

What Influences U.S. International Equity Investment: Equity or Currency Returns?*

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Abstract

We address a number of questions raised by the Curcuru, Thomas, Warnock, and Wongswan (2010) findings that within their foreign equity portfolios U.S. investors reallocate away from past winners and into markets that subsequently perform well. First, when separating U.S. dollar returns into their underlying components, we find that reallocations within U.S. investors' *foreign equity portfolios* are not related to past or prospective changes in exchange rates, but are related to returns in the underlying equity markets; U.S. investors rebalance away from equity markets that recently performed well, and move into equity markets market just prior to relatively strong performance. Second, the reallocations do not actually lead to stronger portfolio performance, because picking a market that subsequently does well is not the same as picking the best market. Third, conclusions about U.S. investors' *global equity portfolios* are more difficult to make, in part because tests for that portfolio lack power, although those portfolios did outperform value-weighted global equity benchmarks by over 200 basis points per year over the past two decades.

Keywords: momentum, contrarian, portfolio performance measures, international returns

JEL Codes: G11, G12, F21

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1. Introduction

Contrary to stylized facts established in the 1990s before the relevant data were available, U.S. investors do not chase returns in their foreign equity portfolios, but rather engage in a type of partial rebalancing by selling past winners, and are not necessarily at an informational disadvantage, as they tend to shift into markets just prior to their strong abnormal returns (Curcuro, Thomas, Warnock, and Wongswan 2010, henceforth CTWW).

The CTWW analysis raises at least four interesting questions, each of which we analyze here. First, because CTWW examined dollar returns, the trading strategy identified—that of selling past winners and not engaging in momentum-type reallocations into past winners and out of past losers—could be due to a relationship between reallocations and recent currency movements, recent changes in the underlying (local currency) equity component of returns, or a combination of the two. Are U.S. investors reacting to the currency movements or the underlying local-currency equity returns? Similarly, when U.S. investors reallocate into markets that subsequently have strong abnormal returns, are these strong abnormal returns due to currency appreciation (i.e., are U.S. investors able to time currency markets, the massive evidence on our poor ability to forecast exchange rates notwithstanding?) or strong equity performance? Third, while CTWW find that U.S. investors switched into markets just prior to positive abnormal returns, which some would interpret as ‘trading skill’, does it necessarily follow that the switch was beneficial from the perspective of the entire portfolio? It is plausible that one trades into a market just prior to its positive abnormal returns, but in doing so trades out of a market that subsequently produced even greater returns. In this paper we examine whether U.S. investors’ trading strategy actually led to better portfolio performance. Fourth, the CTWW analysis concerned only the foreign equity portfolio. Foreign equity holdings, while having grown

substantially over the past few decades, are still only 30% of the overall U.S. equity portfolio (which includes holdings of domestic equities). Do the CTWW results—on trading style, informational advantages or disadvantages, and unconditional performance—apply to just the foreign equity portion of U.S. investors’ *global* equity portfolio?

The answers to these questions are important. International macroeconomic research on gross financial flows and international portfolio allocation is burgeoning. Theoretical models of international portfolio choice are being constructed with ever-increasing frequency; see, among many others, Kraay and Ventura (2000, 2003), Van Nieuwerburgh and Veldkamp (2009), Coeurdacier, Kollmann, and Martin (2007), Tille and van Wincoop (2008, 2010), Hnatkovska (2010), Pavlova and Rigobon (2010), Devereaux and Sutherland (2008, 2010), and Dumas, Lewis, and Osambela (2010). Empirical research on this topic has skyrocketed with the improved availability of data on international positions, made possible in large part by the datasets created in Lane and Milesi-Ferretti (2001, 2007).¹ But even with this surge in research on international flows and portfolio allocation, and even given the fact as gross international positions become ever larger, valuation effects become ever more important determinants of changes in the external wealth of nations, Obstfeld (2010) paints a bleak picture of the extent of our knowledge. This limited knowledge is due at least in part to the fact that most datasets have a disconcertingly limited ability to provide accurate information on valuation gains and losses in international portfolios. In this paper we strive to add to our understanding of valuation gains and losses by delving deeply into one aspect: the relationship between portfolio reallocations and returns within U.S. investors’ foreign (and global) portfolios.

¹ See, among many others, Forbes (2010), Andrade and Chhaochharia (2010), Kho, Stulz, and Warnock (2009), Desai and Dharmapala (2009a, b), Amiram and Frank (2010), and Fidora, Fratzscher, and Thimann (2007).

Our findings are as follows. Separating dollar returns into its two components, we show that U.S. investors' reallocations are associated with past and prospective changes in the underlying equity market returns, not changes in the value of the currency. That is, U.S. investors are not reacting to currency movements, nor are they able to predict which currencies are about to outperform (for one-, two-, and three-month horizons). In our analysis of whether the switch into countries that subsequently had positive abnormal returns was beneficial from the perspective of the entire foreign portfolio, we find no evidence that these portfolio reallocations led to improved portfolio returns. Yes, U.S. investors moved into markets that then experienced positive abnormal returns, but they did not systematically pick those that outperformed the other markets. Finally, when analyzing the global (as opposed to just foreign) equity portfolio, while the tests lack power, there is still no evidence that suggests that in their global portfolios U.S. investors chase returns or appear to be at an informational disadvantage. Finally, the unconditional performance of U.S. investors' global portfolios is quite strong, with U.S. investors beating a value-weighted global benchmark by over 200 basis points per year over the past two decades; the comparable finding in the foreign portion is 160 basis points per year over value-weighted foreign benchmark.

The paper proceeds as follows. In the next section we discuss the data and methodologies. In Section 3 we present our results. We conclude in Section 4.

2. The Data and Main Methodology

2.1 Data

A portfolio-based study of U.S. investors' trading style is made possible by the Bertaut and Tryon (2007), henceforth BT, estimates of the monthly bilateral positions of U.S. investors

in the equities of a large set of foreign countries. The country-level dataset includes, for example, a monthly time series of U.S. holdings of German equities (as well as of the U.S. holdings of equities in many other foreign countries).

The BT data are formed combining high-quality but infrequent readings on positions (from security-level benchmark surveys) with more frequent flow data. In the process of combining positions and flows data, the reported-flow data are adjusted to alleviate its well-known financial center bias (see, among others Warnock and Cleaver 2003). Specifically, the BT monthly bilateral positions are formed by starting with an initial position as given by a benchmark survey, creating naïve monthly positions until the next benchmark survey by using flow data and valuation adjustments (from, for foreign equity markets, MSCI indexes), and then adjusting the estimates to eliminate the financial center bias and other wedges between flows-based estimates and survey-based readings.

The resulting dataset is entirely consistent with reported data on U.S. holdings of foreign equities. In fact, an earlier version of the dataset formed the basis for the official U.S. entries in the IMF's Coordinated Portfolio Investment Survey in 2002, a year in which the United States did not conduct a benchmark asset survey.² Aggregate BT data—that is, aggregate foreign positions in U.S. securities and aggregate U.S. positions in foreign securities—have been used in Curcuro, Dvorak, and Warnock (2008, 2010) and Curcuro, Thomas, and Warnock (2009) to

² The BT dataset is currently the best available for monthly U.S. investment in foreign equities. That said, data quality could improve even more in the near future. For example, positions estimates could be further improved by incorporating more direct measures of the returns U.S. investors earn in each foreign market; such direct returns measures do not currently exist but could be constructed, as discussed below. Moreover, starting in June 2011, some monthly securities positions data will be collected by the U.S. Department of the Treasury through its Treasury International Capital (TIC) system. To date, post-WWII benchmark asset surveys occurred as of March 1994, year-ends of 1997 and 2001, and annually at year-end starting 2003. During World War II the Treasury Department conducted a survey of all foreign assets owned by U.S. citizens and residents as of May 1943, but the primary purpose was to identify U.S. assets abroad in preparation for the war settlements phase of peace negotiations; the 1943 survey is sufficiently removed in time and different in scope, methods, and purpose that the 1994 benchmark survey is considered to be the first of its kind.

show that (i) previous estimates of the differential between returns on U.S. investors' foreign portfolios and returns on foreigners' U.S. positions were biased upward and (ii) foreigners' U.S. portfolio returns were reduced by ill-timed switching between U.S. bonds and U.S. equities.

The bilateral holdings data provide the country weights in U.S. investors' portfolios. Another important piece of our dataset is the returns earned by U.S. investors within each foreign market. This is currently unknowable; returns series based on U.S. investors' foreign holdings do not currently exist, although someone covered under the International Investment Act of 1987 could, in theory, construct them. While directly measured country-level returns series do not exist, the literature is pretty clear on the type of firms that should be in such index. A long line of research has shown that investors—be they Americans, Swedes, Finns, or others—tend to hold the largest and most liquid foreign stocks.³ This suggests the use of the publicly available country-level MSCI returns indices, which are comprised of the largest and most liquid firms in each country. Moreover, a one-time comparison of MSCI firms and actual U.S. investment at a point in time (December 1997) showed that MSCI firms represent almost 80 percent of U.S. investors' foreign equity investment and that in a 12,000-firm universe of foreign stocks, the correlation between weights in the MSCI World Ex US and U.S. investors' foreign equity portfolios is quite high at 0.77 (Ammer, Holland, Smith, and Warnock 2006). MSCI returns indices, while not direct measurements, should be reasonable representations of the returns U.S. investors earn within each foreign market.

Armed with the time series of country weights from the BT dataset, and assuming that within each country the market (as represented by MSCI firms) is held, we are able to compute the (unhedged) dollar returns earned by U.S. investors on their foreign equity portfolios. We

³ See, among many others, the security-level analysis in Kang and Stulz (1997), Dahlquist and Robertsson (2001), Grinblatt and Keloharju (2001), Edison and Warnock (2004), and Leuz, Lins, and Warnock (2010).

include 43 foreign markets in our analysis, 24 “Advanced Economies”, as designated by the IMF as of 2000, roughly the midpoint of our sample, (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Korea, Netherlands, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Taiwan, and United Kingdom) and 19 “Emerging Markets” (Argentina, Brazil, Chile, China, Columbia, Czech Republic, Hungary, Indonesia, India, Mexico, Malaysia, Peru, Philippines, Pakistan, Poland, Russia, Thailand, Turkey, and South Africa).

2.2 Methodologies

We use techniques similar to those in CTWW. Given portfolio weights and returns, we can examine the relationship between flows and past returns using portfolio-based techniques that are well-established in the finance literature. To test for momentum and portfolio rebalancing, we use the Grinblatt, Titman, and Wermers (1995) momentum statistics to measure the degree to which U.S. investors actively change their portfolio holdings in the direction of previous country-level stock returns. Specifically, define $X_{i,t}$ as the active change in the weight of country i in U.S. investors’ foreign portfolio at time t :

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

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 $r_{p,t} = \sum_{i=1}^{Nt} w_{i,t-1} r_{i,t}$; and $w_{i,t}$ is the weight of country i at time t in U.S. investors’ portfolio. If investors followed a buy-and-hold strategy, $X_{i,t}$ would equal zero. There are three momentum measures:

$$LM_k = \frac{1}{T} \sum_{t=1}^T \sum_{i=1}^{N_t} X_{i,t} (r_{i,t-k} - r_{p,t-k}) \quad (2)$$

$$BM_k = \frac{1}{T} \sum_{t=1}^T \sum_{i=1}^{N_t} \sum_{X_{i,t} > 0} X_{i,t} (r_{i,t-k} - r_{p,t-k}) \quad (3)$$

$$SM_k = \frac{1}{T} \sum_{t=1}^T \sum_{i=1}^{N_t} \sum_{X_{i,t} < 0} X_{i,t} (r_{i,t-k} - r_{p,t-k}) \quad (4)$$

where N_t is the number of countries held in the portfolio at time t and k is the number of periods the returns are lagged. A significant, positive LM measure indicates a momentum trading strategy: U.S. investors on average increased the weights on countries whose equities performed well (relative to the other markets) k periods ago. A significantly negative value of LM would be evidence of contrarian trading, which is consistent with a portfolio balancing effect. The two additional momentum statistics isolate trading when investors increase country weights (the BM measure) from when they decrease country weights (the SM measure).

To ascertain the relationship between reallocations and future returns, we use the conditional weight-based measure (CWM), a portfolio-based measure developed by Grinblatt and Titman (1989, 1993), Eckbo and Smith (1998), and Ferson and Khang (2002) that is based on an estimate of the sum of the covariances between changes in portfolio weights and future abnormal returns (that is, the component of the return that is not forecastable using public information). This measure is useful in two ways: One, it is a direct measure of the relationship between portfolio reallocations and prospective returns. Two, it is also used in the literature as a gauge of private information or an informational advantage; under time-varying expected

returns, a risk-averse investor with non-increasing absolute risk aversion would move into (out of) the market when private information indicates a positive (negative) abnormal return relative to that predicted using public information. When the private information signals are on average correct, the estimate of the sum of the conditional covariances between changes in portfolio weight and future abnormal returns will be positive.

CWM is set up as follows. Define the estimate of the sum of the conditional covariances as

$$\sum_{i=1}^{N_t} Cov(w_{i,t}, r_{i,t+1} | \Omega_t) = \sum_{i=1}^{N_t} E [(w_{i,t} - w_{i,t}^b) (r_{i,t+1} - E(r_{i,t+1} | \Omega_t)) | \Omega_t] \quad (5)$$

where $w_{i,t}^b$ is the benchmark weight of country i at time t . Let the benchmark be a buy-and-hold weight of lag k defined as

$$w_{i,t}^b = w_{i,t-k} \prod_{\tau=t-k+1}^t \left(\frac{1 + r_{i,\tau}}{1 + r_{p,\tau}} \right) \quad (6)$$

Estimate the conditional portfolio weight-based measure via GMM:

$$e_{i,t+1} = r_{i,t+1} - \mathbf{b}_i' \mathbf{Z}_t \quad (7)$$

$$e_{CWM,t+1} = \sum_{i=1}^{N_t} (w_{i,t} - w_{i,t}^b) e_{i,t+1} - \phi_p \quad (8)$$

Equation (7) 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. Z_t , a subset of Ω_t , are public information variables. We use three variables to proxy for public information: (1) lagged changes in the short-term interest rate (U.S. Treasury three-month yield), (2) lagged changes in term structure spread (U.S. Treasury 10-year yield minus U.S. Treasury 3-month yield), and (3) lagged world excess returns.⁴ Each error in equation (7) has an interpretation of an abnormal return. Equation (8) is the error from estimating an average of the conditional covariances between changes in portfolio weights and future abnormal returns. ϕ_p is the average of conditional weight measure across the full sample. Set up the following system of moment conditions

$$g_t = \begin{bmatrix} e_i \cdot Z \\ e_{CWM} \cdot Z \end{bmatrix} \quad (9)$$

The vector of sample moment conditions g is a $NL+L$ vector, where L is the number of information variables, and the parameters are N vectors of L by 1 (\mathbf{b}_i) and the scalar ϕ_p . Because the starting date in our dataset varies by country, follow Bansal and Dahlquist (2000) and define an indicator variable $I_{i,t}$ that denotes data availability for a country i at time t . As long as $I_{i,t}$ is independent of the error terms from equations (7) and (8)—that is, for example, missing data are not all in periods with abnormally high excess returns—the indicator variable can be used to in effect fill in missing values with zeros. The augmented set of moments conditions are

⁴ These information variables 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). We also experimented with lagged local excess returns, but found that including this variable does 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 (2006), who account for this bias in a study of the U.S. market, and Ang and Bekaert (2007) and Bekaert, Harvey, and Lundblad (2007), who use Monte Carlo simulations for a range of emerging and developed markets, find no predictive power for the dividend yield.

$$g_t = \begin{bmatrix} e_i \cdot Z \cdot I_{i,t} \\ e_{CWM} \cdot Z \end{bmatrix} \quad (10)$$

The CWM measure is about abnormal returns market-by-market. The final measure we use is designed to ascertain whether reallocations actually led to higher total portfolio returns. Consider a measure, which we refer to as timing or TM, that captures the degree to which U.S. investors correctly anticipate future returns within the context of their entire foreign equity portfolio, rather than just at the country-level. The construction of TM is similar to the LM measure, but is forward looking:

$$TM_k = \frac{1}{T-k} \sum_{t=1}^{T-k} \sum_{i=1}^{N_t} X_{i,t} (r_{i,t+k} - r_{bhp,t+k}) \quad (12)$$

where

$$w_{i,t+k-1}^{bhp} = w_{i,t-1} \prod_{\tau=t}^{t+k-1} \left(\frac{1 + r_{i,\tau}}{1 + r_{p,t,\tau}} \right) \quad (13)$$

$$r_{bhp,t+k} = \sum_{i=1}^{N_t} w_{i,t+k-1}^{bhp} r_{i,t+k} \quad (14)$$

and where $X_{i,t}$ is the active portfolio shift defined in (1); $r_{p,t,\tau}$ is the return that would have been realized at time τ on the buy-and-hold portfolio formed at time t ; $r_{bhp,t+k}$ is the return that would have been realized at time $t+k$ on the buy-and-hold portfolio (specifically, U.S. investors' foreign portfolio had there not been an active shift at time t); and k is the number of periods ahead the shift is evaluated (we estimate (12) for $k=1, 2$, and 3). A significantly positive value of TM

would indicate that U.S. investors on average increased the weights on countries whose equities were set to outperform the buy-and-hold benchmark k periods in the future. We estimate the measure via generalized method of moments (GMM).

As was the case with the momentum measure, the main TM measure combines investors' actions when they buy with their actions when they sell. We also jointly compute separate timing measures for buys (BTM) and sells (STM). Specifically, the BTM statistic will indicate whether returns are correctly anticipated when investors increase country weights; STM applies when investors decrease country weights.

$$BTM = \frac{1}{T-k} \sum_{t=1}^{T-k} \sum_{i=1}^{N_t} \sum_{X_{i,t}>0} X_{i,t} (r_{i,t+k} - r_{bhp,t+k}) \quad (15)$$

$$STM = \frac{1}{T-k} \sum_{t=1}^{T-k} \sum_{i=1}^{N_t} \sum_{X_{i,t}<0} X_{i,t} (r_{i,t+k} - r_{bhp,t+k}) \quad (16)$$

where BTM (STM) is a measure of correct anticipation when investors buy (sell) securities. We estimate all these measures via GMM.

3. The Results

CTWW find that within their foreign equity portfolios, U.S. investors do not chase past returns and instead engage in a form of portfolio rebalancing by selling past winners, switch into countries that subsequently have high (US dollar) abnormal returns, and earn strong unconditional returns relative to volatility. In this section we extend that analysis by addressing a number of issues concerning whether currency returns or underlying equity returns are behind

those results, whether U.S. investors switched into the “right” portfolios, and the nature of U.S. investors’ global (i.e., including U.S.) equity portfolios.

3.1 The Roles of Currency Returns and Underlying Equity Returns

The returns U.S.-based investors face in foreign equity markets are comprised of two components: returns on the currency and returns on the underlying local-currency equity market. We analyze the relationship between portfolio reallocations and past and prospective returns, with returns being not total dollar returns but rather currency returns and, alternatively, returns on the underlying equity market (Table 1).⁵

The analysis shows that for both the momentum (Panel A) and CWM (Panel B) analyses, the relationship between reallocations and past and prospective *currency* returns is insignificant in almost every case. There is no evidence that U.S. investors reallocate their portfolios toward countries whose currencies recently appreciated—indeed, the one significant coefficient for currency returns is a negative coefficient on LM lag 1, indicating contrarian rather than returns-chasing behavior—nor are the portfolios reallocated toward currencies that subsequently have positive abnormal currency returns.

For underlying equity returns, the momentum analysis shows ample evidence U.S. investors sell equity markets that recently performed well (i.e., in the Equity Returns block of Panel A, all SM coefficients are negative and significant). The partial rebalancing behavior highlighted in CTWW (and reproduced in the Total Returns sections of Table 1) owes to rebalancing away from equity markets that recently performed well, not to a relationship between past currency movements and returns. While one BM statistic is positive and significant—consistent with returns chasing when buying (but not when selling) at a one-month

⁵ The total returns block in Panel A and the total returns line in Panel B replicate CTWW results.

horizon—the overall LM momentum statistic for equity returns is never significant, indicating that characterizing U.S. investors as momentum traders in their foreign portfolios would be inappropriate.

The Equity Returns line of Panel B shows that the CTWW result that U.S. investors switch into equity markets that subsequently perform abnormally well (compared to their own past returns) is due to an ability time the local equity markets, as all CWM coefficients for Equity Returns are positive and significant.⁶

The results in this section are not inconsistent with empirical work on the predictability of currency movements and equity prices. As currency movements are notoriously difficult to predict at the one- to three-month horizons we study (Meese and Rogoff (1983), Cheung, Chinn, and Pascual (2005)), it would be surprising to find that U.S. investors reallocated based on past currency movements or were able to time future currency movements. In contrast, there is evidence of equity return predictability, especially for one market relative to another. Ferson and Harvey (1993) find some predictability of international equity returns, Kasa (1992) finds mean reversion (and, hence, some predictability) in two-country equity portfolios, and Richards (1995) and Balvers, Wu, and Gilliland (2000) find that country-specific returns relative to a world index exhibit mean reversion, suggesting that the contrarian strategy of DeBondt and Thaler (1985) and Richards (1997) might be profitable. Thus, the partial rebalancing we find—the selling of equity markets that performed well in the recent past—and the switching into markets that subsequently have high abnormal returns are both consistent with the literature on the predictability of international equity market returns.

⁶ Results with stock swaps excluded, not shown, point in the same direction: the action comes from the underlying equity returns, not the currency returns.

3.2 Did U.S. investors switch into the right portfolios?

The CWM statistic is widely used to ascertain the extent to which investors successfully use private information when reallocating their portfolios. But the CWM statistic is not directly related to performance. A portfolio could evolve in a way that produces a positive and significant CWM statistic but does not actually produce higher returns. In other words, the CWM is positive if the investor switched into country x just before country x had higher than expected returns (specifically, positive abnormal returns), but if the switch meant foregone returns in country y just before it had even higher returns, the switch into x need not have improved portfolio performance. CTWW showed that U.S. investors switched into markets that subsequently had high abnormal returns, and we have shown that this owes to timing the underlying equity markets, but did these reallocations lead to improved portfolio performance?⁷

As noted in Section 2.2, we can use LM-like analysis to examine whether reallocations actually led to higher portfolio returns. The timing measures (TM, BTM, and STM) capture the degree to which U.S. investors correctly anticipate future returns within the context of their entire foreign equity portfolio, rather than just at the country-level; a significantly positive value of TM would indicate that U.S. investors on average increased the weights on countries whose equities were set to outperform the buy-and-hold benchmark k periods in the future.

The TM line in Table 2 (Panel A) shows results for the main timing measure for the three country groupings. The TM measure is sometimes positive, sometimes negative, but never statistically significant. When U.S. investors reallocate within their foreign equity portfolios,

⁷ Because the information variables are not all that informative (that is, it is difficult to predict one-month ahead equity returns, whether local variables are included or not), the CTWW results would have been nearly identical had information variables been excluded. In that case, those results would be interpreted as “switching into markets just prior to higher than their time-series average returns”.

there is no evidence that their reallocations improved portfolio performance.⁸ The results that focus on instances in which U.S. investors increased the portfolio weight on country i (BTM Buy Only) and instances when they decreased the weight on country i (STM Sell Only) are similar. Taken together, these results suggest that U.S. investors are not particularly skilled when choosing to reallocate within their foreign equity portfolios.

Table 2 (Panel B) shows results for the timing measure for currency and equity returns. In the Currency Returns and Equity Returns blocks, only two of 18 coefficients are significant, so the weight of evidence suggests that on average U.S. investors are not switching into countries in a manner that systematically improves or harms the performance of their foreign portfolios.

The evidence in Table 2 indicates that while U.S. investors systematically switch into markets that are about to experience high abnormal returns (or higher than their average returns), there is no evidence that these portfolio reallocations actually improve the performance of their foreign equity portfolios.⁹

3.3 The global equity portfolio

The focus so far in this paper, and in CTWW, has been on U.S. investors' foreign portfolio. The analysis can be viewed as assessing whether, within their foreign portfolios, U.S. investors chase returns and are at an informational disadvantage, and whether the relationships owe to currency returns or the underlying equity returns. But the foreign component itself is not stagnant. In fact, as Figure 1 shows, the foreign component of U.S. investors' equity portfolio has been increasing sharply, from roughly 10 percent in the 1990s to 20 percent more recently.

⁸ This is consistent with Curcuro, Dvorak, and Warnock (2010), who find that U.S. investors show no evidence of timing ability when they shift their portfolio between foreign debt and foreign equity.

⁹ Removing stock swaps would not change the conclusions from Tables 2 and 3. The only material difference is that the coefficient on TM F1 for All Countries Total Returns, marginally insignificant in the tables, becomes marginally significant at the 10% level.

In this section we bring in data on U.S. investors' domestic portfolio to examine attributes of their global (i.e., U.S. and rest of the world) equity portfolio. To do this analysis, we group the world into nine countries/regions: United States; United Kingdom; Canada; Japan; Euro Area (Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands, Portugal); Other Developed Europe (Switzerland, Australia, Denmark, Norway, Sweden); Emerging Europe, Middle East and Africa (Czech Rep, Hungary, Israel, Poland, Russia, Turkey, South Africa); Latin America (Argentina, Brazil, Chile, Columbia, Mexico, Peru); and Other Asia (China, Hong Kong, Indonesia, India, Korea, Malaysia, Pakistan, Philippines, Singapore, Thailand, Taiwan).

We caution that with only nine groups our tests suffer from a loss of power, so the results in this section should be taken only as indicative. Moreover, it is not as clear what returns index should be used to capture U.S. investors' returns in U.S. equity markets. For comparability with the other indices in this paper we will use the MSCI U.S. index, which contains roughly 300 stocks. But a case can be made for using a broader index such as the CRSP value-weighted index. We know that foreigners tend to hold the biggest and most liquid stocks in a market,¹⁰ but domestic investors likely hold a much broader portfolio of domestic stocks. In what follows we report results based on MSCI returns; more work on this issue is needed.

In part because of power issues, we find very few significant results when examining global portfolios. In our momentum tests (Table 3 Panel A), the signs of the results are in line with our previous analysis: There is no evidence of momentum trading, and the SM statistics are largely negative (some significantly so). Similar results on (the lack of) momentum trading are obtained when returns are separated into the contributions of currency and equity movements.

¹⁰ Kang and Stulz (1997), Dahlquist and Robertsson (2001), Grinblatt and Keloharju (2001), Edison and Warnock (2004), and Leuz, Lins, and Warnock (2010).

For the CWM and TM tests, the results are insignificant (Panels B and C). On average U.S. investors are not switching into regions in a manner that systematically improves or harms the performance of their global equity portfolios.

Finally, the unconditional portfolio performance is quite strong (Table 54, with U.S. investors' global portfolios earning more (monthly excess returns of 35 basis points versus 15 basis points for the global value-weighted portfolio, or over 200 basis points more per year) with no increase in volatility. The resulting Sharpe ratio is higher (8.4 versus 3.5) and significantly so at the 10% level. The superior unconditional performance of U.S. investors' global portfolios appears to be concentrated in the early part of the sample (Figure 2), but the reader should note that year-by-year returns are driven mostly by currency returns. That is, because U.S. investors' equity portfolios are heavily weighted toward U.S. equities, even though global equity markets can at times decouple, over short periods the primary driver of U.S. investors' over- or under-performance will be whether the dollar is appreciating or depreciating.

Overall, the results on the global portfolios, while mostly insignificant, suggests that as within their foreign portfolios, in their global portfolios U.S. investors do not chase returns and do not appear to be at an informational disadvantage.

4. Conclusion

Using portfolio data on international equity holdings and portfolio-based techniques, we do not find significant evidence of a particular trading strategy with respect to currency movements. Rather, we find that in their equity portfolios the trading styles documented by CTWW—that U.S. investors do not chase past equity returns, nor do they refrain from rebalancing their international portfolios, nor do they appear to be at an informational

disadvantage when they venture abroad—are due to a relationship between reallocations and returns of the underlying equity markets. We also find that U.S. investors beat the value-weighted global benchmark by over 200 basis points per year from 1990-2008.

Further analysis indicates that the trading styles we have documented in this paper do not cause superior overall portfolio performance. While U.S. investors shifted into countries' equity markets that were about to experience high abnormal returns, doing so did not significantly improve the portfolio performance.¹¹ That is, they shifted into markets at the right time, but not necessarily into the best portfolio at the right time.

¹¹ Our evidence here is not inconsistent with the evidence in Curcuru, Dvorak, and Warnock (2008, 2010). Note that Curcuru, Dvorak, and Warnock (2010) find that within their U.S. portfolios *foreigners'* trading between U.S. stocks and U.S. bonds degrades their portfolio performance by about 65 basis points a year, but that for U.S. investors timing between foreign bonds and foreign stocks neither improves nor denigrates portfolio returns.

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Table 1**The Relationship between Reallocations and Past and Prospective Equity and Currency Returns: Foreign Equity Portfolio**

The analysis in this table is for 43 foreign countries for the period from January 1990 to December 2008. The Total Returns blocks in both panels replicate CTWW results. In the second and third blocks currency or equity market returns are used, rather than total (dollar) returns. The LM statistic is a measure of momentum based on deviations of portfolio weights from a passive buy-and-hold strategy. The BM statistic is a measure of momentum based on the *positive* portfolio weight deviations from a passive buy-and-hold strategy. The SM statistic is a measure of momentum based on the *negative* portfolio weight deviations from a passive buy-and-hold strategy. *Lag 1, Lag 2, and Lag 3* correspond to the measure of momentum based on returns lagged 1, 2, and 3 months, respectively. In Panel B, CWM is a measure of the relationship between portfolio reallocation and future abnormal returns for $k=1, 2,$ or 3 months ahead. Newey and West (1987) standard errors are in parentheses. ** Statistically significant at the 5 percent level, * statistically significant at the 10 percent level.

Panel A. Momentum Analysis

	Total Returns			Currency Returns			Equity Returns		
	Lag 1	Lag 2	Lag 3	Lag 1	Lag 2	Lag 3	Lag 1	Lag 2	Lag 3
LM (Buy and Sell)	0.005 (0.144)	-0.169 (0.152)	-0.179 (0.146)	-0.122* (0.064)	-0.082 (0.071)	-0.027 (0.069)	0.146 (0.132)	-0.059 (0.135)	-0.135 (0.145)
BM (Buy Only)	0.159 (0.123)	0.064 (0.114)	0.036 (0.103)	-0.084 (0.052)	-0.067 (0.051)	-0.039 (0.051)	0.249** (0.107)	0.147 (0.099)	0.082 (0.107)
SM (Sell Only)	-0.154** (0.056)	-0.232** (0.065)	-0.215** (0.065)	-0.039 (0.027)	-0.016 (0.035)	0.012 (0.029)	-0.103* (0.055)	-0.207** (0.057)	-0.217** (0.060)

Panel B. CWM Analysis

	k=1	k=2	k=3
Total Returns	0.369** (0.147)	0.649** (0.211)	0.735** (0.274)
Currency Returns	0.037 (0.065)	-0.004 (0.010)	-0.085 (0.134)
Equity Returns	0.319** (0.137)	0.694** (0.221)	0.954** (0.302)

Table 2**The Relationship between Reallocations and Future Portfolio Returns: Foreign Equity Portfolio**

The TM, BTM, and STM statistics measure timing based on deviations of portfolio weights from a passive buy-and-hold strategy, with BTM (STM) based only on the *positive (negative)* portfolio weight deviations from a passive buy-and-hold strategy. Data are for January 1990 through December 2008). *F1, F2, F3* correspond to the measure of timing based on returns 1, 2, and 3 months forward, respectively. Newey and West (1987) standard errors are in parentheses. * Statistically significant at the 10 percent level.

Panel A. Total Returns									
	All Countries			Advanced Economies			Emerging Markets		
	F1	F2	F3	F1	F2	F3	F1	F2	F3
TM (Buy and Sell)	0.181 (0.112)	0.033 (0.160)	-0.196 (0.156)	0.097 (0.113)	0.058 (0.174)	-0.211 (0.145)	0.471 (0.326)	0.101 (0.324)	0.392 (0.375)
BTM (Buy Only)	0.125 (0.090)	0.122 (0.124)	-0.123 (0.128)	0.051 (0.090)	0.126 (0.129)	-0.146 (0.127)	0.255 (0.210)	0.086 (0.184)	0.128 (0.232)
STM (Sell Only)	0.056 (0.055)	-0.089 (0.058)	-0.073 (0.056)	0.045 (0.057)	-0.068 (0.062)	-0.065 (0.050)	0.216 (0.178)	0.151 (0.183)	0.264 (0.187)

Panel B. Currency and Equity Returns (All Countries)						
	Currency Returns			Equity Returns		
	F1	F2	F3	F1	F2	F3
TM (Buy and Sell)	-0.009 (0.066)	-0.083 (0.063)	-0.013 (0.074)	0.214 (0.149)	0.152 (0.189)	-0.152 (0.164)
BTM (Buy Only)	-0.056 (0.045)	-0.088* (0.050)	-0.024 (0.053)	0.188* (0.103)	0.211 (0.149)	-0.119 (0.137)
STM (Sell Only)	0.047 (0.030)	0.005 (0.030)	0.011 (0.032)	0.026 (0.071)	-0.059 (0.061)	-0.033 (0.052)

Table 3
U.S. Investors' Global Equity Holdings

The sample for this table is U.S. holdings of equities in nine countries/regions: United States, United Kingdom, Canada, Japan, Euro Area (Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherlands, Portugal), Other Developed Europe (Switzerland, Australia, Denmark, Norway, Sweden); Emerging Europe, Middle East and Africa (Czech Rep, Hungary, Israel, Poland, Russia, Turkey, South Africa); Latin America (Argentina, Brazil, Chile, Columbia, Mexico, Peru); and Other Asia (China, Hong Kong, Indonesia, India, Korea, Malaysia, Pakistan, Philippines, Singapore, Thailand, Taiwan). Methodologies in Panels A, B and C are identical to those in Tables 1 and 2; see those tables for more information. For all panels, sample period is January 1990 through December 2008; Newey and West (1987) standard errors are in parentheses; asymptotic *p*-values computed from Newey and West (1987) standard errors are in brackets; and ** denotes statistical significance at the 5 percent level.

Panel A: The Relationship between Reallocations and Past Returns

	Total Returns			Currency Returns			Equity Returns		
	Lag 1	Lag 2	Lag 3	Lag 1	Lag 2	Lag 3	Lag 1	Lag 2	Lag 3
LM (Buy and Sell)	-0.024 (0.035)	-0.082** (0.034)	-0.041 (0.032)	-0.060 (0.042)	-0.041 (0.038)	-0.021 (0.035)	0.004 (0.026)	-0.066** (0.033)	-0.034 (0.030)
BM (Buy Only)	-0.019 (0.028)	-0.050* (0.029)	-0.034 (0.027)	-0.055 (0.034)	-0.037 (0.033)	-0.019 (0.029)	0.010 (0.021)	-0.035 (0.029)	-0.238 (0.025)
SM (Sell Only)	-0.005 (0.011)	-0.032** (0.013)	-0.007 (0.011)	-0.005 (0.015)	-0.004 (0.011)	0.001 (0.011)	-0.006 (0.012)	-0.031** (0.012)	-0.006 (0.014)

Panel B: The Relationship between Reallocations and Future Returns: CWM Analysis

	k=1	k=2	k=3
Total Returns	-0.041 (0.025)	0.014 (0.037)	0.056 (0.046)
Currency Returns	-0.022 (0.024)	-0.022 (0.024)	0.005 (0.033)
Equity Returns	-0.007 (0.022)	0.038 (0.034)	0.058 (0.042)

Table 3 (cont.)

Panel C: The Relationship between Reallocations and Future Portfolio Returns: TM Analysis									
	All Countries			Currency Returns			Equity Returns		
	F1	F2	F3	F1	F2	F3	F1	F2	F3
TM (Buy and Sell)	0.028 (0.034)	0.016 (0.026)	-0.037 (0.027)	0.030 (0.034)	0.011 (0.032)	-0.028 (0.029)	0.023 (0.033)	-0.003 (0.030)	-0.025 (0.023)
BTM (Buy Only)	0.006 (0.027)	0.005 (0.022)	-0.031 (0.027)	0.018 (0.028)	0.001 (0.027)	-0.025 (0.025)	0.002 (0.025)	0.000 (0.009)	-0.020 (0.020)
STM (Sell Only)	0.023 (0.017)	0.011 (0.013)	-0.006 (0.013)	0.013 (0.011)	0.009 (0.014)	-0.003 (0.012)	0.021 (0.017)	-0.003 (0.011)	-0.005 (0.010)

Table 4**The Unconditional Performance of U.S. Investors' Equity Portfolios**

This table reports means, standard deviations, and Sharpe ratios (mean divided by standard deviation) for the global equity portfolios, with returns being in excess of a one-month Eurodollar interest rate, 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. Sample period is January 1990 through December 2008; Newey and West (1987) standard errors are in parentheses; asymptotic *p*-values computed from Newey and West (1987) standard errors are in brackets; and * denotes statistical significance at the 10 percent level.

	Value-Weighted Benchmark	U.S. Investors' Global Portfolio
Mean	0.153	0.350
Std Dev	4.343	4.188
Sharpe Ratio (%)	3.533	8.357
Chi-squared: Sharpe Ratio		3.228* [0.072]

Figure 1
Foreign Share of U.S. Equity Holdings

This figure depicts the foreign share of U.S. equity holdings. U.S. holdings of foreign equities and foreign holdings of U.S. equities are from the Bertaut and Tryon (2007) dataset. U.S. holdings of U.S. equities are (total U.S. equity market capitalization – foreign holdings of U.S. equities).

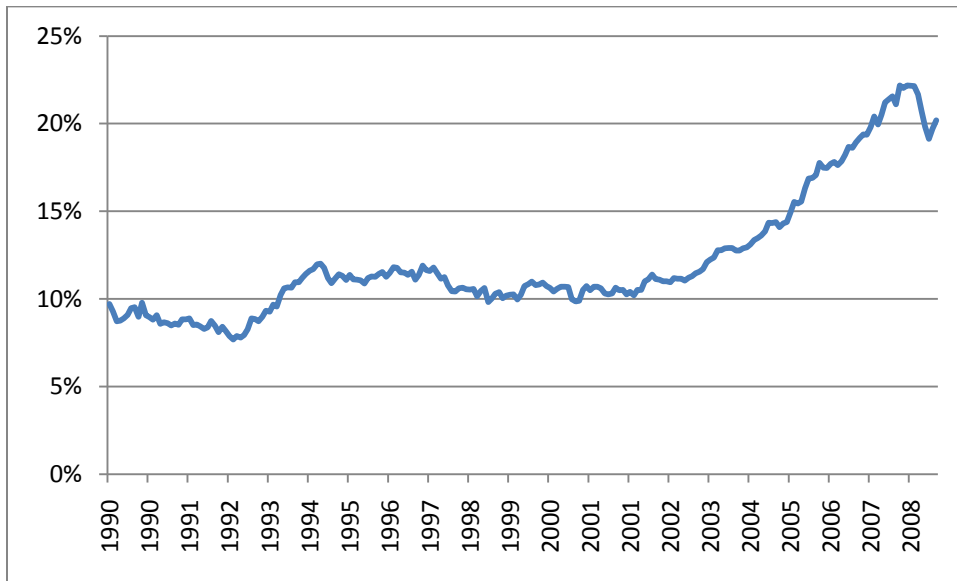


Figure 2

Performance Comparison: U.S. Investors and the Value-Weighted Benchmark

This figure depicts annual returns (in excess of a one-month Eurodollar interest rate) for two portfolios. *Value-Weighted* is a benchmark portfolios based on MSCI market capitalization weights. *U.S. Investors* is a portfolio based on U.S. investors' holdings.

