

# The Performance of International Equity Portfolios

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**Abstract:** This paper evaluates the performance of U.S. investors' portfolios in the equities of over 40 countries over a 25-year period. We find that these portfolios achieved a significantly higher Sharpe ratio than foreign benchmarks, especially since 1990. We uncover three potential reasons for this success. First, U.S. investors abstained from momentum trading and instead sold past winners. Second, conditional performance tests provide no evidence that the superior (unconditional) performance owed to private information, suggesting that the successful exploitation of publicly available information played a role. Third, the documented preference for cross-listed and well-governed foreign firms appears to have served U.S. investors well. We conclude with a short discussion of the implications of our findings for the home bias literature.

**JEL Classification:** G11, G12, F21

**Keywords:** momentum, contrarian, conditional performance measures, equities, home bias

## 1. Introduction

The performance literature is vast and spans several decades. Many researchers have evaluated the performance of recommendations, either by specific investment advisors (e.g., the Black (1971) and Copeland and Mayers (1982) studies of Value Line recommendations) or by a wide range of newsletters (Graham and Harvey, 1996; Metrick, 1999). The literature on mutual fund performance blossomed in the 1960s (Sharpe, 1966; Treynor and Mazuy, 1966; Jensen, 1969) and has yet to slow (Grinblatt, Titman, and Wermers, 1995; Ferson and Schadt, 1996; Becker, Ferson, Myers, and Schill, 1999). The performance of other types of investors, including pension funds (Lakonishok, Shleifer, and Vishny, 1992; Ferson and Khang, 2002), retail investors (Barber and Odean, 2000), and insiders (Eckbo and Smith, 1999), has also been thoroughly documented. All of these studies, and the many others that they cite, share a common theme: They analyze the performance of domestic investors' domestic portfolios.

In sharp contrast, the literature on the performance of international investors' portfolios is sparse, even though cross-border trading has skyrocketed in the past few decades.<sup>1</sup> The most prominent published study is Cumby and Glen (1990), which finds that mutual funds performed poorly in 14 foreign markets, although not in a statistically significant sense. Two other studies in this relatively underdeveloped literature focus on the performance of U.K. fund managers: Shukla and van Inwegen (1995) find that their U.S. equity portfolios underperform domestic ones, while Blake and Timmermann (2004) expand the destination markets to four major regions and find similarly poor performance. Another literature that is tangentially related to performance includes

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<sup>1</sup> For example, Grier, Lee, and Warnock (2001, Table 3) show that U.S. investors' annual trading in foreign equities increased over forty-fold from the 1980s to 2000.

studies of the relationship between international capital flows and returns (e.g., Bohn and Tesar, 1996).<sup>2</sup>

In this paper we aim to fill the void in the international performance literature by evaluating the performance of the largest group of international equity investors in the world, U.S. investors, over a 25-year period. By the end of our sample, these investors had a foreign equity portfolio of nearly \$2 *trillion*, or roughly half the holdings of all foreign investors in non-U.S. markets. Our analysis of the performance and trading strategy of such a large group of international investors will add not only to the performance literature but can also shed light on other subjects, such as the home bias in equity holdings and the role of global investors in emerging market crises.

Perhaps surprisingly, we find that compared to global benchmarks U.S. investors' foreign equity portfolios earned substantially higher Sharpe ratios. This performance is particularly evident since 1990 and occurs in both emerging and developed markets. We investigate three non-mutually exclusive reasons for the strong unconditional performance: trading strategy, private information, and preferences for two types of foreign firms—well-governed and cross-listed—that have alleviated information asymmetries.

The first piece of evidence comes from a characterization of the trading strategy employed by U.S. investors. This characterization—implemented using the Badrinath and Wahal (2002) and Ferson and Khang (2002) refinement of the Grinblatt, Titman, and Wermers (1995) methodology—

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<sup>2</sup> Unpublished international performance studies include Bange, Khang, and Miller (2003), which finds little evidence of conditional skill in investment houses' portfolio recommendations across 6 markets, and Glassman and Riddick (2003), which examines fund performance in 4 markets in the late 1980s. The related (and larger) literature on the relationship between international flows and returns—for recent examples, see Froot, O'Connell, and Seasholes (2001), Griffin, Nadari, and Stulz (2004), and references therein—does not speak to portfolio performance. For example, if flows into all markets are positive and identical and all markets subsequently have positive returns, one would find a positive relationship between flows and returns in each market. This would not necessarily be superior performance if returns in some markets are stronger.

is important in its own right, as it is the first time that all U.S. investors' international trading strategy has been analyzed. In the current context, it is important because Choe, Kho, and Stulz (2004) find that foreigners' penchant for momentum trading hampers their performance. In contrast, we find little evidence of momentum trading, but very strong evidence that U.S. investors can be characterized as contrarian, especially when selling. This characterization is apparent in both developed and emerging markets and suggests that the superior performance that we document could owe to a tendency to sell past winners. It also suggests that U.S. investors as a whole do not exacerbate crises; we find no evidence of a tendency to sell past losers.

Our second investigation indicates that U.S. investors appear to have successfully traded on publicly available information. Specifically, the conditional returns-based and weight-based performance measures of Grinblatt and Titman (1993), Eckbo and Smith (1998), and Ferson and Khang (2002), which are designed to detect whether private information produced superior performance, provide no indication of superior conditional performance.

The third possible cause for the superior performance is U.S. investors' preference for cross-listed and well-governed foreign firms (Ammer, Holland, Smith, and Warnock, 2004; Lins and Warnock, 2004). Foreign firms that are cross-listed or have better expected governance have higher value, so the superior performance that we document could owe to the fact that these firms have greater weights in U.S. portfolios than in global benchmark indexes.<sup>3</sup> We show that cross-listed and governance portfolios also performed significantly better than the MSCI index, suggesting that U.S. performance owes in part to the preference for these types of firms.

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<sup>3</sup> In an international context, evidence that firms with good governance have higher value is surveyed in Claessens and Fan (2002) and Denis and McConnell (2003). Doidge, Karolyi, and Stulz (2004) show that cross-listed firms have higher value.

While much of our paper focuses on foreign portfolios, we also analyze the performance of U.S. investors' global portfolios of U.S. and non-U.S. equities. Owing to the relatively small weight of foreign securities in U.S. portfolios and to the fact that large equity markets tend to be highly correlated, this analysis is more or less reduced to a study of long swings in the dollar. When the dollar is appreciating, U.S. investors look smart as their portfolio, heavily tilted toward U.S. securities, outperforms market-capitalization-weighted global benchmarks. The opposite is true when the dollar is depreciating.

The main reason that the literature on international portfolio performance is relatively underdeveloped is that the data are difficult to obtain. Another major contribution of our paper is the formation of U.S. investors' monthly holdings in over 40 equity markets for the period from December 1976 to December 2003. The bilateral holdings data provide the country weights in U.S. investors' portfolios; armed with these weights, and assuming that within each country the market is held, we are able to compute the (unhedged) foreign returns earned by U.S. investors.<sup>4,5</sup>

Our paper proceeds as follows. In the next section we present monthly estimates of U.S. investors equity portfolios in over 40 countries over a 27-year period. In Section 3 we analyze the unconditional performance of U.S. investors' portfolio of foreign equities. In Section 4 we investigate causes of the superior unconditional performance by characterizing U.S. investors'

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<sup>4</sup> The assumption that U.S. investors hold the "market" within foreign countries is borne out of necessity but reasonable. Using the U.S. benchmark survey from March 1994 and December 1997, Edison and Warnock (2004) and Ammer et al. (2004) find that U.S. investors tend to hold foreign equities that are large and liquid, the same types of stocks that are included in the MSCI index. The assumption implies that we evaluate country-picking ability, not stock selection within markets.

<sup>5</sup> Our focus is on unhedged returns on foreign portfolios. These returns are comprised of two components, equity returns and changes in currency cross-rates. Thus, strictly speaking our study concerns the ability to pick equity markets and foreign currencies. However, to the extent that one-month currency movements are largely unforecastable—Meese and Rogoff (1983) and more recently Faust, Rogers, and Wright (2003) and Cheung, Chinn, and Pascual (2004)—this in effect reduces to the selection of equity markets.

trading strategy; examining the role of private information using conditional returns-based and weight-based performance measures; and comparing the performance of U.S. portfolios with those of well-governed and cross-listed foreign firms. In Section 5 we analyze U.S. investors' global portfolios of U.S. and non-U.S. equities. In Section 6 we present concluding remarks and discuss the possible implications of our results for the home bias in international portfolios. Details on the methodologies used to form portfolio weights, characterize trading strategies, and evaluate conditional performance are included in appendices.

## **2. U.S. Investors' International Equity Portfolios**

We use publicly available data to create monthly estimates of U.S. investors' holdings of equities in 44 countries for the period from December 1976 to December 2003.<sup>6</sup> The underlying data and the methodology are discussed in detail in Appendix A. Briefly, our methodology involves adding capital flows and valuation adjustments to a past known holdings amount (from an infrequent benchmark survey) to form naive baseline estimates.<sup>7</sup> These naive estimates, as we show below, are in many cases inaccurate, primarily because of the financial center bias in the capital flows data (Warnock and Cleaver, 2003). The benchmark survey data do not suffer from this bias, so we then adjust the capital flows to ensure that our holdings estimates are consistent with the next known holdings amount (from the next benchmark survey); the resulting holdings data are our benchmark-consistent holdings estimates. For selected countries, our naive (thin lines) and benchmark-

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<sup>6</sup> Our holdings data will be posted at [www.federalreserve.gov/pubs/ifdp/2004/817/default.htm](http://www.federalreserve.gov/pubs/ifdp/2004/817/default.htm).

<sup>7</sup> The benchmark survey data collection procedure—the large custodians who report the majority of the data do not always distinguish between types of U.S. investors—makes it impossible to identify the ultimate U.S. investor with precision. That said, the typical U.S. investor who invests in foreign securities is likely an institution. In the 1997 survey, the type of U.S. investor was denoted for \$667 billion of the reported \$1208 billion in U.S. holdings of foreign equities. Of the \$667 billion in holdings, 93 percent was held by mutual funds or pension funds.

consistent (thick lines) holdings estimates are depicted in Figures 1(a) - 1(g) for the period January 1977 – December 2003, with benchmark survey dates shown as the vertical lines at March 1994, December 1997, and December 2001. Estimates that postdate the last benchmark survey should be viewed as preliminary and are subject to substantial revisions after a new benchmark becomes available; accordingly, they will not be utilized in our performance analysis.

As shown in Figure 1a, naive estimates understated U.S. positions in foreign equities as of the 1994 and 1997 benchmarks by 36 and 20 percent, respectively. These discrepancies can mask large, offsetting errors in bilateral positions. For example, as of end-2001 the naive estimate of holdings of U.K. securities (Figure 1b) was 19 percent too low while the estimate of holdings of Canadian equities (Figure 1e) was 34 percent too high. From this point on we discard the naive estimates and proceed to analyze the benchmark-consistent estimates.

Table 1, which provides a complete list of all countries for which we estimate U.S. investors' holdings, shows the country weights in U.S. investors' foreign equity portfolios for selected years. For comparison purposes, we also include the composition of a benchmark portfolio, the MSCI World ex US. Not surprisingly, U.S. investors' foreign equity positions are heavily weighted toward developed countries. The developed country weight was over 90 percent in 1989, but fell to roughly 80 percent by the mid-1990s as emerging equity markets liberalized and became a larger portion of the global equity market. Emerging markets then shrank in both the MSCI and U.S. portfolios with the crises of the late 1990s.

A comparison of the composition of the MSCI World ex US and U.S. investors' foreign portfolios shows that U.S. investors were roughly in line with the benchmark allocations for developed and emerging markets. Within these groups, however, there were sizeable deviations from benchmark weightings. For example, European countries were overweighted, especially in the



earlier years, but less so at the end of the sample. Within Europe, early in the sample U.S. investors were particularly overweight the U.K. and the Netherlands. By the middle of the sample the Netherlands was still overweight but the U.K. less so as emphasis shifted to Scandinavian equities. In contrast to the overweighting of European markets, U.S. investors have maintained a substantial underweighting of Japanese equities throughout this period.

Within emerging markets, long-standing over- or underweightings are less apparent, with the exception of consistently large positions in Mexico and, to a lesser extent, Hong Kong. The norm in emerging markets appears to be country allocations that changes substantially over time. For example, early in the sample U.S. investors were substantially underweight Korea and Taiwan, but that ended near the end of the sample. That U.S. investors' deviations from benchmark weightings on particular emerging markets changes rather rapidly could owe to underlying characteristics of emerging markets or to the fact that U.S. investors are large relative to these markets.

### **3. Performance Analysis of Foreign Equity Portfolios**

In this section we investigate the unconditional performance of U.S. investors' portfolios of non-U.S. equities. Because our holdings estimates that postdate the last benchmark asset survey are subject to substantial revisions, for all of the performance analysis in this paper we end the sample at December 2001.

We test the unconditional performance of U.S. investors' foreign equity portfolios by asking the simple question: Did U.S. investors choose the right markets when venturing abroad? To gauge this we compare returns of the foreign portfolio of U.S. investors—the composition of which changes month-to-month—to returns of value-weighted benchmark portfolios. Not having time-

series data on security-level holdings within countries, we perform our analysis at the country level and implicitly assume that the composition of U.S. investors' holdings in each country is similar to the composition of the country's MSCI index. This simplification—imposed out of necessity—implies that we do not evaluate within country stock picking ability, but rather the cross-country allocations.

Our unconditional performance analysis (Table 2) provides evidence that, within their foreign equity portfolios, U.S. investors exhibited skill in reallocating across markets, especially after 1989. This skill is not evident in a statistically significance sense over the full sample from 1977 to 2001 (Panel A). U.S. investors' foreign portfolios earned a higher Sharpe ratio than the value-weighted foreign benchmark (11.3% vs. 9.1%), but the difference is not statistically significant; the p-value of a  $\chi^2$  test of the difference in the Sharpe ratios is 0.239. When we split the sample (Panel B), we see that the Sharpe ratios were also nearly identical in the 1977 - 1989 period. However, in the 1990 - 2001 period U.S. investors' foreign equity portfolio produced a significantly higher Sharpe ratio than the value-weighted benchmark. This superior performance was obtained through much higher average excess returns—positive 0.13 percent per month versus negative 0.11 percent—and less risk.

Panel C compares equity investment performance in different groups of countries. Because most emerging markets became important in global investment in the early 1990s—and because we have more faith in our holdings estimates that are relatively close to benchmark surveys—we focus on the period from 1990 onward. In each of the two country groups, we restrict the investment strategy to contain only assets in that group and reweight the asset allocation within a group to sum to one. The results on investment in developed and emerging markets are qualitatively similar to the aggregate results: Over this period U.S. investors' foreign equity portfolios produced

significantly higher Sharpe ratios than the value-weighted foreign portfolios.<sup>8</sup> In the next section, we attempt to ascertain the source of this strong performance.

#### **4. Reasons for the Superior Unconditional Performance**

U.S. investors earned higher Sharpe ratios than foreign benchmarks, especially since 1990. In this section we explore three non-mutually exclusive reasons for the superior (unconditional) performance: the trading strategy employed, the skillful use of publicly available information, and a preference for certain types of foreign firms that performed well over a long span of time.

##### *4.1 Trading Strategy*

The standard presumption in the international finance literature is that investors are at an informational disadvantage when they venture abroad. This view is based in part on empirical studies that have found that foreigners perform poorly when investing in countries ranging from Indonesia (Dvorak, 2004) and Korea (Choe, Kho, and Stulz, 2001) to Germany (Hau, 2001). In the theoretical model of Brennan and Cao (1997), the informational disadvantage results in returns-chasing behavior, which Choe, Kho, and Stulz (2004) argue leads to poor portfolio performance. Was the good performance we documented in spite of returns-chasing behavior, or did U.S. investors follow another trading strategy?

We describe the trading strategy of U.S. investors using the Ferson and Khang (2002) and Badrinath and Wahal (2002) refinement of the Grinblatt, Titman, and Wermers (1995) methodology;

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<sup>8</sup> We do not show performance against equally weighted portfolios because this allocation is not feasible. In December 1997, U.S. investors' foreign equity position was about \$1.15 trillion, so equal allocations across 44 countries would imply an investment of \$26 billion in each country, or more than 100 percent of the (MSCI) market capitalization of 16 countries in our sample.

details are in Appendix B. Briefly, the overall momentum statistic, LM, is intended to measure the degree to which U.S. investors actively change their portfolio holdings in the direction of the past  $k$  periods' stock returns. A significantly positive (negative) value of LM would constitute evidence of a momentum (contrarian) trading strategy.<sup>9</sup> Because investors may exhibit different styles when increasing and decreasing country weights—perhaps aggressively increasing the weights on past winners while not showing evidence of any specific trading style when reducing country weights—we also compute BM (Buy Only) and SM (Sell Only) statistics. The BM statistic will indicate whether momentum trading is evident when investors increase country weights; SM applies when investors decrease country weights.

Panel A of Table 3 shows results for the momentum measures using the past one-, two-, and three-month returns for the full sample (from 1977) and two subsamples (1977 – 1989 and 1990 – 2001). Very few of the LM (Buy and Sell) coefficients are significant, indicating that by this metric when U.S. investors venture abroad their trading strategy cannot be characterized as momentum following or contrarian. When we focus on instances in which U.S. investors increased the portfolio weight on country  $i$  (BM Buy Only), we again see very little evidence of momentum trading; the coefficients on the BM statistic are usually positive, indicating that U.S. investors moved into markets that recently performed well, but the statistic is almost never significant. In contrast, almost all of the SM (Sell Only) coefficients are negative and significant, especially in the full and more recent samples, indicating that U.S. investors exhibit a contrarian strategy when selling; that is, they sell past winners.

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<sup>9</sup> A momentum investor buys past winners and sells past losers; a contrarian investor does the opposite.

In Panel B, we separate trading in developed and emerging markets for the 1990 – 2001 period. Again, the evidence points clearly to a tendency to sell past winners. In both developed and emerging markets, most of the SM (Sell Only) statistics are significant and all are negative, more so for emerging markets. As in Panel A, evidence of momentum trading is scant: Of the 18 cells in Panel B, only one has a positive and significant coefficient, the BM (Buy Only) at lag 1 for emerging markets.

Our findings in this subsection are consistent with Badrinath and Wahal (2002), who find that institutional investors follow a contrarian strategy in the U.S. market when liquidating or adjusting existing positions. Interestingly, they find that the effect is more pronounced in small and volatile firms, which is consistent with our finding of stronger evidence of contrarian trading in emerging markets (or that foreign stocks are viewed as being similar to small domestic stocks).<sup>10</sup> Our results imply that the factor Choe, Kho, and Stulz (2004) highlight as a root cause of poor performance of foreigners—returns-chasing behavior—does not appear to be evident in our sample.

#### *4.2 The Role of Private Information: Conditional Portfolio Performance Evaluation*

U.S. investors' portfolios earned higher Sharpe ratios than global benchmarks, perhaps because of their strategy of selling past winners. It is also possible that the superior performance owed to private information or, failing that, to skill at using publicly available information. In this section, we analyze the performance of U.S. investors by accounting for the predictability in

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<sup>10</sup> At first glance, our contrarian when selling results appear to contrast with Kaminsky, Lyons, and Schmukler (2004), who find that 13 Latin American mutual funds exhibit momentum trading over the period from 1993 – 1999. However, most of their evidence pertains to LM (Buy and Sell) at a zero lag; we do not analyze contemporaneous momentum statistics because it is impossible to disentangle truly momentum trading (flows following price) from price pressure (price reacting to flows). Moreover, they do not compute BM and SM statistics, so our studies are not directly comparable.

international returns documented in Ferson and Harvey (1993) and Harvey (1995).<sup>11</sup> In other words, we ask the question of whether U.S. investors have private information that enables them to move into (out of) markets before returns are higher (lower) than anticipated from using publicly available information. If U.S. investors based their trading strategy solely on public information, the conditional measures in this section will show no evidence of superior performance. We use two types of performance evaluation methods. The first is a conditional returns-based measure (CRM) that evaluates the conditional Jensen's alpha—the abnormal returns of U.S. investors' portfolio over a benchmark factor model. The second is a conditional weight-based measure (CWM), which does not rely on an asset pricing model (Grinblatt and Titman, 1990,1993; Eckbo and Smith, 1998; and Ferson and Khang, 2002). Complete details on both measures are provided in Appendix C.

#### *4.2.1 Conditional returns-based measure*

The basic intuition behind the CRM is to assume a conditional asset pricing model and estimate it with an intercept term, the conditional Jensen's alpha. A significantly positive intercept term would be evidence of superior performance that owed to private information about future returns beyond what can be exploited from public information, whereas a portfolio strategy that

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<sup>11</sup> To capture the predictability of future returns, we use information variables that have been found to have robust predictive power for aggregate country-level expected returns (Harvey, 1991; Ferson and Harvey, 1993; and Bekaert and Harvey, 1997). These information variables include lagged changes in the short-term interest rate (U.S. Treasury three-month yield), lagged changes in term structure spread (U.S. Treasury 10-year yield minus U.S. Treasury 3-month yield), and lagged world excess returns. Consistent with the findings in Ang and Bekaert (2002) and Campbell and Yogo (2003), our (untabulated) country-by-country regressions indicate that the interest rate variables have the most power for predicting future returns. We also experimented with a lagged default spread (Moody's Baa minus Aaa bond yields) and lagged local excess returns, but found that these variables have little predictive power in most countries; including these two variables do not change our results. We do not use the local or global dividend yield. Ferson, Sarkissian, and Simin (2003) illustrate that returns prediction regressions with persistent variables such as the dividend yield tend to over-reject the null hypothesis of no predictability. Moreover, Campbell and Yogo (2003), who account for this bias in a study of the U.S. market, and Ang and Bekaert (2002) and Bekaert, Harvey, and Lundblad (2003), who use Monte Carlo simulations for a range of emerging and developed markets, find no predictive power for the dividend yield.

relied only on public information would produce an insignificant intercept term, or zero conditional Jensen's alpha.

The returns-based measure requires a stand on an asset pricing model. With no general consensus about the "correct" international asset pricing model, we utilize three widely used models. The first is the conditional global version of the CAPM with the world market portfolio as a factor.<sup>12</sup> Second, as Fama and French (1998) find that the one-factor world CAPM fails to explain the value premium in the global equity markets (that is, average returns on a high book-to-market portfolio are higher than average returns on a low book-to-market portfolio), we use a two-factor model that includes the world market portfolio and the difference between returns on a global portfolio of high book-to-market and low book-to-market firms (HML).<sup>13</sup> Lastly, Solnik (1974) and Adler and Dumas (1983) illustrate that when purchasing power parity does not hold, in addition to the world market portfolio, foreign exchange risk will be priced in financial markets. We proxy for foreign exchange risk with the excess returns from investing in foreign currencies. In principal, we should include as many currencies as we have different foreign assets. However, for tractability reasons,

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<sup>12</sup> In our asset pricing models, aggregate country-level equity indices of total (price and dividend) returns and market capitalization in U.S. dollars are from MSCI. The starting date for each country is shown in Figure A1. The MSCI World index consists of 23 developed markets with the sample starting from December 1969. Total returns indices for most developed markets are available from the beginning of our sample, January 1977, while most emerging markets indices are available from the early 1990s. All excess returns are computed over the one-month Eurodollar interest rate. Results using the MSCI All Country World index (not reported), which consists of 49 developed and emerging markets and starts in December 1987 are qualitatively similar; the sample correlation of returns computed from MSCI World and MSCI All Country World indices is 0.998.

<sup>13</sup> Our two-factor model utilizes MSCI World growth and value indices, which include 29 developed markets and are available from January 1975. MSCI All Country World growth and values indices include both developed and emerging markets and are available from December 1987. Results based on the All Country indices (not reported) are very similar to the ones using only developed markets; the sample correlation of the difference between global portfolio returns of value and growth stocks based on the MSCI World and All Country World indices is 0.999.

we only use excess returns deposited in euro (Deutsche mark before January 1999), sterling, and yen; see, e.g., Dumas and Solnik (1995) and De Santis and Gerard (1998).<sup>14</sup>

Table 4 reports estimates of the conditional Jensen's alpha,  $\alpha_p$ , under the different factor pricing model specifications and under both time-varying and constant betas. Panel A shows estimates for the full sample (1977-2001). In the left side of the panel, we use three different factor pricing models and allow beta to be time-varying. For the full sample, the CRW measure is positive but not significant, indicating that we do not find evidence of superior conditional performance. Specifically, we fail to reject the null hypothesis of no superior conditional performance, because Jensen's alpha is not significantly different from zero. In addition, we find that the time-varying risk premium is an important factor in explaining time-varying expected returns; the highly significant  $\chi^2$  test statistic (21.5) indicates a strong rejection of the null that the estimates in the vector  $\gamma$  in equation (C2), except the constant, are jointly insignificant. In the right half of the panel, we use the same factor models but, because we tested for and found little evidence of time-varying betas, constrain beta to be constant. The results—with positive but insignificant Jensen's alphas—are qualitatively similar to the results with time-varying betas.

As mentioned earlier, most emerging markets became accessible to international investors in the early 1990s. Thus, to evaluate the performance before and after U.S. investors expanded their opportunity set to include emerging markets, we investigate in Panel B two subsamples, one pre-1990 and the other from 1990 to 2001.<sup>15</sup> For both time-varying and constant betas, the results show that skill in the early period was followed by poor performance in the more recent period, although

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<sup>14</sup> Table 3 of Thomas et al. (2004) presents results, including conditional Jensen's alpha, of the conditional pricing models for each country in our sample. There is little if any evidence that our conditional asset pricing models are not valid for this set of countries.

<sup>15</sup> We estimate the model jointly but allow an estimate of Jensen's alpha for each subsample.



in neither period is the performance measure statistically significant. We also fail to reject the null hypothesis of equal, insignificant Jensen's alphas for the samples before and after 1990. Panel C shows estimates of Jensen's alpha for portfolios of developed and emerging markets from 1990, re-weighting country weights in each portfolio to sum to one. Again, we find no evidence of superior performance by U.S. investors in global equity markets; Jensen's alphas are generally negative for developed markets and positive for emerging markets, but insignificant throughout. In all samples, we tested for and found little evidence of time-varying betas, so we re-estimated constraining beta to be constant; the results are qualitatively similar.

#### *4.2.2 Conditional portfolio weight-based measure*

Because the returns-based performance measure is a joint test of investor performance and the underlying assumed asset pricing model, evidence of superior performance could come from truly superior information, failure of an asset pricing model, or both. Grinblatt and Titman (1989, 1993) propose a portfolio weight-based measure that does not rely on an assumption about an asset pricing model.<sup>16</sup> They show in the case of constant expected returns that an investor who has private information and uses that information to reallocate his portfolio weight would generate a positive estimate of the sum of the covariances between changes in portfolio weight and future abnormal returns, above a constant expected return, given a nonincreasing absolute risk aversion preference as defined in Rubinstein (1973). Such an investor would move into a market when private information indicated positive future abnormal returns and out of a market in which private information indicated negative future abnormal returns. Eckbo and Smith (1998) and Ferson and Khang (2002) extend this framework to allow for time-varying expected returns. Under

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<sup>16</sup> This approach also mitigates interim trading bias, which refers to a bias when trading is carried out at a higher frequency than holdings observations.

time-varying expected returns, an investor would move into (out of) the market when private information indicates a positive (negative) abnormal return—above an expected return predicted from using public information. Evidence of private information would be a positive estimate of the sum of the conditional covariances between changes in portfolio weight and future abnormal returns.

Table 5 shows estimates of the average conditional portfolio weight measure,  $\phi_p$ , estimated from the system of equations (C9) and (C10). The top panel shows estimates of CWM for the full sample period against one-, two-, and three-month benchmark buy-and-hold strategies ( $k=1, 2, 3$ , respectively). The CWM is always positive, but never significant. That is, we find no evidence of superior conditional performance by U.S. investors, implying that U.S. investors do not have private information about future returns above what is available publicly. The results in the bottom panels are qualitatively similar. CWM is higher in the more recent period, but not significantly so; similar to the results for the full sample, we find no evidence of superior conditional performance in the early or more recent period (Panel B). For portfolios of developed and emerging markets (Panel C) from 1990, we again find no evidence of superior conditional performance.

In summary, the evidence in this subsection does not suggest that U.S. investors utilized private information to obtain the high Sharpe ratios documented in Section 3. Thus, one can conclude that the superior unconditional performance owes at least in part to the successful processing of publicly available information.

#### *4.3 Preferences for Cross-Listed and Well-Governed Foreign Firms*

The superior unconditional performance we documented could have owed to active reallocations between foreign markets from month to month or, alternatively, to a general preference for certain stocks or countries that performed well *ex post*. U.S. investors exhibit a preference for

cross-listed firms (Ammer et al., 2004) and firms that do not have poor expected corporate governance (Lins and Warnock, 2004), and these preferences are also evident in their country allocations (Ahearne et al., 2004; Dahlquist et al., 2003). Foreign firms that are cross-listed or have better expected governance have higher value, so the superior performance that we document could owe to the fact that these firms have greater weights in U.S. portfolios than in global benchmark indexes.<sup>17</sup>

Data limitations preclude us from rigorously testing whether the high Sharpe ratio obtained by U.S. investors' foreign equity portfolios owed to their preference for cross-listed or well-governed firms. However, we can conduct a simple comparison of the performance of two portfolios, which we call Governance and Cross-Listed, with the performance of U.S. investors' and MSCI portfolios. Firms whose shares are closely held are more likely to have agency and entrenchment problems that erode shareholder value, so dispersed ownership is one proxy for good corporate governance (Claessens, Djankov, and Lang, 2000; Faccio and Lang, 2002; Lins, 2003). Hence, we form the governance portfolio by using (one minus) the Dahlquist et al. (2003) country-level measure of insider holdings. Similarly, the cross-listed portfolio is formed using the Ahearne et al. (2004) data on the percent of each foreign market that is available on a U.S. exchange. Because time-varying measures of insider holdings and cross-listings are not readily available, we form these portfolios using fixed, end-1997 weights.

The first two columns of Table 6 reproduce numbers from Table 2. As noted, over the period from 1990 to 2001, U.S. investors outperformed the MSCI index by earning higher returns with less risk. The governance and cross-listed portfolios (columns c and d) performed even better, cross-

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<sup>17</sup> See Claessens and Fan (2002) and Denis and McConnell (2003) for recent surveys on the international corporate governance literature, and Doidge, Karolyi, and Stulz (2004) on the value impact of cross-listing.

listed significantly so. Thus, it would appear that by overweighting foreign firms that are cross-listed and have good corporate governance—and, thus, overweighting foreign countries whose firms tend to cross-list or be well governed—U.S. investors were able to obtain superior portfolio results.<sup>18</sup> We take the evidence in Table 6 as providing partial support for the notion that the superior performance we have documented owes at least in part to U.S. investors' preferences for a subset of foreign firms (cross-listed and well-governed ones) that have less severe information asymmetries and performed better than the world value-weighted portfolio.

## 5. The Performance of Global Equity Portfolios

While the focus of our study is on foreign portfolios, in this section we briefly analyze the performance of U.S. investors' *global* portfolios of U.S. and foreign equities. As Figure 2 shows, U.S. portfolios are heavily tilted toward U.S. equities. As we will show, in a world with home bias and high correlations between major equity markets, global performance owes first and foremost to long swings in the exchange value of the dollar.

We begin with some background information. Columns (a)-(c) of Table 7 report the performance of value-weighted benchmarks. These columns indicate whether—from the perspective of a U.S. investor—foreign markets provided higher risk adjusted returns than U.S. markets. Foreign returns in column (b) are comprised of monthly (unhedged) excess returns in 44 countries; global returns (column c) are a value-weighted average of these 44 markets and the U.S. market.

Equity market performance over the 1977 - 2001 period (Panel A) was quite similar in the U.S. and abroad, with the Sharpe ratio on U.S. stocks (12.5%) only slightly higher than on foreign

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<sup>18</sup> When we also constrain U.S. and MSCI portfolios to have fixed end-1997 weights (not shown), the same conclusion is reached.

stocks (9.1%). This similarity masks considerable differences in subsamples (Panel B): In dollar terms, foreign stocks outperformed U.S. stocks in the 1977-1989 period (Sharpe ratio of 19.5% vs. 9.2%) by providing much higher returns at comparable risk. In contrast, U.S. markets produced a much higher Sharpe ratio in the 1990-2001 period (16.3% vs. -2.2%), when foreign stocks had negative excess returns and higher volatility.

Column (d) of Table 6 reports statistics on the global portfolios of U.S. investors. In these portfolios, which are comprised of securities from the same 44 foreign markets in column (c) as well as U.S. securities, the weights change monthly as U.S. investors reallocate across countries. A comparison of columns (c) and (d) shows that over the period from 1977 to 2001 U.S. investors' global equity portfolios performed better than the value-weighted global portfolio, but not significantly so; the p-value of a  $\chi^2$  test of a difference between the Sharpe ratios is 0.698. Given the very low weight of foreign securities in U.S. portfolios and high correlations between major equity markets, this result was foreshadowed by the relative performance of the value-weighted benchmarks. Over the entire sample, U.S. equity markets performed slightly better than foreign equity markets; thus, U.S. investors' global equity portfolios—heavily weighted toward U.S. equities—performed slightly better than the global benchmark. Similarly, in the pre-1990 period when foreign markets performed better than the U.S. market, U.S. investors' global portfolios underperformed the global benchmark (Sharpe of 0.095, compared to 0.165 for the global benchmark), although the difference in Sharpe ratios is not statistically significant. In the more recent period (1990-2001), U.S. markets outperformed and U.S. investors' global portfolios had a Sharpe ratio of 0.152, significantly greater than the Sharpe ratio of the global market portfolio (0.044).

Figure 3a depicts the evidence for equity portfolios in a different way. The solid line shows the difference, since end-December 1976, between the total excess return on U.S. residents' holdings of U.S. equities and the total excess return on U.S. residents' holdings of foreign equities (expressed as a percent of the total excess return to holding U.S. equities).<sup>19</sup> When this measure is increasing, as occurred in the early 1980s and for most of the 1990s, U.S. investors earned higher rates of return on their domestic portfolios than they did on their foreign portfolios. When the measure is decreasing, as occurred in the late 1970s and late 1980s, foreign returns are stronger than U.S. returns. The fact that the line ends near zero indicates that over the entire period U.S. investors earned similar rates of return on their foreign and U.S. equity portfolios.

The dashed line in Figure 3a depicts an asset-weighted index of the exchange value of the dollar, formed by aggregating bilateral exchange rates according to countries' weights in U.S. investors' foreign equity portfolio.<sup>20</sup> An increase in the dollar index represents dollar appreciation. The sample correlation between the dollar index and the relative returns differentials is positive 0.70, indicating that the relative performance of foreign and U.S. equities owes significantly to movements in the dollar. From the perspective of a U.S. investors, when the dollar appreciates—as in the early 1980s and late 1990s—U.S. markets outperform. When the dollar depreciates—as in the late 1970s and late 1980s—the foreign portfolio performs much better. This is not terribly

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<sup>19</sup> Relative returns differentials in Figure 3a are a measure of the difference, since end-December 1976, between the total excess return on U.S. residents' holdings of U.S. equities and the total excess return on U.S. residents' holdings of foreign equities (expressed as a percent of the total excess return to holding U.S. equities). Specifically, it is computed as follows:

$$\left( \prod_{j=1}^t (1+r_{us,j}) - \prod_{j=1}^t (1+r_{f,j}) \right) / \prod_{j=1}^t (1+r_{us,j})$$

where  $j=1$  corresponds to January 1977;  $t$  corresponds to the point plotted on the graph; and  $r_{us}$  and  $r_f$  refer to U.S. and foreign (dollar) returns, respectively.

<sup>20</sup> The index is formed as  $I_t = I_{t-1} \prod_j (e_{j,t}/e_{j,t-1}) w_{j,t}$ , where  $e_{j,t}$  is currency  $j$  per dollar and  $w_{j,t}$  is the time  $t$  weight of country  $j$ 's equities in U.S. investors' foreign equity portfolio. Further details and dollar indices formed using other weighting schemes are in Rogers and Warnock (2004).

surprising, but suggests that the relative performance of U.S. investors' global equity portfolios owes importantly to long swings in the dollar.

Figure 3b provides yet another way of looking at our full sample results. The figure shows the Sharpe ratio for portfolios comprised of U.S. and foreign equities. The foreign component is formed by aggregating country returns using two different (time-varying) weighting schemes: a benchmark scheme that uses market weights (dotted line) and a scheme using the country weights in U.S. investors' foreign equity portfolios (solid line). A portfolio of all U.S. equities and a zero weight on foreign equities is represented at the left axis. The maximum point on each line, indicated by a triangle, represents the maximal Sharpe ratio attainable by mixing U.S. equities with the benchmark (market-cap-weighted) and U.S. investors' foreign portfolios. Consistent with our statistical tests, the figure shows evidence of skill in choosing country weights within the foreign portfolios: The Sharpe ratios of portfolios formed with country weights from U.S. investors' foreign portfolios (solid line) are everywhere greater than those from value-weighted foreign portfolios (dashed line). That said, there is evidence of unexploited international diversification benefits; U.S. investors attained a Sharpe ratio of about 0.121 on their global portfolio (not shown), but could have done better had they the (*ex post*) optimal weight of foreign equities of about 23 percent in a value-weighted benchmark portfolio or 40 percent using their foreign portfolios.

## 6. Conclusion

U.S. investors substantially increased the weight of foreign equities in their portfolios by the early 1990s, in time for a decade long surge in U.S. equity prices. Does this poor timing portend poor skill in choosing among investments abroad? Not necessarily. Our evidence indicates that while the movement into foreign markets was inopportune (*ex post*), U.S. investors exhibited skill

in choosing the country composition within their foreign portfolios. In particular, the Sharpe ratio on U.S. investors' foreign equity portfolio is significantly greater than that on foreign benchmarks, especially since 1990. Subsequent analysis suggests that this superior (unconditional) skill owes to three non-mutually exclusive factors: the selling of past winners and avoidance of returns-chasing behavior, the successful use of publicly available information, and a preference for cross-listed and well-governed foreign firms.

Another important contribution of this paper is the formation of monthly bilateral estimates of U.S. investors' holding of the equities of 44 foreign countries for the period from December 1976 to December 2003. These holdings data should be useful for many other applications going forward. We showed one application here, the formation of a portfolio-weighted exchange rate index. Other applications include using the monthly bilateral holdings data in empirical models of exchange rate determination (Rogers and Warnock, 2004) and in descriptions of external adjustment (Freund and Warnock, 2004).

Our results have implications for the home bias literature. It is well known that foreign securities have only a small weight in investors' portfolios, but it is not known whether this weight is inordinately small, in part because we have not had a clear picture of the returns investors earn on their foreign portfolios. If investors are at a severe informational disadvantage when they venture abroad, the optimal weight on foreign securities would be far smaller than implied by standard metrics.<sup>21</sup> One interpretation of the skill exhibited by U.S. investors that we document is that information asymmetries are not severe: If investors are at a substantial disadvantage when they venture abroad, it would be unlikely that U.S. investors could reallocate across foreign markets in

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<sup>21</sup> For models with barriers to international investment, see Black (1974), Stulz (1981), Merton (1987), and Gehrig (1993).



a manner that would produce superior portfolio performance—even in an unconditional sense—over a full decade. A competing interpretation, for which we find some supporting evidence, is that information asymmetries may well be severe and U.S. investors performed well precisely by investing in the types of firms (cross-listed or well governed) that have alleviated barriers to international investors.

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## Appendix A. Creating Monthly Bilateral Equity Positions

### Data Requirements

To create monthly estimates of U.S. investors' holdings of equities, we use data from infrequent benchmark surveys as well as data on capital flows, valuation adjustments, transaction costs, and merger-related stock swaps.

*Bilateral capital flows.* U.S. residents' foreign securities transactions have been reported monthly since January 1977 to the Treasury International Capital Reporting System (TIC), mainly by brokers and dealers. For foreign long-term securities, these mandatory reports contain information on gross purchases and gross sales (at market value); the country of the foreign counterparty to the transaction; and that the foreign security was an equity. For the purposes of estimating bilateral positions, there is geographic bias in the TIC data because the data indicate the countries through which U.S. residents purchase foreign securities, but not the residence of the issuer of the foreign security. It is commonly assumed that the transactor country is the same as the country in which the security's issuer is resident, but trades conducted through intermediaries in third countries, such as the financial centers of the United Kingdom and the Caribbean, violate this assumption. The TIC data are available at [www.treas.gov/tic](http://www.treas.gov/tic).

*Benchmark asset surveys.* Data on U.S. holdings of foreign securities, available at [www.treas.gov/fpis](http://www.treas.gov/fpis), are collected in detailed but infrequent security-level benchmark asset surveys conducted in March 1994, December 1997, and December 2001.<sup>22</sup> Reporting to the surveys is mandatory, with penalties for noncompliance, and the data received are subjected to extensive analysis and editing. For asset surveys (of U.S. holdings of foreign securities), the reporters consist mainly of large custodians and large institutional investors. Holdings of U.S. private investors are included to the extent they were through U.S. mutual funds or entrusted to U.S.-resident custodians for safekeeping. For our purposes, it is important to note that there is no geographical bias in the asset survey data; security-level identifiers (e.g, ISIN or SEDOL) provide information on the issuer's country of residence and ensure that the country attribution of the data is accurate.<sup>23</sup>

*Valuation adjustments.* Data availability for foreign equity indexes are depicted in Figure A1. We use country-level MSCI price return indexes, which are composed of large and liquid equities, the type of equities typically held by international investors (Kang and Stulz, 1997; Edison and Warnock, 2004; Ammer, Holland, Smith, and Warnock, 2004). For most emerging markets, MSCI equity data begin in December 1987; for these countries, prior to the MSCI

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<sup>22</sup> Details of the 2001 asset survey, including findings and methodology, are discussed in Treasury Department et al. (2003). Grier, Lee, and Warnock (2001) is a primer on the surveys. Asset surveys are now more frequent; starting in December 2003 annual "mini" surveys supplement the quinquennial full benchmarks.

<sup>23</sup> ISIN (International Security Identification Number) and SEDOL (Stock Exchange Daily Official List) are the two primary security identification systems for non-U.S. securities.



starting date we rely on S&P/IFC Global returns.<sup>24</sup>

*Transaction costs.* The TIC data are reported gross at cost including commissions and taxes, so to compute the value of securities bought or sold, an adjustment for transaction costs must be made. For one-way transaction costs in equities, we use Elkins-McSherry estimates of commissions and fees charged institutional investors.<sup>25</sup>

*Stock swaps.* The TIC data do not include equities acquired through merger-related stock swaps. For example, when a foreign company acquires a U.S. firm, one form of financing the deal is an exchange of equity in which shareholders of the target (U.S.) firm are given stocks in the acquiring (foreign) firm. To continue with this example, if the acquisition of foreign stocks through swaps results in a greater-than-desired weighting on foreign stocks in U.S. equity portfolios, U.S. residents will sell foreign stocks to rebalance their portfolios, and such sales are reported to the TIC system. Since the TIC system does not capture the initial acquisition, but should capture associated sales, measures of stock swaps must be included in any analysis of asset holdings.<sup>26</sup> Stock swaps swelled in importance in 1998 and 1999, when U.S. residents acquired over \$100 billion each year in foreign stocks through swaps, due largely to the megamergers of Daimler Chrysler, BP Amoco, and Airtouch Vodafone.

## Methodology

### *Naive baseline estimates*

To form naive baseline estimates, we start from one benchmark survey amount and use the Warnock and Cleaver (2003) methodology to form monthly estimates through the date of the next benchmark survey. End-of-month holdings are formed by adjusting the previous month's holdings for estimated price and exchange rate changes and adding the current month's (transaction cost-adjusted) net purchases and equities acquired through stock swaps. Specifically, we use the following formula to form naive estimates of U.S. investors' holdings of country  $i$ 's equities at the end of period  $t$ :

$$nh_{i,t} = nh_{i,t-1}(1+r_{i,t}) + gp_{i,t}(1-tc_i) - gs_{i,t}(1+tc_i) + ss_{i,t} \quad (A1)$$

where

$nh_{i,t}$  naive estimates of U.S. holdings of country  $i$ 's equities at the end of month  $t$

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<sup>24</sup> S&P/IFC Global or Investable indices are both reasonable choices for equity returns, but these are less readily available for the current period so we use the more accessible MSCI indices.

<sup>25</sup> See [www.elkins-mcsherry.com](http://www.elkins-mcsherry.com), Willoughby (1998), and Domowitz, Glen, and Madhavan (2001) for discussions of the Elkins-McSherry data. Lesmond (2002) studies transaction costs in emerging equity markets, but to have one source for both emerging markets and developed countries, we use Elkins-McSherry data.

<sup>26</sup> In their presentation of U.S. capital flows data, the Bureau of Economic Analysis (BEA) includes estimates of stock swaps. Aggregate stock swaps data are now posted on the TIC web site. Our data on bilateral stock swaps are from Security Data Corporation.

$r_{i,t}$  returns from period  $t-1$  to  $t$ , computed from appropriate price indices  
 $gp_{i,t}$  gross purchases of country  $i$ 's equities by U.S. residents during month  $t$   
 $gs_{i,t}$  gross sales of country  $i$ 's equities by U.S. residents during month  $t$   
 $tc_i$  a constant adjustment factor for transaction costs in country  $i$   
 $ss_{i,t}$  country  $i$ 's equities acquired by U.S. residents through stock swaps during month  $t$

The initial values of each  $nh_i$ , holdings in country  $i$  as of December 1976, predate benchmark surveys and must be estimated. To do so we assume that the country distribution of holdings from the first asset survey (1994) is the same as the country distribution in December 1976, and apply those shares to aggregate end-1976 holdings as published by the BEA.<sup>27</sup>

#### *Benchmark-consistent estimates*

Our benchmark-consistent estimates combine the naive baseline estimates with holdings from the infrequent benchmark surveys. For example, to form estimates for the April 1994 - November 1997 inter-survey period, we start from the March 1994 benchmark survey amount and apply equation (A1) to form estimates to December 1997. Doing so results in a naive estimate of holdings as of December 1997 ( $nh_{i,T}$ ) that differs from holdings as given by the benchmark survey ( $bh_{i,T}$ ) by an amount,  $gap_{i,T}$ :

$$gap_{i,T} = bh_{i,T} - nh_{i,T} \quad (A2)$$

One candidate cause for the gap is errors in the capital flow data. Assuming that such errors are larger in months with greater trading activity, we add to each inter-survey month an amount that is a function of the gap and the proportion of inter-survey trading activity that occurred in that month.<sup>28</sup> That is, we add to month  $t$ 's net purchases of country  $i$ 's securities an adjustment given by:

$$adj_{i,t} = gap_{i,T} * adjfactor_i * \frac{gp_{i,t} + gs_{i,t}}{\sum_{k=1}^T gp_{i,k} + gs_{i,k}} \quad (A3)$$

where periods  $I$  and  $T$  span the entire inter-survey period. For each country (and each inter-survey period), everything on the right side of (A3) is given except  $adjfactor_i$ , which we choose to minimize the distance at time  $T$  between benchmark holdings and our adjusted holdings estimates:

---

<sup>27</sup> Our results are robust to different starting values, such as zero or 1994 positions scaled by the distribution of 1977 trading. We cannot use BEA data on bilateral positions because it is limited to selected countries for a limited number of years. Annual BEA estimates of U.S. positions in foreign securities, without country detail, is provided in Table 2 of Nguyen (2002). In general, our aggregate estimates are similar in spirit to BEA's but will differ in all cases except when a benchmark survey was conducted at the end of a year (1997 and 2001).

<sup>28</sup> Another way to form estimates is to assume that there are errors in valuation adjustments. For example, investors might beat the market by  $x$  percentage points per month or earn returns that are more volatile than the market.

$$\min |bh_{i,T} - h_{i,T}| \quad (\text{A4})$$

where our adjusted holdings estimates,  $h_{i,t}$ , evolve according to

$$h_{i,t} = h_{i,t-1}(1+r_{i,t}) + gp_{i,t}(1-tc_i) - gs_{i,t}(1+tc_i) + ss_{i,t} + adj_{i,t} \quad (\text{A5})$$

and, for all  $t$ , we impose a non-negativity constraint on our holdings estimates:

$$h_{i,t} \geq 0 \quad (\text{A6})$$

Because the adjustment for any period  $t$  must be part of the revaluation that produces period  $t+1$  holdings (and so on), this is not a simple linear problem and, accordingly, we employ a grid-search method to solve for the adjustment factor.

It is worthwhile to note three features of our adjustment factor. First, it is both country-specific and inter-survey-period-specific, so a country's adjustment factor is independent of any other country's estimate and can differ across inter-survey periods. Second,  $adjfactor_i$  is constant for a given country and inter-survey period, but the adjustment itself,  $adj_{i,t}$ , is time-varying. Third, for the period after the last survey we cannot form adjustment factors and so apply  $adjfactor_i$  from the previous inter-survey period; to the extent that the relationship of global financial centers and capital flows changed after the last benchmark, our estimates that post-date the most recent survey will incorporate the wrong adjustment factors.

We form estimates for each country starting in December 1976. For some countries, however, we do not have complete source data. For example, the equity price data for the Philippines starts in 1985. Where we have no source data, we assume zero (e.g., flat returns). For returns, all such cases are indicated by white space in Figure A1. For our performance analysis, missing data are irrelevant because we bring each country into the analysis at the start date of its returns data.

## Appendix B. Measures of Momentum Trading

To identify momentum trading strategies, we use the Ferson and Khang (2002) and Badrinath and Wahal (2002) refinement of the methodology of Grinblatt, Titman, and Wermers (1995). Define  $X_{i,t}$  as the active change in the weight of country  $i$  in U.S. investors' foreign portfolio at time  $t$ :

$$X_{i,t} = w_{i,t} - w_{i,t-1} \left( \frac{1 + r_{i,t}}{1 + r_{p,t}} \right) \quad (\text{B1})$$

where  $r_{i,t}$  is the return on country  $i$  equities from period  $t-1$  to  $t$ ;  $r_{p,t}$  is the return on U.S. investors' foreign portfolio, defined as  $r_{p,t} = \sum_{i=1}^{N_t} w_{i,t-1} r_{i,t}$ ; and  $w_{i,t}$  is the weight of country  $i$  at time  $t$  in U.S. investors' portfolio. Note that for a buy-and-hold strategy  $X_{i,t}$  equals zero. We compute the following momentum or contrarian measure, LM, for lags of  $k = 1, 2$ , and 3:

$$LM = \frac{1}{T} \sum_{t=1}^T \sum_{i=1}^{N_t} X_{i,t} (r_{i,t-k} - r_{p,t-k}) \quad (\text{B2})$$

where  $N_t$  is the number of countries held in the portfolio at time  $t$ . A significantly positive (negative) value of LM would constitute evidence of a momentum (contrarian) trading strategy.

U.S. investors may follow momentum strategies only when buying or selling. To test this, we follow Grinblatt et al. (1995) and Badrinath and Wahal (2002) and jointly compute separate momentum statistics for buy and sell:

$$BM = \frac{1}{T} \sum_{t=1}^T \sum_{i=1}^{N_t} \sum_{X_{i,t} > 0} X_{i,t} (r_{i,t-k} - r_{p,t-k}) \quad (\text{B3})$$

$$SM = \frac{1}{T} \sum_{t=1}^T \sum_{i=1}^{N_t} \sum_{X_{i,t} < 0} X_{i,t} (r_{i,t-k} - r_{p,t-k}) \quad (\text{B4})$$

where BM (SM) is a measure of momentum when investors buy (sell) securities. In order to ensure that the buy and sell momentum statistics converge to zero under the null hypothesis of no momentum trading, we subtract total foreign portfolio returns from country returns.<sup>29</sup> We estimate the momentum measures via generalized method of moments (GMM) for both the overall measure (B2) and jointly for BM (B3) and SM (B4).

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<sup>29</sup> This adjustment is similar to that in the security-level analysis of Grinblatt et al. (1995) and Badrinath and Wahal (2002), who subtract security  $j$ 's return from an expected return for security  $j$ , which is proxied by a 12-month ahead return. We also compute buy and sell momentum measures by replacing the return on the total foreign portfolio with a 12-month ahead country return. The results (not shown) are qualitatively similar.

## Appendix C. Conditional Performance Measures

### Conditional returns-based measure

Our implementation of a conditional returns-based performance measure closely follows Eckbo and Smith (1998). We assume that the conditional expected excess returns follow a  $K$ -factor equilibrium model (see, for example, Connor and Korajczyk (1995)),

$$E(r_{i,t+1}|\Omega_t) - r_{f,t} = \sum_{j=1}^K \beta_{ij}(\Omega_t) \lambda_j(\Omega_t) \quad (C1)$$

where  $E(\cdot|\Omega_t)$  denotes the mathematical expectation given  $\Omega_t$ , the set of all publicly available information at time  $t$ ;  $r_{f,t}$  is risk-free interest rate from holding period  $t$  to  $t + 1$ , which is known at time  $t$ ; and  $\beta_{ij}(\Omega_t)$  and  $\lambda_j(\Omega_t)$  are, respectively, the systematic risk exposure of asset  $i$  to risk factor  $j$  and the risk premium of factor  $j$ , which are both functions of  $\Omega_t$ . We further assume that the time variation of systematic risk exposure to the factor (beta) and the factor risk premium follow linear functions of a smaller set of public information variables,  $Z_t$ , that is a subset of  $\Omega_t$ .

Following Ferson and Harvey (1993), Ferson and Korajczyk (1995), and Eckbo and Smith (1998), equation (C1) can be estimated for U.S. investors' portfolio,  $p$ , with an intercept term,  $\alpha_p$ . The performance measure,  $\alpha_p$ , can be estimated via GMM with the following moment conditions:

$$e_{\lambda,t+1} = F_{t+1} - \gamma' Z_t \quad (C2)$$

$$e_{\beta,t+1} = (e_{\lambda,t+1} e_{\lambda,t+1}') (\kappa' Z_t) - e_{\lambda,t+1} r_{p,t+1} \quad (C3)$$

$$e_{CRW,t+1} = r_{p,t+1} - \alpha_p - (\gamma' Z_t) (\kappa' Z_t) \quad (C4)$$

The parameters of the model are  $\gamma$ ,  $\kappa$ , and  $\alpha_p$ , where  $F$  is vector of  $K$  factor returns and  $r_p$  is the return of portfolio  $p$ . Equation (C2) is a  $K$  vector of errors from estimating a linear function of factor risk premiums on information variables. Equation (C3) is a  $K$  vector which can be viewed as errors from estimates of conditional betas that are linear functions of information variables  $\kappa' Z_t$ , where  $\beta = \text{Var}(F_{t+1}|Z_t)^{-1} \text{Cov}(F_{t+1}, r_{p,t+1}|Z_t)$ .  $L$  is the number of information variables. Equation (C4) is the error from estimating a conditional Jensen's alpha, an average difference between the return from the portfolio and returns implied from the  $K$ -factor model.

We set up the following system of moment conditions

$$g_t = \begin{bmatrix} e_{\lambda} \cdot Z_t \\ e_{\beta} \cdot Z_t \\ e_{CRW} \end{bmatrix} \quad (C5)$$

and

$$\mathbf{g} = \frac{1}{T} \sum_{t=1}^T \mathbf{g}_t \quad (\text{C6})$$

The sample moment conditions  $\mathbf{g}$  are a  $2 \times K \times L + 1$  vector, and the GMM estimates are obtained by minimizing the function  $\mathbf{g}' \mathbf{W} \mathbf{g}$ , where  $\mathbf{W}$  is a positive-definite matrix (Hansen (1982)). We perform a two-step iterative GMM estimation and use the Newey-West (1987) covariance matrix for  $\mathbf{W}$ .

In the conditional returns-based measure, a significantly positive intercept term (the conditional Jensen's alpha) would be evidence of superior performance that owed to private information about future returns beyond what can be exploited from public information.

#### *Conditional portfolio weight-based measure*

Our implementation of a conditional weight-based performance measure closely follows Eckbo and Smith (1998) and Ferson and Khang (2002), who extended the Grinblatt and Titman (1989, 1993) framework to allow for time-varying expected returns. Under time-varying expected returns, an investor would move into (out of) the market when private information indicates a positive (negative) abnormal return—above an expected return predicted from using public information. The estimate of the sum of the conditional covariances is defined as

$$\sum_{i=1}^{N_t} \text{Cov}(w_{i,t}, r_{i,t+1} | \Omega_t) = \sum_{i=1}^{N_t} E[(w_{i,t} - w_{i,t}^b)(r_{i,t+1} - E(r_{i,t+1} | \Omega_t)) | \Omega_t] \quad (\text{C7})$$

where  $w_{i,t}^b$  is the benchmark weight of country  $i$  at time  $t$ . The benchmark could be any portfolio weight which we want to measure the performance against; in this paper we use a buy-and-hold strategy. The buy-and-hold strategy weight of lag  $k$  is defined as

$$w_{i,t}^b = w_{i,t-k} \prod_{\tau=t-k+1}^t \left( \frac{1 + r_{i,\tau}}{1 + r_{p,\tau}} \right) \quad (\text{C8})$$

This is a general form of a buy-and-hold strategy from the second-term of equation (B1) in the case of  $k = 1$ . We estimate the conditional portfolio weight-based measure via GMM:

$$e_{i,t+1} = r_{i,t+1} - \mathbf{b}_i' \mathbf{Z}_t \quad (\text{C9})$$

$$e_{CWM,t+1} = \sum_{i=1}^{N_t} (w_{i,t} - w_{i,t}^b) e_{i,t+1} - \phi_p \quad (\text{C10})$$

Equation (C9) is an  $N$  vector of errors from estimating a linear function of future excess returns on information variables when  $N$  is the maximum value of  $N_t$  for the full sample. The date at which each country enters our U.S. portfolio evaluation is depicted in Figure A1. Each error in equation (C9) has an interpretation of an abnormal return. Equation (C10) is the error from estimating an average of the conditional covariances between changes in portfolio weights and

future abnormal returns.  $\phi_p$  is the average of conditional weight measure across the full sample. We set up the following system of moment conditions

$$g_t = \begin{bmatrix} e_i \cdot Z \\ e_{CWM} \cdot Z \end{bmatrix} \quad (C11)$$

The vector of sample moment conditions  $g$  is a  $NL+L$  vector, and the parameters are  $N$  vectors of  $L$  by 1 ( $b_i$ ) and a scalar  $\phi_p$ .

The starting date in our large panel of international data varies by country. MSCI total return data are available for the full sample for developed markets and from the early 1990's for emerging markets. We could estimate the model starting from the date at which we have all country returns data. Instead, we exploit all available information by using the whole sample and including an indicator variable to control for missing values. Following Bansal and Dahlquist (2000), we define  $I_{i,t}$  which indicates variable denoting data availability for a country  $i$  at time  $t$ , as

$$I_{i,t} = \begin{cases} 1, & \text{if data is observed at } t \text{ for country } i \\ 0, & \text{if data is not observed at } t \text{ for country } i \end{cases} \quad (C12)$$

The key assumption is that  $I_{i,t}$  is independent of the error terms from equations (C9) and (C10), which implies that data are missing randomly. This assumption would be violated if, for example, missing data were all in periods with abnormally high excess returns, which is not likely the case. The indicator variable will in effect fill in missing values with zeros. We modify the error term in equation (C9) by multiplying it with this indicator variable, which in turn will affect equation (C10) through the modified error term. Our augmented set of moments conditions are

$$g_t = \begin{bmatrix} e_i \cdot Z \cdot I_{i,t} \\ e_{CWM} \cdot Z \end{bmatrix} \quad (C13)$$

Evidence of private information would be a positive estimate of the sum of the conditional covariances between changes in portfolio weight and future abnormal returns.

## Notes for Figures

Figures 1a - 1g: Naive estimates are the thin lines; our benchmark-consistent estimates are the thick lines.

Figure 2: The share of foreign equities in world in U.S. portfolios is derived from data taken from the S&P/IFC Emerging Stock Markets Factbook (various issues) and the World Federation of Exchanges ([www.fibv.com](http://www.fibv.com)). The share of foreign equities in U.S. portfolios,  $\omega_{US}^F$ , is computed as U.S. holdings of foreign equities,  $H_{US}^F$ , divided by U.S. holdings all equities. U.S. holdings of U.S. equities is formed by subtracting the Rogers and Warnock (2004) estimate of foreign holdings of U.S. equities,  $H_F^{US}$ , from U.S. market capitalization. Specifically,

$$\omega_{US}^F = \frac{H_{US}^F}{H_{US}^{US} + H_{US}^F}, \quad H_{US}^{US} = MktCap_{US} - H_F^{US}$$

Figure 3a: The asset-weighted dollar index is formed as  $I_t = I_{t-1} \prod_j (e_{j,t}/e_{j,t-1}) w_{j,t}$ , where  $e_{j,t}$  is currency  $j$  per dollar and  $w_{j,t}$  is the time  $t$  weight of country  $j$ 's equities in U.S. investors' foreign equity portfolio. Cumulative returns differential is a measure of the difference, since end-December 1976, between the total excess return on the total excess return on U.S. residents' holdings of U.S. equities and U.S. residents' holdings of foreign equities (expressed as a percent of the total excess return to holding U.S. equities). Specifically, it is computed as follows:

$$\left( \prod_{j=1}^t (1+r_{us,j}) - \prod_{j=1}^t (1+r_{f,j}) \right) / \prod_{j=1}^t (1+r_{us,j})$$

where  $j=1$  corresponds to January 1977;  $t$  corresponds to the point plotted on the graph; and  $r_{us}$  and  $r_f$  refer to U.S. and foreign (dollar) returns, respectively.

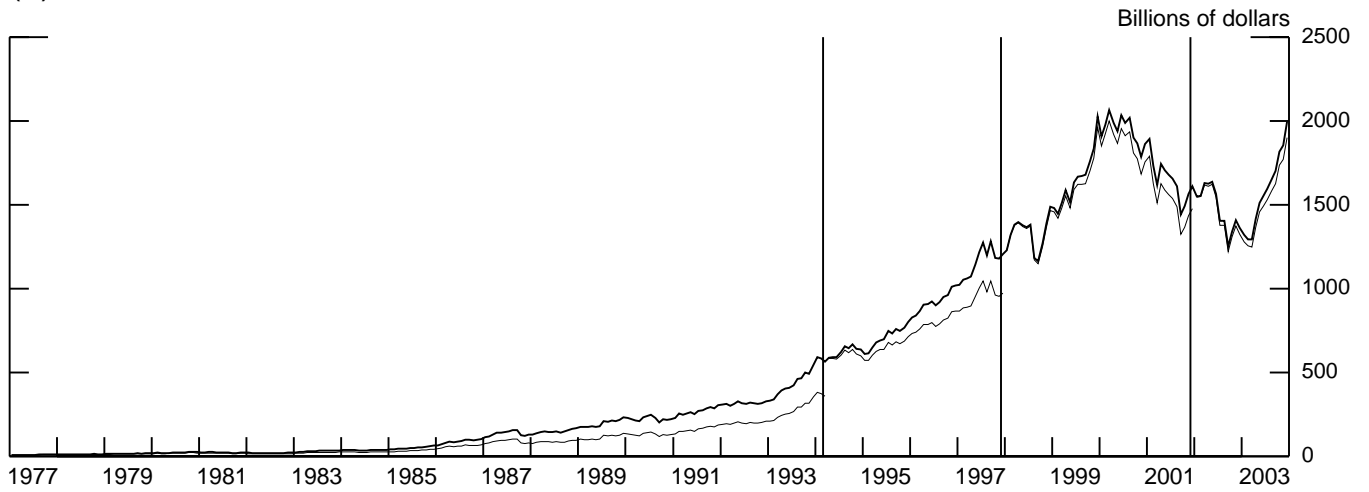
Figure 3b: The figure shows the Sharpe ratio for portfolios comprised of U.S. and foreign equities. The foreign component is formed by aggregating country returns using two different (time-varying) weighting schemes: a benchmark scheme that uses market weights (dotted line) and a scheme using the country weights in U.S. investors' foreign equity portfolios (solid line). The maximum point on each line, indicated by a triangle, represents the maximal Sharpe ratio attainable by mixing U.S. equities with the benchmark (market-cap-weighted) and U.S. investors' foreign portfolios.

Figure A1: The figure shows the availability (and our use) of data on equity returns. White space corresponds to periods for which we do not have returns data. Note that we use MSCI World for the Caribbean, which we exclude from our performance analysis. We also use the following indices for other areas excluded from our performance analysis: African Countries (MSCI EM Europe and Middle East), Other Latin America (MSCI Latin America Free index), and Other (MSCI EM Free).

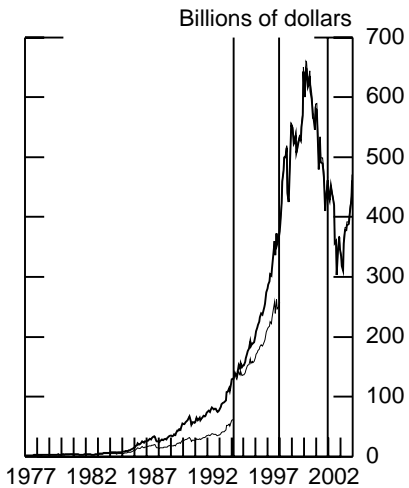


**Figure 1. U.S. Holdings of Foreign Equities**

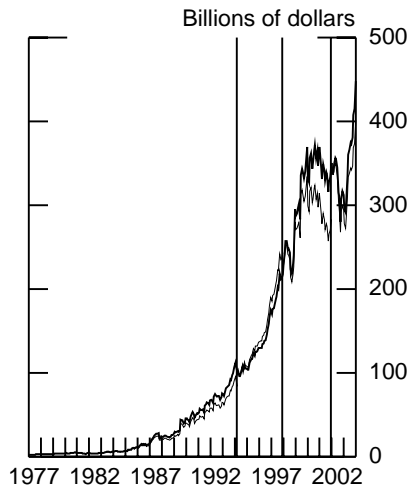
**(a) All Countries**



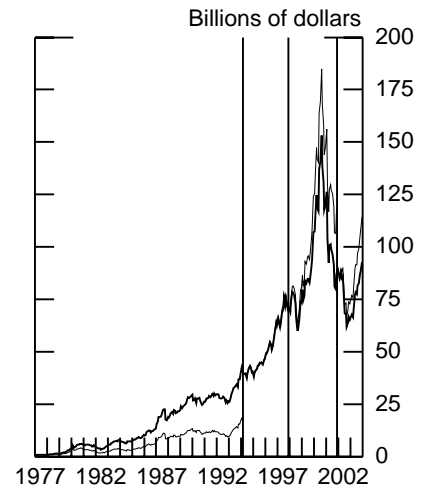
**(b) Euro Area equities**



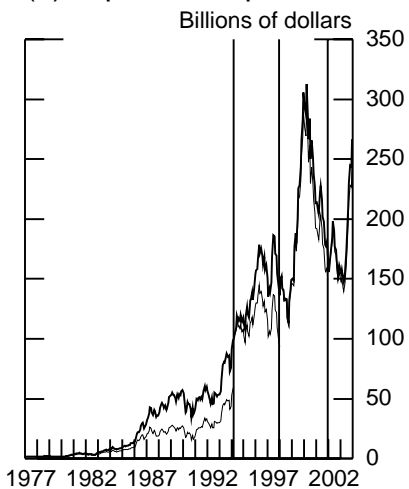
**(c) UK equities**



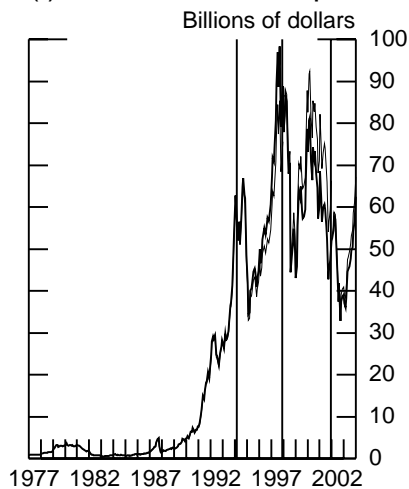
**(d) Canadian equities**



**(e) Japanese equities**



**(f) Latin American equities**



**(g) Emerging Asian equities**

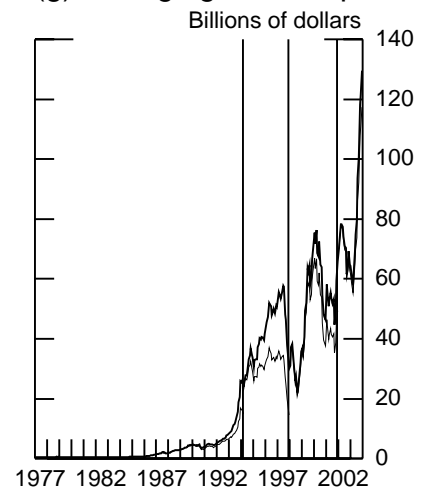


Figure 2

Share of Foreign Equities in World and U.S. Portfolios

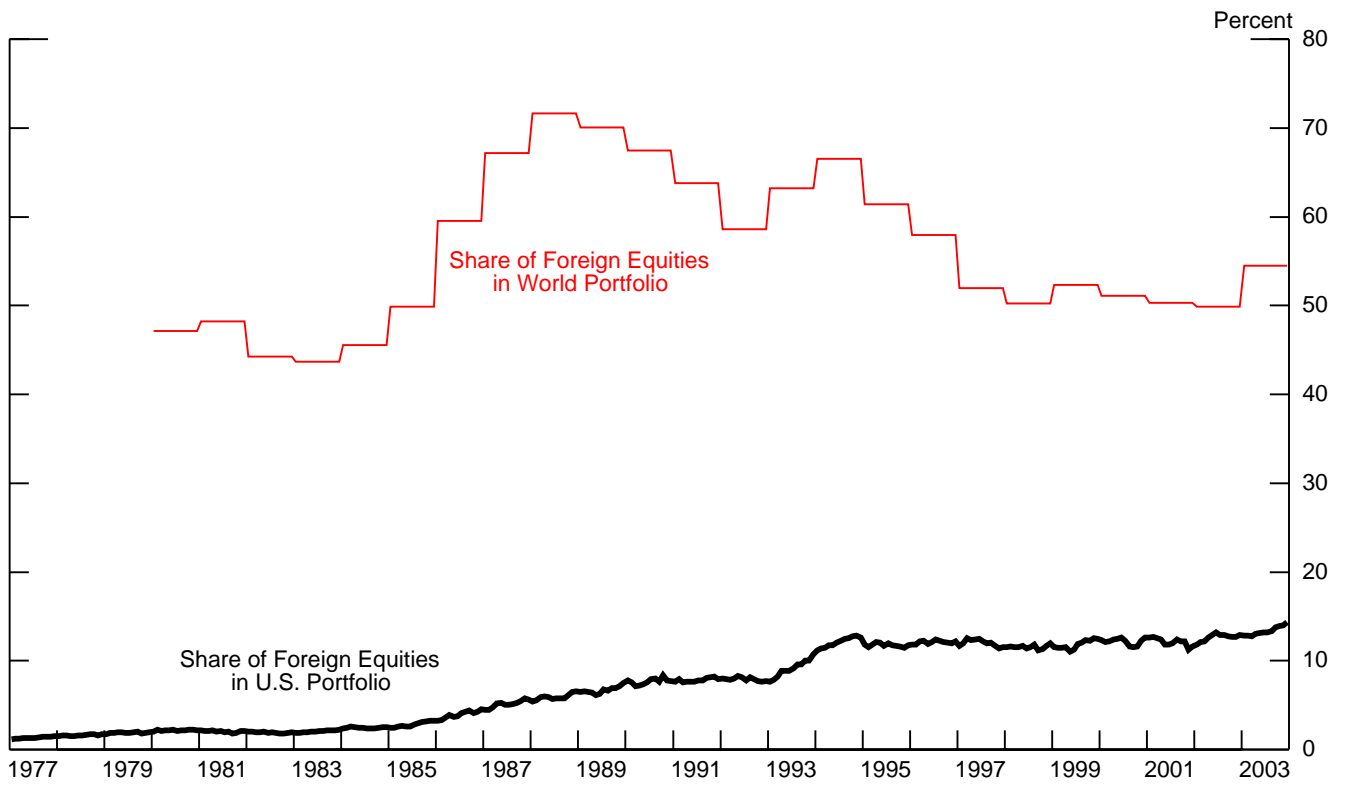
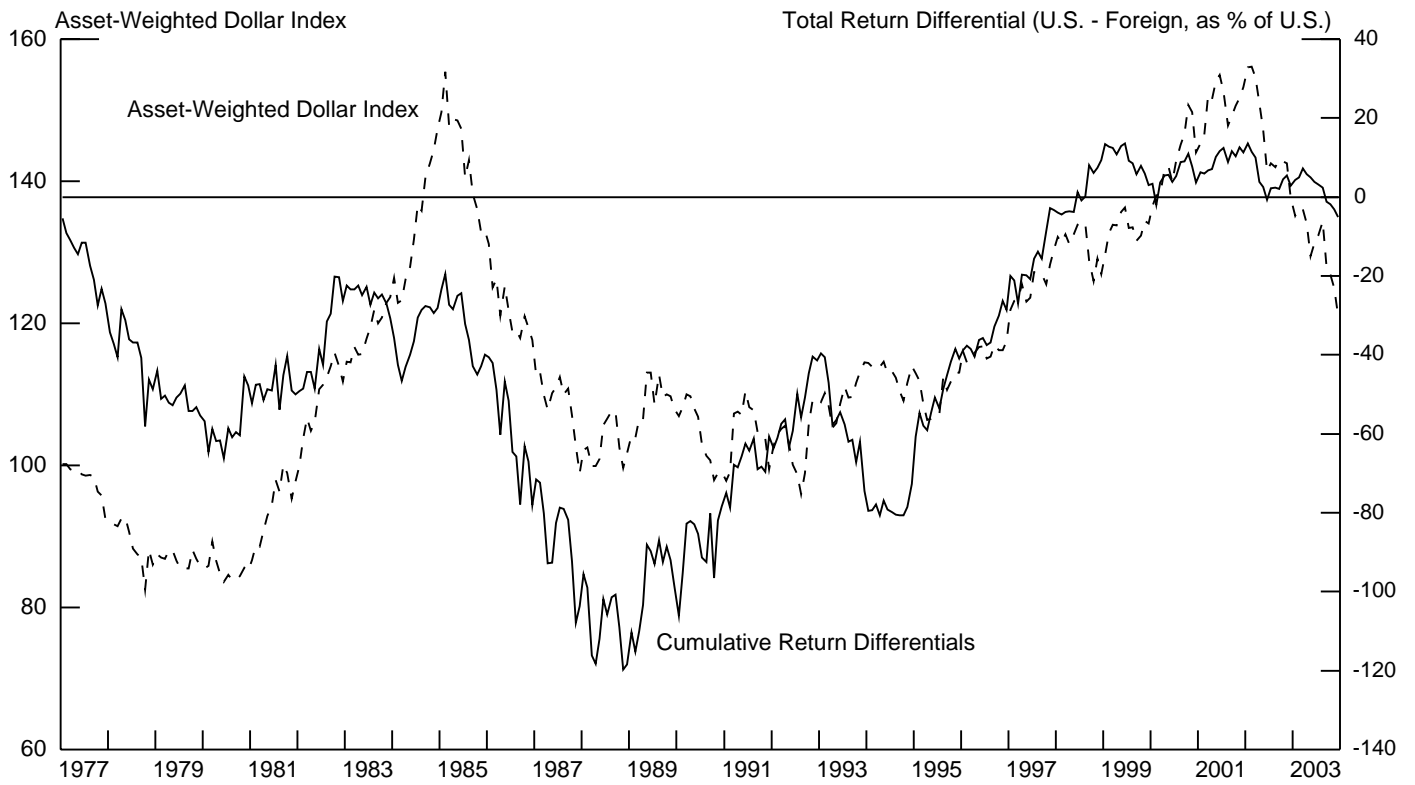


Figure 3

**(a) Cumulative Return Differentials for Equities and Asset-Weighted Dollar Index**



**(b) Reward-to-Risk Ratios, Equities (1977-2001)**

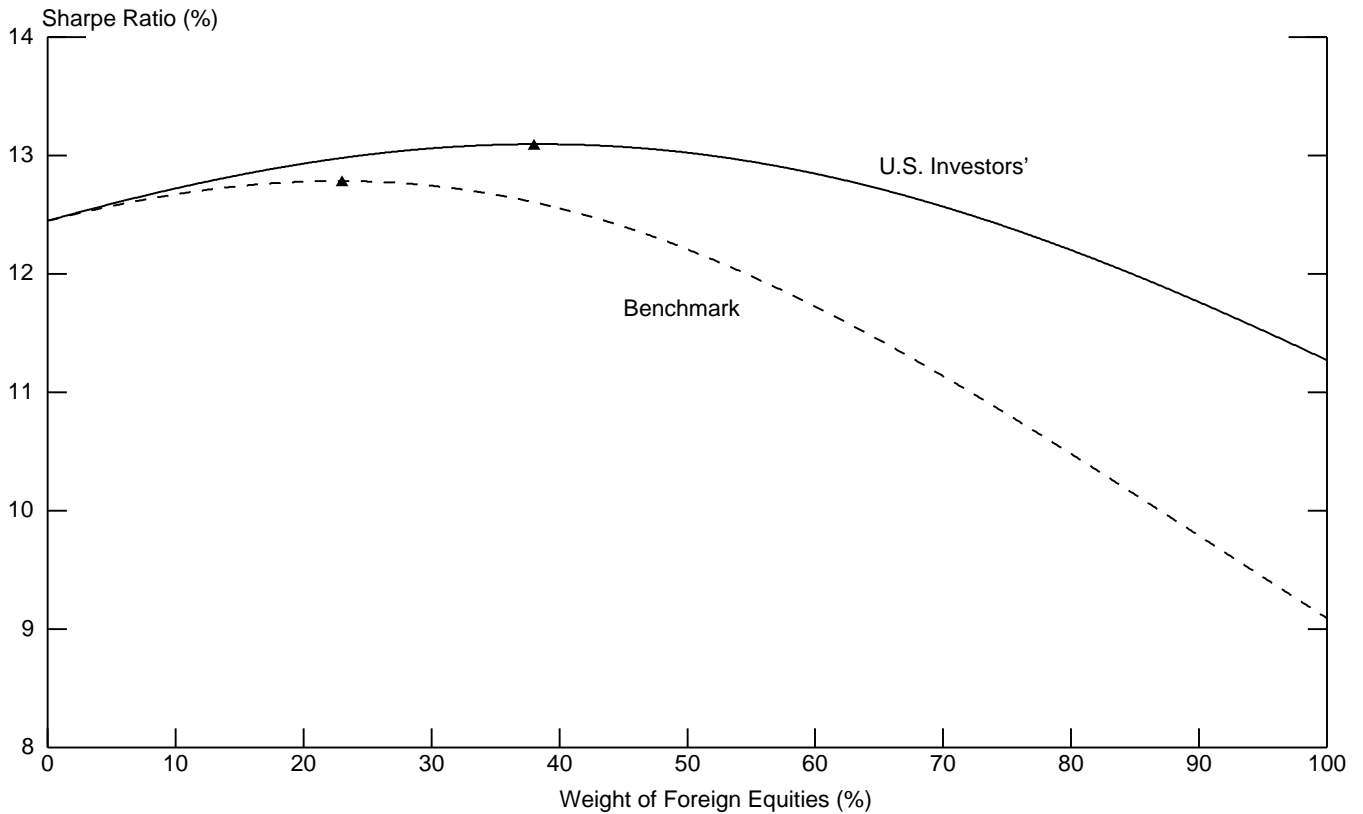
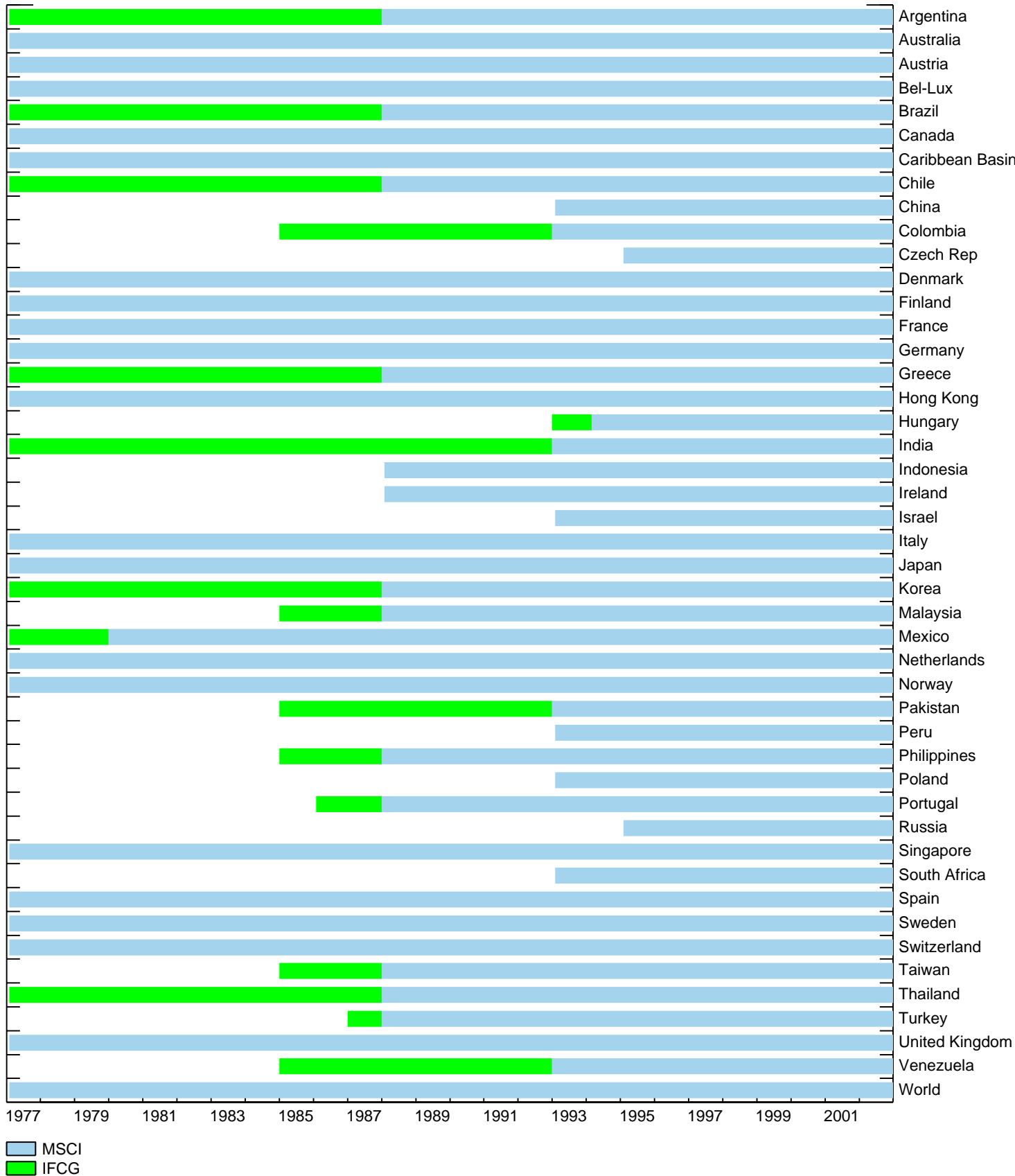


Figure A1. Data Availability: Equity Returns



**Table 1. Foreign Equity Weights in MSCI and U.S. Investors' Portfolios**

This tables compares the evolution of country weights (expressed in percent) in U.S.investors' foreign with benchmark weights from the MSCI World ex US index. Data are as of year-end. Ellipses (...) indicate areas included in our holdings estimates that, owing to data limitations, are not in our performance analysis.

	1989		1996		2001	
	MSCI	US	MSCI	US	MSCI	US
<b>Developed Countries</b>	<b>92.7</b>	<b>92.9</b>	<b>82.0</b>	<b>82.0</b>	<b>88.2</b>	<b>86.0</b>
<b>Euro Area</b>	<b>17.0</b>	<b>24.4</b>	<b>20.2</b>	<b>26.3</b>	<b>31.7</b>	<b>32.4</b>
Austria	0.3	0.3	0.4	0.3	0.1	0.1
Belgium/Lux	0.9	1.3	1.0	1.1	1.0	0.8
Finland	0.3	0.3	0.4	0.9	2.0	3.6
France	4.3	6.9	5.3	5.4	9.1	7.9
Germany	5.1	4.2	5.8	4.8	6.8	5.1
Greece	0.1	0.0	0.1	0.1	0.3	0.2
Ireland	0.2	0.3	0.2	0.8	0.7	2.0
Italy	2.1	1.6	1.9	2.4	3.5	2.4
Netherlands	2.1	7.3	3.4	8.0	5.0	7.9
Portugal	0.1	0.1	0.2	0.2	0.4	0.3
Spain	1.4	2.0	1.5	2.2	2.8	2.3
<b>Other Europe</b>	<b>16.0</b>	<b>27.2</b>	<b>22.0</b>	<b>26.2</b>	<b>31.5</b>	<b>32.7</b>
Denmark	0.5	0.4	0.7	0.6	0.7	0.5
Norway	0.3	0.7	0.4	0.8	0.4	0.6
Sweden	1.5	2.2	1.7	3.3	2.1	1.7
Switzerland	2.4	3.7	5.0	4.6	6.4	5.3
Great Britain	11.3	20.2	14.2	16.9	21.8	24.6
<b>Other Developed</b>	<b>59.8</b>	<b>41.3</b>	<b>39.8</b>	<b>29.4</b>	<b>25.0</b>	<b>20.9</b>
Australia	1.9	2.7	2.2	3.2	3.2	2.6
Canada	3.7	13.1	3.2	6.1	4.5	6.3
Caribbean	...	...	...	...	...	...
Japan	54.2	25.4	34.5	20.1	17.3	12.0
<b>Emerging Markets</b>	<b>7.3</b>	<b>7.1</b>	<b>18.0</b>	<b>18.0</b>	<b>11.8</b>	<b>14.0</b>
<b>Latin America</b>	<b>0.8</b>	<b>2.1</b>	<b>3.4</b>	<b>5.8</b>	<b>2.2</b>	<b>3.6</b>
Argentina	0.0	0.2	0.4	1.1	0.1	0.1
Brazil	0.4	0.3	1.2	1.4	0.9	1.5
Chile	0.1	0.2	0.6	0.6	0.2	0.1
Colombia	0.0	0.0	0.1	0.0	0.0	0.0
Mexico	0.3	1.4	0.9	2.5	0.9	1.8
Peru	0.0	0.0	0.1	0.1	0.0	0.0
Venezuela	0.0	0.0	0.0	0.1	0.0	0.0
Other LA	...	...	...	...	...	...
<b>Emerging Asia</b>	<b>6.3</b>	<b>3.6</b>	<b>12.0</b>	<b>10.2</b>	<b>7.5</b>	<b>8.2</b>
China	0.0	0.2	0.0	0.2	0.6	0.2
Hong Kong	0.9	0.9	2.6	3.2	1.7	2.1
India	0.0	0.0	0.6	0.3	0.5	0.5
Indonesia	0.0	0.1	0.6	0.6	0.1	0.1
Korea	1.4	0.5	1.8	1.4	1.6	2.1
Malaysia	0.5	0.3	1.8	1.4	0.6	0.2
Pakistan	0.0	0.0	0.1	0.0	0.0	0.0
Philippines	0.1	0.3	0.3	0.5	0.1	0.1
Singapore	0.6	0.6	1.3	1.4	0.8	1.5
Taiwan	2.5	0.1	1.7	0.2	1.4	1.4
Thailand	0.3	0.5	1.1	1.0	0.1	0.1
<b>Emerging Europe</b>	<b>0.1</b>	<b>0.1</b>	<b>0.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.7</b>
Czech	0.0	0.0	0.2	0.0	0.1	0.0
Hungary	0.0	0.0	0.0	0.0	0.1	0.1
Poland	0.0	0.0	0.0	0.0	0.1	0.1
Russia	0.0	0.0	0.1	0.0	0.3	0.3
Turkey	0.1	0.1	0.1	0.2	0.2	0.2
<b>Other Emerging</b>	<b>0.0</b>	<b>1.3</b>	<b>2.1</b>	<b>1.7</b>	<b>1.3</b>	<b>1.4</b>
Israel	0.0	0.4	0.3	0.5	0.4	0.9
South Africa	0.0	0.9	1.8	1.2	0.9	0.5
Other Africa	...	...	...	...	...	...
Other	...	...	...	...	...	...

Memo:

U.S. Investors' Foreign Equity Portfolio

235

(\$ billions)

804

1,613

**Table 2**  
**The Performance of U.S. Investors' Foreign Equity Portfolios**

This table reports means, standard deviations, and Sharpe ratios (mean divided by standard deviation) for portfolios of foreign equities. Returns are in excess of a one-month Eurodollar interest rate and are expressed in monthly percentage points. *Value-weighted benchmarks* are portfolios based on MSCI market capitalization weights. *U.S. investors' portfolios* are based on U.S. investors' holdings. The *Chi-squared: Sharpe Ratio* is a test statistic for the null hypothesis that Sharpe ratios in the two columns are equal. Panels A-C report statistics for the following samples: the full sample (January 1977 through December 2001), two subsample periods (January 1977 through December 1989 and January 1990 through December 2001), and two groups of countries (Developed and Emerging markets). Asymptotic *p*-values computed from Newey and West (1987) standard errors are in brackets. \* Statistically significant at the 5 percent level.

Panel A: Full Sample (1977 - 2001)		
	Value-Weighted Benchmark	U.S. Investors' Foreign Portfolio
<b>1977 - 2001</b>		
Mean	0.437	0.482
Std Dev	4.803	4.275
Sharpe Ratio (%)	9.093	11.273
Chi-squared: Sharpe Ratio		1.386 [0.239]
Panel B: Pre- and post-1990		
	Value-Weighted Benchmark	U.S. Investors' Foreign Portfolio
<b>1977 - 1989</b>		
Mean	0.922	0.807
Std Dev	4.720	4.117
Sharpe Ratio (%)	19.532	19.608
Chi-squared: Sharpe Ratio		0.001 [0.976]
<b>1990 - 2001</b>		
Mean	-0.108	0.132
Std Dev	4.815	4.412
Sharpe Ratio (%)	-2.241	2.983
Chi-squared: Sharpe Ratio		4.952* [0.026]

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Panel C: Developed and Emerging Equity Markets, 1990 - 2001

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	Value-Weighted Benchmark	U.S. Investors' Foreign Portfolio
<b>Developed Markets</b>		
Mean	-0.077	0.137
Std Dev	4.846	4.347
Sharpe Ratio (%)	-1.589	3.154
Chi-squared: Sharpe Ratio		4.572* [0.033]
<b>Emerging Markets</b>		
Mean	-0.120	0.473
Std Dev	6.786	6.940
Sharpe Ratio (%)	-1.761	6.808
Chi-squared: Sharpe Ratio		4.094* [0.043]

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**Table 3**  
**Momentum Measures for the Foreign Equity Portfolio**

The LM statistic is a measure of momentum based on deviations of portfolio weights from a passive buy-and-hold strategy (equation (B1)). The BM statistic is a measure of momentum based on the *positive* portfolio weight deviations from a passive buy-and-hold strategy (equation (B3)). The SM statistic is a measure of momentum based on the *negative* portfolio weight deviations from a passive buy-and-hold strategy (equation (B4)). *Lag 1, Lag 2, and Lag 3* correspond to the measure of momentum based on returns lagged 1, 2, and 3 months, respectively. Panel A reports statistics for all countries for the full sample (January 1977 through December 2001) and two subsample periods (January 1977 through December 1989 and January 1990 through December 2001). Panel B reports estimates for two groups of countries (Developed and Emerging Markets) for 1990 – 2001. Newey and West (1987) standard errors are in parentheses. \* Statistically significant at the 5 percent level.

Panel A: All Countries									
	1977-2001			1977-1989			1990-2001		
Momentum Measure	Lag 1	Lag 2	Lag 3	Lag 1	Lag 2	Lag 3	Lag 1	Lag 2	Lag 3
LM (Buy and Sell)	0.074 (0.152)	-0.353* (0.158)	-0.218 (0.169)	0.105 (0.209)	-0.496* (0.220)	-0.046 (0.245)	0.047 (0.225)	-0.259 (0.222)	-0.479* (0.230)
BM (Buy Only)	0.244* (0.116)	0.080 (0.114)	0.089 (0.107)	0.269 (0.144)	0.051 (0.139)	0.201 (0.156)	0.214 (0.189)	0.058 (0.175)	-0.075 (0.145)
SM (Sell Only)	-0.170* (0.073)	-0.434* (0.081)	-0.307* (0.086)	-0.164 (0.112)	-0.547* (0.132)	-0.248 (0.133)	-0.167* (0.084)	-0.317* (0.091)	-0.404* (0.109)

Panel B: Country Splits, 1990 - 2001									
	Developed Countries						Emerging Markets		
Momentum Measure	Lag 1	Lag 2	Lag 3	Lag 1	Lag 2	Lag 3	Lag 1	Lag 2	Lag 3
LM (Buy and Sell)	-0.095 (0.225)	-0.391 (0.211)	-0.545* (0.228)	0.640 (0.467)	-0.255 (0.590)	-0.505 (0.519)			
BM (Buy Only)	0.026 (0.185)	-0.154 (0.152)	-0.263 (0.150)	0.964* (0.333)	0.584 (0.446)	0.269 (0.349)			
SM (Sell Only)	-0.121* (0.089)	-0.237* (0.083)	-0.283* (0.104)	-0.324 (0.213)	-0.838* (0.263)	-0.774* (0.256)			



**Table 4**  
**Conditional Jensen's Alpha for U.S. Investors' Foreign Equity Portfolio**

This table reports GMM estimates of conditional Jensen's alpha,  $\alpha_p$ , using the following system of equations:

$$e_{\lambda,t+1} = F_{t+1} - \gamma' Z_t$$

$$e_{\beta,t+1} = (e_{\lambda,t+1} e'_{\lambda,t+1}) (\kappa' Z_t) - e_{\lambda,t+1} r_{p,t+1}$$

$$e_{CRP,t+1} = r_{p,t+1} - \alpha_p - (\gamma' Z_t) (\kappa' Z_t)$$

where  $r_{p,t+1}$  is the excess return in month  $t+1$  of U.S. investors' foreign equity portfolio,  $Z_t$  is the set of information variables (including a constant), and  $F_{t+1}$  is the set of risk factors. Three different factor pricing models are used. *CAPM* represents a one-factor model that includes the excess return on the world market portfolio. *CAPM and HML* represents a two-factor model that includes the excess return on the world market portfolio and the difference between returns on global portfolio of high book-to-market and low book-to-market (HML). *CAPM and FX* represents a four-factor model that includes the excess return on the world market portfolio and foreign exchange (FX) risks proxied by excess returns from investing in euro, yen, and sterling interest rates. *Chi-sq: Constant  $\beta$*  is a test statistic for the null hypothesis that estimates in vector  $\kappa$  in equation (C3), except the intercept, are jointly insignificant. *Chi-sq: Constant Risk Premium* is a test statistic for the null hypothesis that estimates in vector  $\gamma$  in equation (C2), except the intercept, are jointly insignificant. In Panel A, estimates are from the full sample. Panel B shows estimates for two subsamples: January 1977 through December 1989 and January 1990 through December 2001. *Test Equal  $\alpha$*  is a Chi-squared test statistic for the null of hypothesis that alpha is equal for the two subsample periods. Panel C reports estimates from the sample from January 1990 through December 2001 for two group of countries: Developed and Emerging markets. Newey and West (1987) standard errors are in parentheses. Asymptotic  $p$ -values computing from Newey and West (1987) standard errors are in brackets. \* Statistically significant at the 5 percent level.

Panel A: Full Sample (1977 - 2001)						
	Time-Varying Beta			Constant Beta		
	CAPM	CAPM and HML	CAPM and FX	CAPM	CAPM and HML	CAPM and FX
$\alpha_p$	0.105 (0.106)	0.072 (0.104)	0.095 (0.114)	0.042 (0.084)	0.024 (0.086)	0.037 (0.079)
Chi-sq: Constant $\beta$	2.942 [0.401]	4.925 [0.553]	18.442 [0.103]			
Chi-sq: Constant Risk Premium	21.469* [0.000]	18.783* [0.005]	56.385* [0.000]	19.245* [0.000]	20.723* [0.002]	50.459* [0.000]

Panel B: Pre- and post-1990

	Time-Varying Beta			Constant Beta		
	CAPM	CAPM and HML	CAPM and FX	CAPM	CAPM and HML	CAPM and FX
$\alpha_{p, 1977-1989}$	0.537 (0.341)	0.472 (0.242)	0.456 (0.316)	0.407 (0.237)	0.387 (0.236)	0.404 (0.230)
$\alpha_{p, 1990-2001}$	-0.369 (0.267)	-0.314 (0.269)	-0.315 (0.283)	-0.349 (0.262)	-0.368 (0.263)	-0.360 (0.269)
Chi-sq: Constant $\beta$	2.842 [0.417]	7.671 [0.263]	15.957 [0.193]			
Chi-sq: Constant Risk Premium	21.616* [0.000]	25.443* [0.000]	48.796* [0.000]	19.225* [0.000]	20.699* [0.002]	50.459* [0.000]
Test Equal $\alpha$	3.248 [0.072]	2.933 [0.087]	2.856 [0.091]	2.618 [0.106]	2.619 [0.106]	2.619 [0.106]

Panel C: Post-1990 (1990 - 2001)

	Time-Varying Beta			Constant Beta		
	CAPM	CAPM and HML	CAPM and FX	CAPM	CAPM and HML	CAPM and FX
<b>Developed Markets</b>						
$\alpha_p$	-0.084 (0.195)	-0.115 (0.218)	0.376 (0.862)	-0.077 (0.196)	-0.089 (0.200)	-0.075 (0.182)
Chi-sq: Constant $\beta$	0.129 [0.988]	0.781 [0.993]	3.351 [0.993]			
Chi-sq: Constant Risk Premium	0.228 [0.973]	1.061 [0.983]	12.970 [0.371]	0.395 [0.941]	0.688 [0.995]	5.697 [0.931]
<b>Emerging Markets</b>						
$\alpha_p$	0.933 (1.430)	-0.011 (1.329)	0.088 (1.363)	0.219 (1.135)	0.221 (1.153)	0.220 (1.072)
Chi-sq: Constant $\beta$	2.311 [0.510]	3.430 [0.753]	4.509 [0.972]			
Chi-sq: Constant Risk Premium	5.855 [0.119]	6.085 [0.414]	9.440 [0.665]	0.357 [0.949]	0.711 [0.994]	5.689 [0.931]

**Table 5: Conditional Portfolio Weight Performance Measure for U.S. Investors' Foreign Equity Portfolio**

This table reports GMM estimates of  $\phi_p$  for the following system:

$$e_{i,t+1} = r_{i,t+1} - b_i' Z_t$$

$$e_{CWM,t+1} = \sum_{i=1}^{N_t} (w_{i,t} - w_{i,t}^b) e_{i,t+1} - \phi_p$$

where  $r_{i,t+1}$  is the vector of portfolio excess returns in month  $t+1$ ,  $b_i$  is the matrix of coefficients from regressing  $r_{i,t+1}$  on the instruments,  $Z_t$  (including a constant), and the parameter  $\phi_p$  is the average conditional covariance. In Panel A, estimates are from the full sample. Panel B shows estimates for two subsamples: January 1977 through December 1989 and January 1990 through December 2001. *Test Equal  $\phi$*  is a Chi-squared test statistic for the null of hypothesis that  $\phi_p$  is equal in the two subsample periods. Panel C reports estimates from the sample from January 1990 through December 2001 for two group of countries: Developed and Emerging. Asymptotic  $p$ -values computed from Newey and West (1987) standard errors are in parentheses. \* Statistically significant at the 5 percent level.

Panel A: Full Sample (1976 - 2001)			
	k=1	k=2	k=3
$\phi_p$	0.229 (0.167)	0.246 (0.273)	0.009 (0.370)
Panel B: Pre- and post-1990			
$\phi_{p>1977-1989}$	0.128 (0.277)	0.163 (0.449)	-0.048 (0.629)
$\phi_{p>1990-2001}$	0.343 (0.216)	0.352 (0.299)	0.114 (0.361)
Test Equal $\phi$	0.425 (0.515)	0.126 (0.722)	0.051 (0.822)
Panel C: Post-1990 (1990 - 2001)			
Developed Markets			
$\phi_p$	0.302 (0.268)	0.452 (0.551)	0.388 (0.562)
Emerging Markets			
$\phi_p$	1.245 (0.898)	1.253 (1.405)	1.558 (2.117)

**Table 6**  
**Governance, Cross-listings, and U.S. Portfolio Performance**

This table reports means, standard deviations, and Sharpe ratios (mean divided by standard deviation) for the period January 1990 through December 2001. Returns are in excess of a one-month Eurodollar interest rate and are expressed in monthly percentage points. U.S. investors' foreign equity portfolios are based on U.S. investors' holdings. Weights in the value-weighted foreign benchmark portfolios are based on MSCI market capitalizations (column b); the dollar value of each country's market capitalization that was dispersely held as of end-1997 (column c); or the dollar value of each country's market capitalization that was cross-listed on a U.S. exchange as of end-1997.

The *Chi-squared: Sharpe Ratio* is a test statistic for the null hypothesis that Sharpe ratio in that column is equal to the Sharpe ratio in column (a). Asymptotic *p*-values computed from Newey and West (1987) standard errors are in brackets. \* Statistically significant at the 5 percent level.

	U.S. Investors' Foreign Equity Portfolio	Value-Weighted Foreign Benchmarks		
	(a)	MSCI (b)	Governance (c)	Cross-listed (d)
<b>1990 - 2001</b>				
Mean	0.132	-0.108	0.236	0.281
Std Dev	4.412	4.815	4.342	4.326
Sharpe Ratio (%)	2.983	-2.241	5.439	6.501
Chi-squared: Sharpe Ratio		4.952* [0.026]	3.363 [0.067]	7.127* [0.001]

**Table 7**  
**The Performance of U.S. Investors' Global Equity Portfolios**

This table reports means, standard deviations, and Sharpe ratios (mean divided by standard deviation). Returns are in excess of a one-month Eurodollar interest rate and are expressed in monthly percentage points. Value-weighted benchmarks are portfolios based on MSCI market capitalization weights. U.S. investors' portfolios are based on U.S. investors' holdings. *Global* includes U.S. and foreign markets; *US* is only the U.S. market; and *Foreign* consists of non-U.S. markets. Prior to 1990, MSCI value weights exclude emerging markets. The *Chi-squared: Sharpe Ratio* is a test statistic for the null hypothesis that Sharpe ratios in columns (c) and (d) are equal. Panels A and B report statistics for equities for the full sample (January 1977 through December 2001) and two subsample periods (January 1977 through December 1989 and January 1990 through December 2001). Asymptotic *p*-values computed from Newey and West (1987) standard errors are in brackets. \* Statistically significant at the 5 percent level.

Panel A: Full Sample (1977 - 2001)				
	Value-Weighted Benchmarks			U.S. Investors' Global Portfolio
	US (a)	Foreign (b)	Global (c)	(d)
<b>1977 - 2001</b>				
Mean	0.543	0.437	0.447	0.519
Std Dev	4.361	4.803	4.108	4.288
Sharpe Ratio (%)	12.450	9.093	10.885	12.099
Chi-squared: Sharpe Ratio				0.151 [0.698]
<b>Panel B: Pre- and post-1990</b>				
	Value-Weighted Benchmarks			U.S. Investors' Global Portfolio
	US (a)	Foreign (b)	Global (c)	(d)
<b>1977 - 1989</b>				
Mean	0.413	0.922	0.662	0.423
Std Dev	4.510	4.720	4.001	4.450
Sharpe Ratio (%)	9.161	19.532	16.540	9.507
Chi-squared: Sharpe Ratio				2.345 [0.126]
<b>1990 - 2001</b>				
Mean	0.683	-0.108	0.187	0.622
Std Dev	4.191	4.815	4.231	4.103
Sharpe Ratio (%)	16.291	-2.241	4.425	15.152
Chi-squared: Sharpe Ratio				7.311* [0.007]