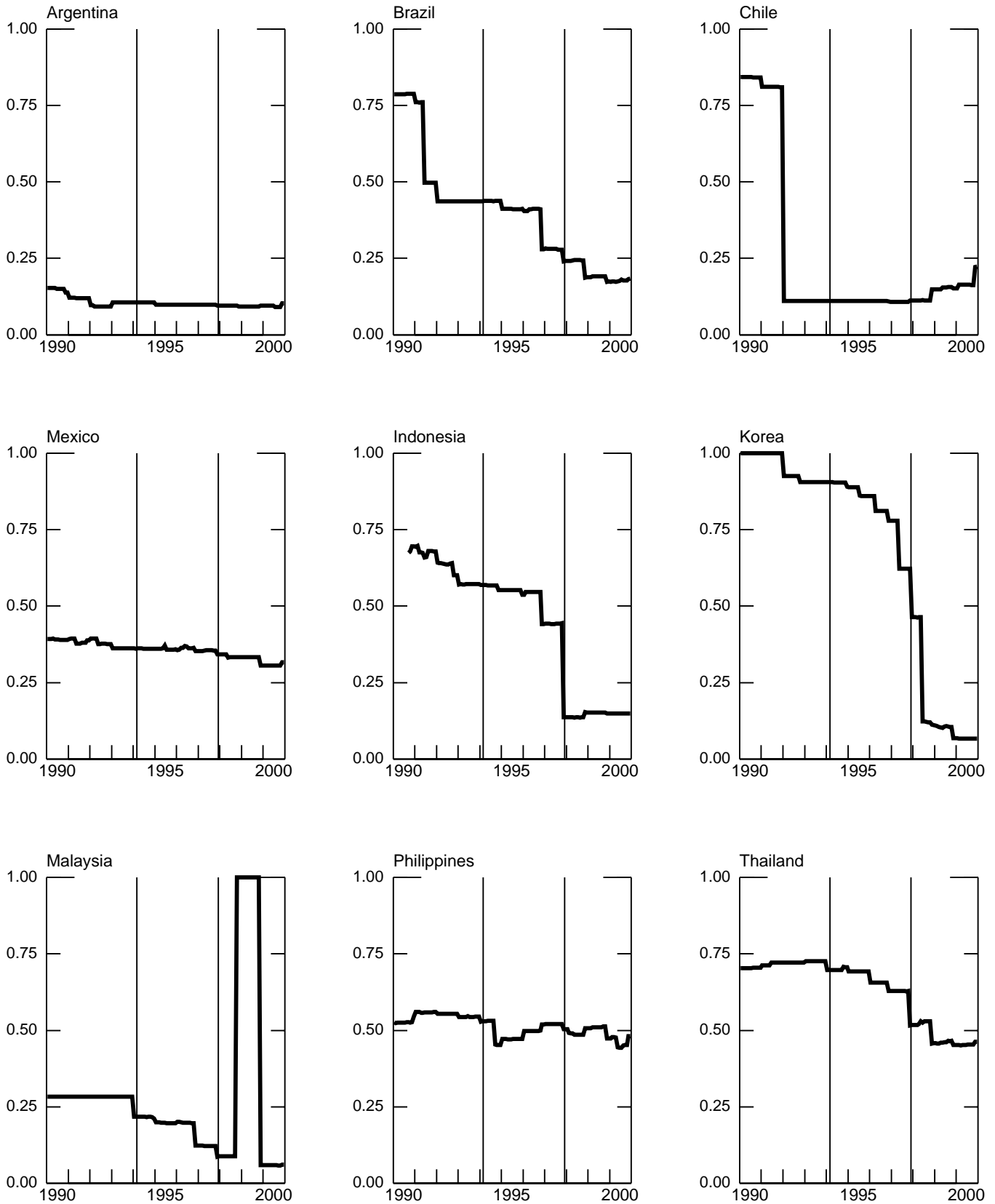
Table 6 presents regression results where the dependent variable is the change from March 1994 to December 1997 in U.S. ownership (defined as $y_{it} = \omega_{it}^F / \omega_{it}^M - 1$). Reported are the parameter estimates, with the absolute value of t-statistics computed from robust standard errors in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. Country dummies are included but not reported.

Figure 1. Equity Prices in Latin America and Emerging Asia, 1990 - 2000.



Notes. Equity prices are from the S&P/IFC EMDB Global index (rescaled so that Jan. 1990=100). Vertical lines are at March 1994 and December 1997, the dates of the benchmark surveys.

Figure 2. Restrictions on Foreign Ownership of Equities, 1990 - 2000.



Notes. Foreign ownership restrictions, which range from 0 (no restrictions) to 1 (completely closed to foreign investment), are the smoothed measure from Edison and Warnock (forthcoming).

Figure 3. Cross-Border Listings and U.S. Positions, 1997.

