Why Has the U.S. Foreign Portfolio Share Increased?

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Abstract

For decades, the U.S. foreign portfolio share remained relatively constant; yet, from 1994 to 2010, the share of equity wealth U.S. investors allocated to foreign markets nearly doubled. Using a sample of monthly bilateral equity holding between investors in the U.S. and 45 countries, I document that most of the increase occurred from U.S. investors passively allowing their foreign holdings to appreciate. Traditional portfolio choice theories predict that the gains to holding foreign equity are increasing in wealth. Alternative theories of ambiguity aversion and speculative investment predict that uncertainty and misvaluation impact international portfolio choice as well. Controlling for the passive change in the U.S. foreign portfolio share, I find that the portfolio reallocations of U.S. investors are consistent with changes in foreign wealth sending U.S. investors abroad and less so towards markets with higher uncertainty and misvaluation. I show that over this period, U.S. investors sold substantial portions of domestic equity to foreign investors; however, foreign investors in markets where misvaluation was most severe increased their share of the U.S. stock market at a relatively lower rate.

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For decades the share of equity wealth that U.S. investors allocated abroad remained relatively flat; however, in recent years, it has grown substantially. In 1994 the U.S. foreign portfolio share was 10.52%, by 2010, it rose to 21.74%. Traditional portfolio choice theories predict that investors limit their foreign holdings when the costs of international diversification outweigh the benefits. Theories of ambiguity aversion (Ellsberg, 1961) and behavioral finance suggest that uncertainty and speculation play important roles in foreign investment as well. While these theories offer different perspectives on why U.S. investors continue to allocate the majority of their equity wealth to domestic stocks (Lewis, 2011), the increased foreign portfolio share would suggest that through time, this tendency has waned.

Using a sample of monthly bilateral equity holdings between the U.S. and 45 countries from 1994 to 2010, I examine how the U.S. foreign portfolio share has increased. Specifically, I decompose the change in the U.S. foreign portfolio share into the active changes due to the trades of investors and the passive changes due to valuation changes. I find that most of the increase in the foreign portfolio share has been due to passive changes. For my sample, the share of the U.S. stock market capitalization held by foreign investors rose from 5.90% in 1994 to 13.29% in 2010. The increased foreign share of the U.S. stock market indicates that U.S. investors sold sizeable portions of their domestic equity holdings to foreign investors. My results show that the U.S. foreign portfolio share has increased as U.S. investors have passively allowed their foreign holdings to appreciate and actively sold their domestic equity holdings to foreign investors. Consistent with this implication, using monthly bilateral equity flows collected by the U.S. Department of the Treasury International Capital System (TIC), I find that over this period the sum of U.S. net equity flows relative to the U.S. stock market capitalization has been negative.

To understand why the U.S. foreign portfolio share has increased through time, I test whether the cross-country variation in the monthly changes of U.S. investors' foreign equity holdings was consistent with traditional portfolio choice, theories of uncertainty aversion, or speculative investment. Each portfolio choice theory has pricing implications for returns and exchange rates; therefore, I control for the

passive change in U.S. investors' foreign equity holdings. First, holding risk aversion constant, traditional portfolio choice theories predict that if maintaining a foreign investment position is costly, the gains to holding foreign equity are increasing in wealth. Second, holding the level of ambiguity aversion constant, theories of portfolio choice under uncertainty predict that the gains to investing abroad are decreasing in aggregate uncertainty (Uppal and Wang, 2003; Epstein, 2001). Third, behavioral work on international investment suggests that sentiment can influence international capital flows (Baker, Foley, Wurgler, 2009; Hwang, 2009; Baker, Wurgler, Yuan, 2012). Holding the limits to arbitrage constant, speculative investment predicts a positive relation between market misvaluation and investors allocation to foreign markets.

Empirically, I find that the change in U.S. stock portfolios across countries supports predictions of wealth and ambiguity. I measure changes in financial wealth with market returns. Additionally, I use growth in industrial production to proxy for monthly changes in non-financial wealth. Holding passive changes constant, I find that U.S. portfolio reallocations are positively associated with current and future changes in foreign wealth and not significantly associated with domestic changes in wealth. The total change in the U.S. foreign portfolio share displays a significantly positive relation with current global returns and a negative relation with lagged global returns. In my sample, the relation holds at the target country level and extends to lead growth in a target country's industrial production. Both findings are consistent with Curcuru, Thomas, Warnock, and Wongsman (2010) who find that U.S. investors partially rebalance and tend to sell past winners.[1] Finally, I find that the association between my proxy for increased uncertainty, the ratio of the highest standard deviation of daily market returns for any month in *t-3* to *t*, divided by the monthly minimum of the standard deviation of daily market returns for any month in *t-3* to *t*, and changes in the portfolio weights of U.S investors is negative and economically significant.

[1]An extensive literature examines whether net flows predict or chase market-level returns (see for example, Bohn and Tesar, 1996; Froot, O'Connell, and Seasholes, 2001). For a detailed discussion of how market-returns relate to non-domestic equity flows and portfolio reallocations, see Curcuru, Thomas, Warnock, and Wongsman (2010).

The relation is consistent with U.S. investors increasing their foreign portfolio share less towards market where uncertainty grew higher.

The results are less supportive of the predictions of speculative investment causing U.S. investors to increase their foreign portfolio share. To test whether U.S. investors have increased their holdings more towards target markets that experience more severe mispricing, I use the misvaluation component of each target country's market-to-book ratio (Baker, Foley, Wurgler, 2009; Hwang 2009). Holdings passive changes constant, I find a significantly negative association between a target market's misvaluation and U.S. investors' portfolio reallocations. U.S. investors reduced their mispriced holdings in equity markets that were more liquid at a higher rate, a result consistent with liquidity easing arbitrage. Lastly, across home countries, I examine the change in foreign investors' relative share of the U.S. equity market. In my sample, a home country's misvaluation component is negatively associated with changes in the relative share of the U.S. stock market, suggesting that foreign investors in markets that experienced higher levels of misvaluation increased their share of the U.S. stock market at relatively lower rates.

This paper relates to an extensive literature that examines why investors are less than perfectly globally diversified[2] and a growing literature on the impact of valuations on international portfolio reallocations (Curcuru et al, 2010, 2011). As such, my contribution is three fold. First, identifying equity holdings across target countries allows me to document where U.S. investors went and to disentangle how they got there, i.e. through trades or valuation changes. I show that the economic impact of the passive changes is large and controlling for them is empirically important. Second, monthly data increases the power to distinguish why investors go abroad. My experiments test competing theories of portfolio choice by exploiting cross-country variation in factors that change dynamically. Third, exploiting foreign investors' holdings of U.S. equity across home countries, I categorize which investors changed their share of the U.S. equity market. I show that foreign purchases of U.S. equity were considerable; pinpointing

[2]For detailed reviews of the home bias literature, see Lewis (2011) and Karolyi and Stulz (2003).

which specific countries changed their share of the U.S. equity market permits me to ask who came into the U.S.

The rest of the paper proceeds as follows. Section 2 describes the data and methodology I use to measure flows. Section 3 examines growth in the U.S. foreign portfolio share and foreign holdings of U.S. equity from 1977 to 2011. In section 4, I investigate the relation between changes in stock portfolios and wealth, uncertainty, and misvaluation. I conclude in section 5.

Section 2. Data and Methodology

In the first part of the paper, I describe the data on international portfolio holdings and equity flows. I then turn to the construction of the foreign holdings measures, active and passive changes in foreign holdings, and non-domestic equity flows scaled by holdings.

2.1 Equity Holdings Data Sources

To investigate the U.S. reallocation of non-domestic equity holdings, I use two main bilateral databases, the Bertaut and Tryon (2007) monthly database[3] from March 1994 to December 2010 and the *Treasury International Capital Reporting System (TIC)* monthly survey[4] from January 1994 to December 2010. The Bertaut and Tryon database allows me to identify U.S. residents' monthly holdings of foreign equity by country and also to identify foreign residents' monthly holdings of U.S. equity by country of origin. The database is maintained by the U.S. Federal Reserve Board.[5] The *TIC* monthly survey collects bilateral portfolio flows between U.S. residents and foreign counterparties that exceed US$ 50 million.[6]

[3] http://www.federalreserve.gov/pubs/ifdp/2007/910/ifdp910appendix.pdf
[4] http://www.treasury.gov/resource-center/data-chart-center/tic/Pages/fpis.aspx#usclaims
[5] An alternative data source for U.S. holding of non-domestic equity is the U.S. Federal Reserve Board *Flow of Funds Statistical Release Z.1* database. The Flow of Funds data provides quarterly measures of aggregate bilateral equity holdings between the U.S. and foreign markets. The correlation between the between aggregate holdings reported using the Bertaut and Tryon (2007) database and the *Flow of Funds* data is 0.98 over their overlapping time period (1994 – 2010), indicating that the data are consistent.
[6] Federal Reserve Bank of New York, TIC S Historic Reporting Changes notes that after January 2001 *TIC* S

The *TIC* survey is legally required and strictly enforced; therefore, its coverage is comprehensive. All data are reported in U.S. dollars.

The final sample includes U.S. bilateral holdings of 45 equity markets; the International Monetary Fund *World Economic Outlook 2000, Statistical Appendix, Data and Conventions* identifies 23 of the countries in the sample as "advanced economies" (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Israel, Italy, Japan, Korea, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom) and the remainder developing (Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Morocco, Pakistan, Peru, the Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey).

2.2 Measuring Equity Reallocation

I use three measures of equity reallocation: changes in the foreign portfolio share of U.S. investors total equity wealth, changes in the share of the U.S. stock market capitalization held by foreign investors, and non-domestic equity flows scaled by equity holdings. The foreign portfolio share measures the proportion of total equity wealth investors allocate abroad. The foreign share of the U.S. stock market capitalization measures the portion of total U.S. equity held by foreign residents. The equity flows measure investors' net purchases of non-domestic equity.

To calculate U.S. investors' domestic holdings and total equity wealth, I use a methodology similar to Kho et al. (2009). I obtain the month-end market U.S. market capitalization from *CRSP* and the month-end dollar value of foreign holdings of U.S. equity from the Bertaut and Tryon database. To

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changed the exemption level from US$ 2 million to US$50 million in either gross purchase or gross sales during a month (http://www.newyorkfed.org/banking/regrept/WebpageHistoricReportingChanges_TICS.pdf).U.S. Treasury *TIC* S Form instructions explain that once the exemption level is exceeded, reporting is required for the remainder of the calendar year regardless of the level of either purchase or sales in subsequent months (http://www.treasury.gov/resource-center/data-chart-center/tic/Documents/sinstr-june2011.pdf).

measure U.S. investors' holdings of domestic equity at time *t* (US Domestic Holdings$_t$), I take the capitalization of the U.S. market less the dollar value of foreign holdings of U.S. equity. I define a country in which U.S. investors hold equity as a target country and a country in which foreign investors hold U.S. equity as a home country. To measure U.S. investors' total equity wealth, I add U.S. domestic equity holdings and the total dollar value of their equity holdings for each target country in the sample (US Foreign Holdings$_{j,t}$). To measure portfolio weights (US Portfolio Weight$_{j,t}$), I scale the dollar value of U.S. foreign equity holdings of each target country by U.S. investors' total equity wealth:

$$US\ PortfolioWeight_{j,t} = \frac{US\ Foreign\ Holdings_{j,t}}{US\ Domestic\ Holdings_t + \sum_{j=1,45} US\ Foreign\ Holdings_{j,t}} \quad (1)$$

where US Portfolio Weight$_{j,t}$ is the relative portion of equity wealth U.S. investors allocate to country *j* at time *t*. In equation (1), the numerator is the dollar value that U.S. investors hold in target country *j* at time *t* and the denominator, the total equity wealth that U.S. investors have at time *t*, equals the dollar value of domestic equity that U.S. investors hold at time *t* plus the dollar value of their holdings of all the target countries in the sample at time *t*. The holdings data for Belgium and New Zealand are available starting in January 2000. The final sample contains 8883 country-month observations. To reduce the potential impact of outliers, I winsorize the portfolio weights at the 1% and 99% level.

I measure the total foreign portfolio share by summing U.S. investors' holding of foreign equity by U.S. total portfolio wealth:

$$US\ Foreign\ Portfolio\ Share_t = \frac{\sum_{j=1,45} US\ Foreign\ Holdings_{j,t}}{US\ Domestic\ Holdings_t + \sum_{j=1,45} US\ Foreign\ Holdings_{j,t}} \quad (2)$$

where US Foreign Portfolio Share$_t$ is the total dollar value of equity wealth that U.S. investors allocate to all the target countries in the sample at time *t*, the denominator is previously defined.

2.3 Measuring Passive Benchmark Reallocation

Each month I estimate a passive benchmark of the total equity wealth and portfolio weights based on the monthly price and exchange rate changes for the target countries. The benchmark measures how the foreign portfolio share would have changed had U.S. investors not made any trades. I use the same methodology described earlier, but substitute holdings with their dollar value implied by valuation changes. From the perspective of a U.S. resident, not all securities within an emerging market may be investable; for developed markets, investability is less of an issue. The S&P Broad Market Index (SP BMI) and the S&P Investable Country Index (SP IFCI) measure country-level returns for developed and emerging markets, respectively.[7] I supplement missing returns data with returns from DataStream.[8] I collect MSCI/DataStream foreign exchange rates.[9] To match the month-end dollar value of the monthly holdings data, I use the month-end (i.e. the last day of the month) observation to calculate monthly changes in price and exchange rates. For all countries, all returns are in U.S. dollars and measured with the Total Return Index.

To measure the passive asset allocation benchmark, I estimate the implied value of U.S. equity holdings of target country *j'*s equity at time *t* (Implied Holding$_{j,t}$) as a function of target country *j'*s price appreciation ($R_{j,t}$) and exchange rate changes ($S_{j,t}$):

$$ImpliedHolding_{j,t} = \left[US\ Foreign\ Holdings_{j,t-1}\right]\left[\left(1 + R_{j,t}\right)\right]\left[\left(\frac{1}{S_{j,t}}\right)\left(S_{j,t-1}\right)\right] \qquad (3)$$

where Implied Holding$_{j,t}$ is the passive benchmark's dollar value of U.S. investors' holdings of target country *j'*s equity at time *t*, $R_{j,t}$ is the monthly return of target country *j* from *t-1* to *t* in U.S. dollars, and

[7] The SP IFCI index for Argentina and Greece transitioned to SP BMI; I merge the Argentina SP IFCI with the SP BMI in October 2009 and the Greece SP IFCI to the Greece SP BMI in October 2002, the last month each IFCI was available, respectively. For Colombia and Pakistan I use each country's SP BMI.

[8] In most cases, the return series are available for the duration of my sample. For Brazil, China, Egypt, and Russia, the return series are available later in the sample.

[9] I use MSCI for Argentina, Australia, Austria, Belgium, Chile, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, India, Ireland, Italy, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Pakistan, Poland, Spain, the U.K.; I use DataStream for Brazil, Canada, China, Colombia, Czech Republic, Hungary, India, Israel, Japan, Korea, Norway, Peru, the Philippines, Poland, Russia, Singapore, South Africa, Sweden, Switzerland, Thailand, and Turkey.

$S_{j,t}$ is the spot exchange rate between the U.S. dollar and target country *j*'s local currency at time *t.* The expression produces implied holdings at time *t* based solely on investors in the U.S. passively holding the equity of target country *j.* I use these implied holdings to obtain a passive benchmark of portfolio weights and the U.S. foreign portfolio share. I describe this in detail next.

To measure passive portfolio weights, I normalize the dollar value of U.S. investors' implied holdings of foreign equity by implied total portfolio wealth:

$$US\ Passive\ PortfolioWeight(P,Fx)_{j,t} = \frac{ImpliedHolding_{j,t}}{US\ Domestic\ Holdings_t + \sum_{j=1,45} ImpliedHoldings_{j,t}} \quad (4)$$

where US Passive Portfolio Weight $(P,Fx)_{j,t}$ is the relative amount of equity wealth U.S. investors would have allocated to country *j* at time *t* had they passively held their foreign equity from time *t-1* to time *t*, Implied $Holding_{j,t}$ is previously defined and the denominator is the passive benchmark's total equity wealth that U.S. investors have at time *t.* The difference between the denominator of Equation (1) and Equation (4) is the denominator's second term, the dollar value of U.S. investors' implied equity holdings of all target countries in the sample. The implied holdings terms adjusts total portfolio wealth for investors passively holding their non-domestic equity portfolio from time *t-1* to time *t.*[10] As before, I winsorize the passive level of the portfolio weights at the 1% and 99% level.

To measure the passive benchmark of the total foreign portfolio share, I normalize the sum of investors' implied holdings of foreign equity by implied total portfolio wealth:

$$US\ Passive\ Foreign\ Portfolio\ Share(P,Fx)_{i,t} = \frac{\sum_{j=1,45} ImpliedHoldings_{j,t}}{US\ Domestic\ Holdings_t + \sum_{j=1,45} ImpliedHoldings_{j,t}} \quad (5)$$

where US Passive Foreign Portfolio Share $(P,Fx)_{i,t}$ is the total dollar value of equity wealth U.S. investors

[10]My methodology to calculate passive changes in the foreign portfolio share differs from the approach used in Curcuru et al. (2011), which applies buy and hold returns to the domestic holdings term to measure what they define as U.S. investors' global portfolio.

would have allocated to all target countries in the sample at time *t* had they passively held their foreign equity from time *t-1* to time *t*, and the denominator, U.S. investors' passive level of total equity wealth at time *t*, was defined previously.

2.4 Measuring Active Equity Allocation

To determine if U.S. investors actively reallocate their holdings, I estimate the changes in the U.S. portfolio weights that is not due to price changes and exchange rates:

$$Active\ Change\ USPortfolioWeight_{j,t} =$$

$$\Delta US\ Portfolio\ Weight_{j,t} - \Delta US\ Portfolio\ Weight(P, Fx)_{j,t} \quad (6)$$

To assess whether U.S. investors actively reallocate their total foreign portfolio share, I contrast the first difference in U.S. investors' total foreign portfolio share with the first difference implied by the passive benchmark:

$$Active\ Change\ USForeignPortfolio\ Share_t =$$

$$\Delta US\ ForeignPortfolio\ Share_t - \Delta USForeignPortfolio\ Share(P, Fx)_t \quad (7)$$

2.5 Measuring Foreign Investors' Share of U.S. Equity

To examine the share of the U.S. stock market held by foreign investors, I normalize the dollar value of U.S. equity held by residents in home country *j* at time *t* by the U.S. stock market capitalization*:*

$$Foreign\ Share\ of\ US\ Stock\ Market_{j,t} = \frac{(Foreign\ Holdings\ US\ Equity_{j,t})}{(US\ Stock\ Market\ Captialization_t)} \quad (8)$$

As before, I winsorize the foreign share of the U.S. stock market weights at the 1% and 99% level. To measure the extent to which investors in home country *j* change their relative share of the U.S. stock market at time *t*, I take the change in home country *j*'s foreign share of the U.S. stock market from time *t-1* to time *t.*

2.6 Measuring Portfolio Flows

I use three measures of bilateral equity flows: outflows, inflows, and net flows. Outflows measure the net amount of foreign equity purchased by U.S. residents. Inflows measure foreign residents' net purchases of U.S. equity. Net flows measure the netted portfolio flow between U.S. and foreign investors by taking the difference between outflows and inflows. To keep the economic interpretation of the equity flows comparable to the U.S. foreign portfolio share and the foreign share of the U.S. stock market, I scale outflows by U.S. investors' lagged holdings of total equity and normalize inflows and net flows by the U.S. stock market capitalization. I detail this below.

To measure non-domestic equity transactions for each country, I follow a methodology similar to Vagias and van Dijk (2010) and Forbes and Warnock (2011). I calculate outflows ($Outflow_{j,t}$) as U.S. investors' total purchases of target country *j*'s equity at time *t* (US Purchases Foreign $Equity_{j,t}$) less U.S. investors' total sales of target country *j*'s equity at time *t* (US Sales Foreign $Equity_{j,t}$), scaled by the lagged dollar value of U.S. investors' total portfolio wealth:

$$Scaled\ Outflow_{j,t} = \frac{(US\ Purchases\ Foreign\ Equity_{j,t} - US\ Sales\ Foreign\ Equity_{j,t})}{(US\ Domestic\ Holdings_{t-1} + US\ Foreign\ Holdings_{t-1})} \quad (9)$$

To measure inflows ($Inflow_{j,t}$) relative to the U.S. stock market capitalization, I take the difference between investors' in home country *j*'s total purchases of U.S. equity at time *t* (Foreign Purchases US $Equity_{j,}$) and total sales of U.S. equity at time *t* (Foreign Sales US $Equity_{t}$), scaled by the U.S. stock market capitalization:

$$Scaled\ Inflow_{j,t} = \frac{(Foreign\ Purchases\ US\ Equity_{j,t} - Foreign\ Sales\ US\ Equity_{j,t})}{(US\ Stock\ Market\ Captialization_{t})} \quad (10)$$

I compute net flows (Net $flow_{j,t}$) relative to the U.S. stock market capitalization, as U.S. investors' outflow to target country *j* at time *t* ($Outflow_{j,t}$) minus U.S. inflow from investors' in home

country j at time t ($Inflow_{j,t}$), scaled by the U.S. stock market capitalization:

$$Scaled\ Netflow_t = \frac{(Outflow_{j,t} - Inflow_{j,t})}{(US\ Stock\ Market\ Captialization_t)} \quad (11)$$

Section 3. How did the U.S. foreign portfolio share grow?

In this section, I use the three measures of foreign equity allocation defined in Section 2 to document the growth in U.S. investors' portfolio share from 1994 to 2010. To account for potential small sample bias, all standard errors are bootstrapped.

3.1 Changes in U.S. Portfolio Weights and the Foreign Share of U.S. Equity

Table 1 presents statistics on the level and monthly change in U.S. bilateral equity holdings over the sample period. For the target countries in the sample, I find that the relative share of U.S. equity wealth allocated abroad has increased by an average of 0.001% per month (Column 3). The average monthly change in portfolio weights has been significantly positive for both developed (0.002%) and emerging markets (0.001%). When I sum the monthly portfolio weight changes over the sample period, I find that the accumulated impact is large. The U.S. foreign portfolio share more than doubled over the sample period, growing by 10.721 percentage points. U.S. holdings in developed markets accounted for roughly four fifths of that increase. Column (4) reveals that had investors made no monthly trades, the average change in the U.S. foreign portfolio share would have been roughly the same. Column (5) shows that the average active change in U.S. investors' foreign portfolio weights has not been distinguishable from zero. This indicates that the growth in the U.S. foreign portfolio share has occurred by U.S. investors passively allowing their foreign holdings to appreciate. The findings are consistent with U.S. investors' partially rebalancing their foreign holdings by selling past winners, as documented in Curcuru et al. (2011).

When I examine foreign holdings of U.S. equity, I find that the average monthly change in the

percentage of the U.S. stock market capitalization held by foreign investors has been significantly positive (Column 8). The summed monthly changes in the foreign share of the U.S. stock market capitalization indicate that investors in developed home countries acquired U.S. equity at a higher rate (6.03%) than investors in emerging home countries (1.18%). The results are consistent with investors in developed countries tending to allocate more wealth abroad (Lane and Milesi-Ferretti, 2008). The overall increase in the percentage of the U.S. stock market held by foreign investors suggests that over the sample period, U.S. investors sold a substantial portion of their domestic equity holdings to foreign investors.

The share of U.S. equity wealth invested abroad did not rise in all target countries; U.S. portfolio weights decreased in Italy, the Netherlands, Argentina, Malaysia, and Mexico over the sample period. Interestingly, had U.S. investors not made monthly trades, U.S. investors' total allocation to those target countries still would have decreased. The results reiterate the previous findings that changes in the U.S. foreign portfolio share were largely driven by passive changes. Also of note, not all foreign investors increased their relative share of the U.S. equity market; the percentage of the U.S. stock market held abroad decreased in roughly one-fifth of the countries in the sample. Three were developed (Austria, Belgium, and Italy) and seven were emerging (Brazil, Egypt, Indonesia, Morocco, Pakistan, Philippines, and Turkey). The findings highlight the extent to which investors in developed home countries acquired increased shares of the U.S. stock market at higher rates than investors in emerging home countries.

3.2 U.S. Equity Cross Border Equity Flows

Table 2 reports the mean and sum of monthly bilateral equity flows between investors in the U.S. and investors in the countries in the sample. The results are generally consistent with the previous finding that, U.S. investors' allocation to developed markets grew at a larger rate than U.S. allocation to emerging markets. Column (2) shows that, in total, U.S. investors' net purchases of foreign equity relative to their total portfolio wealth increased by 6.335% over the sample period. It increased by more in developed

target countries (4.990%) than it did in emerging target countries (1.344%). Column (4) reports inflow scaled by the U.S. stock market capitalization. As before, in developed home countries investors acquired U.S. equity at relatively higher rate (7.950%) than investors in emerging home countries (0.206%). Column (6) shows that relative to the U.S. stock market capitalization, the total net flow over the sample period was -1.659%. This indicates that U.S. investors went abroad at a lower rate than non-U.S. investors entered into the U.S. stock market. Relative to the U.S. stock market capitalization, the total net flow between the U.S. and developed markets was negative (-2.832%) and positive between the U.S. and emerging markets (1.173%). In other words, the results indicate that the sales of domestic equity to foreign investors were largely driven by U.S. investors selling their domestic holdings to investors in developed countries.

Section 4. Why did U.S. investors increase their foreign portfolio share?

In this section, I examine whether the cross-country variation in allocation was consistent with traditional theories of portfolio choice, portfolio choice under uncertainty, or theories of speculative investment.

4.1 Did changes in wealth cause investors to increase their foreign portfolio share?

In this section, I investigate the relation between changes in wealth and changes in foreign equity holdings. Holding the level of risk aversion and the costs associated with investing abroad fixed, the gains from holding foreign equity will be an increasing function of wealth (Lane and Milesi-Ferretti, 2008). Additionally, gains and losses in non-financial wealth can lead investors to reallocate their stocks portfolios (Heaton and Lucas, 2000). All else equal, the wealth theory predicts a positive relation between changes in wealth and foreign investment.

To test the wealth hypothesis, I estimate a time-series OLS regression using the monthly total

change in the U.S. foreign portfolio share over the sample period. The passive changes in the foreign portfolio share would be directly impacted if changes in wealth change the net benefit of holding foreign equity. Active increases in the foreign portfolio share require investors to purchase foreign equity; therefore, active change will directly affect investors' total wealth. Consequently, an investor who needs to sell foreign equity to cover a loss of income or to diversify following an increase in non-financial wealth will reallocate through an active change.

The independent variables are proxies for changes in financial and non-financial wealth. I measure aggregate changes in financial wealth with current and lagged monthly U.S. stock market returns. Though investors are not perfectly globally diversified, they hold wealth abroad; hence, negative domestic or foreign returns would constitute a loss of wealth. To proxy for global changes in financial wealth, I use current and lagged monthly non-U.S. global stock market returns form the MSCI World Index, downloaded via DataStream. To account for the correlation between U.S. and foreign returns, I follow Bekaert et al. (2011) and orthogonalize current global returns to contemporaneous and past U.S. returns.[11] The ideal proxy for changes in non-financial wealth would be monthly changes in real GDP growth; however, GDP growth is not available at a monthly frequency. Therefore, I use monthly growth in U.S. industrial production.[12] Industrial production is provided by the U.S. Federal Reserve Board and downloaded from Jeffery Wurgler's website. Because investors may slowly respond to change in non-financial wealth, I measure the change in industrial production from time *t-3* to time *t*. Alternatively, investors may reallocate their portfolio holdings in anticipation of changes of non-financial wealth. To test whether future changes in non-financial income are associated with current changes in foreign investment, I also use the change in industrial production from time *t* to time *t+3*. Because the wealth

[11] The main findings in this section are not sensitive the use of orthogonal returns.

[12] Hobijn and Steindel (2009) show that from 1948 to 2009, the correlation between quarterly U.S. real GDP growth and U.S. industrial production is 0.8. For a detailed discussion on the high frequency relation between U.S. real GDP growth and industrial production see their paper and the citations there in. http://www.newyorkfed.org/research/current_issues/ci15-7.pdf

hypothesis predicts that both the passive and active change in the foreign portfolio share will be impacted by changes in wealth, I include current and lagged passive changes in the foreign portfolio share. Within this specification, the wealth hypothesis predicts that the estimated coefficient on the wealth measures and the passive changes will be positive. To account for potential small sample bias and seasonality, all standard errors are clustered by month and bootstrapped within each cluster.

Table 3 Panel A reports the results for the time-series regressions. Regressions (1) through (4) examine the total change in the U.S. foreign portfolio share. Regression (1) includes both U.S. market returns and passive changes in the foreign portfolio share in the estimation. The estimated coefficients on U.S. market returns are not significantly different from zero. The estimated coefficients on the current and lagged passive changes in the foreign portfolio share are significantly positive, indicating that a passive increase in equity wealth is associated with an increase in the foreign portfolio share. The coefficients on the passive changes imply that when the foreign portfolio share increases by 1 percentage point this month, U.S. investors increase their foreign portfolio share by 0.6045 percentage points that same month and by 0.1290 percentage points the following month. Repeating specification (1) with global returns and passive changes, Regression (2) shows the estimated coefficient on contemporaneous global returns is significantly positive and the estimated coefficient on lagged global returns is significantly negative. The results suggest that U.S. investors positively respond to current changes in foreign financial wealth and negatively respond to past global market returns. Regression (3) replaces global returns with lag and lead changes in industrial production. I do not find the estimated coefficients on the industrial production terms to be distinguishable from zero.[13] Regression (4) includes all three proxies for changes in wealth and passive changes. Both the estimated coefficients on the global returns and passive terms remain statistically and economically significant. I do not find that the estimated coefficients on either the U.S.

[13]In unreported results, I repeat specification (3) with lagged and lead industrial production growth measured over 6-month windows. I find that the association between lead growth in U.S. industrial production and current changes in the U.S. foreign portfolio share becomes significantly negative and the estimated coefficient on lagged industrial production is not distinguishable from zero.

return or industrial production terms are significantly different from zero.[14] The total foreign portfolio share results suggest that changes in wealth, specifically financial wealth abroad, are significantly associated with changes in U.S. investors' allocation to foreign markets.

The findings documented in Section (3) highlighted the economic importance of U.S. investors' sales of domestic equity to foreign investors. To understand whether these sales of domestic equity were related to changes in wealth, I turn to the changes in the aggregate share of the U.S. stock market held by foreign investors. The predictions of the wealth theory and changes in the level of foreign holdings of U.S. equity are not quite clear. If it is more costly to maintain a foreign investment position abroad than at home (Lane and Milessi-Ferritti, 2008; Black, 1976; Stulz, 1984), then when wealth falls investors can reallocate away from foreign markets by buying domestic stocks. This predicts that when U.S. investors lose wealth, the share of the U.S. stock market held by foreign investors also falls. Alternatively, U.S. investors may sell domestic equity to foreign investors to cover income loses. If U.S. investors sell domestic holdings to accommodate for wealth losses, then when wealth falls, the foreign share of the U.S. stock market should rise. To examine the relation empirically, I regress monthly changes in the total foreign share of the U.S. stock market on the wealth proxies described previously. To account for the possibility that U.S. investors may slowly unwind their domestic holdings for reason unrelated to wealth, I augment the specifications estimated in Models (1) through (4) with the lagged changes the foreign share of the U.S. market.

Regressions (5) through (8) document changes in the total foreign share of the U.S. stock market capitalization. I find evidence of a consistently negative relation between market returns and changes in aggregate foreign holdings of U.S. equity; I find no such relation with my proxy for changes in non-financial wealth. Regression (5) shows that the estimated coefficient on current and lagged U.S. returns is

[14]In an unreported F-test, I find that the estimated coefficients on current and lagged global returns are significantly different from one another, suggesting that the results presented in Regression (4) are not due to the test lacking power to distinguish between the marginal impact of current and lagged global returns.

significantly negative, but economically small. The coefficients imply that when U.S. market returns fall by 1 percentage point, foreign investors increase their share of the U.S. market by 0.0051 percentage points that same month and by 0.0071 percentage points the next month. Regression (6) shows a similar relation between changes in the foreign holdings of U.S. equity and contemporaneous global market returns. Lastly, when I control for global returns, I find that passive change display a significantly positive association with change in aggregate foreign holdings of U.S. equity (Regression 6 and 8).

The results presented in Table 3 Panel A show a significantly positive (negative) association between current (lagged) foreign returns and current changes in the total foreign portfolio share of U.S. investors. The results also suggest that passive changes in the U.S. foreign portfolio share are positively related to changes in the total share of the U.S. market held by foreign investors. Panel B of Table 3 explores these relationships at the country-level. Specifically, I estimate panel regressions of the monthly changes of U.S. investor's portfolio weights at the target-country level and foreign investors' shares of the U.S. stock market at the home-country level. A concern with country-level data is that the changes in the portfolio-weights may be noisy. The benefit is that it allows a way to exploit the cross-country variation for the sample of 45 countries. Furthermore, the panel data is helpful in terms of focusing on the portfolio-level mechanisms that impact foreign reallocation. I follow the same approach I used in Panel A of Table 3; however, here I estimate OLS panel regressions. I include current and lagged passive changes in U.S. foreign portfolio weights in all specifications. To focus on the dynamic impact of changes in wealth and account for seasonality, all specification includes country-fixed effects and monthly-fixed effects. To account for potential correlation at the country-portfolio level, I cluster standard errors by country and bootstrap standard errors within each cluster.

At the target-country level, Regressions (1) through (4) report the total changes in U.S. investors' portfolio weights and Regressions (5) through (8) document changes in foreign investors' share of the U.S. market capitalization at the home-country-level. I test the relation between foreign returns and

investors' equity reallocations at the target country level. The equation estimated in Regression (1) includes foreign returns and passive changes. As before, I follow Bekaert et al. (2011) and orthogonalize each country's return to current and lagged U.S. returns. I find that the previous findings for the positive relation with current returns and the negative relation with lagged returns hold at the target country level. The estimated coefficients on both terms remain economically and statistically significant. The estimated coefficients on the current and lagged passive changes are positive and significant, a result consistent with investors passively increasing their allocation to target markets given changes in wealth. Regression (2) replaces returns with growth in monthly seasonally adjusted industrial production, obtained from the IMF. As before, I measure lagged (lead) industrial growth from *t-3* (*t+3*) to *t*. The estimated coefficient on lead industrial production growth is significantly positive, a result consistent with U.S. investors reallocating wealth abroad in anticipation of future changes in non-financial wealth. The relation between changes in U.S. portfolio weights and lagged industrial production is not statistically significant; suggesting that form my sample, U.S. monthly reallocations abroad may not be significantly associated with past changes in foreign non-financial wealth.

Given news related to future economic states, investors may change their allocation to foreign markets in anticipation of losing wealth. To test this possibility, I use changes in each country's dividend yield to proxy for economic news. If higher dividend yield correspond with periods of lower market prices, then increases in the dividend yield may be interpreted as bad news about future economic activity. The wealth theory predicts a negative relation between changes in the foreign dividend yield and reallocation to foreign markets. Monthly dividend yields are obtained from DataStream and changes are measured from *t-3* to *t.* Regression (3) shows a significantly negative relation between changes in a target country's dividend yield and U.S. investors reallocations to foreign markets. The results are consistent with U.S. investors reducing their allocation to markets in anticipation of future wealth losses.

Foreign investors may slowly react to a wealth loss abroad if illiquidity makes portfolio reallocations costly. To test whether the negative association between lagged foreign returns and current portfolio changes is impacted by a target country's liquidity, I augment the model estimated in specification (1) of Panel B Table 3 with a proxy for liquidity. I measure liquidity with a target country's monthly market turnover, the dollar value of stocks traded divided by the target country's market capitalization. Both variables are in U.S. dollars and downloaded via DataStream. At the target country-level, I demean turnover by its twelve month moving average. I do not find that either the inclusion of turnover or it's interaction with monthly returns impacts the findings.[15] This does not support the hypothesis that, for my sample, the negative association between lagged foreign market returns and U.S. investors' current portfolio reallocation is driven by target market-level liquidity.

Turning to changes in foreign investors' share of the U.S. stock market, I augment the models estimated in specifications (1) through (4), with the lagged changes in each country's share of the U.S. stock market. The results presented in Regressions (5) through (8) indicate that the positive relation between passive changes in the U.S. portfolio weights and changes in foreign investors' share of the U.S. market holds at the home country-level. Regression (7) shows a significantly positive relation between changes in the home country dividend yields and changes in foreign investors' share of the U.S. equity market. Lastly, I do not find a significant relation for either returns or industrial production and changes in the foreign investors' shares of U.S. equity.

The findings presented indicate that for my sample, the relation between current (lagged) market returns and U.S. investor's current portfolio reallocations is significantly positive (negative). In unreported test, I examine why this relation holds for my sample. The positive relation between portfolio flows and contemporaneous returns has been interpreted as evidence that foreign investors are better informed (see, for example, Curcuru et al., 2010 and 2011; Froot and Ramadorai, 2008) or impact target

[15]The findings are robust to the use of monthly market volume as an alternative proxy for liquidity.

markets through price pressures. In unreported robustness checks, I use a VAR to examine the possibility that U.S. investors exhibit price-pressures on global markets. The VAR contains monthly changes in the U.S. foreign portfolio share and global market returns. I fail to reject the null that changes in the U.S. foreign portfolio share do not Granger cause global returns. This does not support the hypothesis that the relation I find in my sample I driven by price pressure.

A significantly positive relation between lagged foreign returns and current reallocation has been interpreted as evidence of signals of future return performance (Brennan and Cao, 1997; Dahlquist and Robertson, 2004), performance extrapolation (Griffin, Nadari, and Stulz, 2004), or evidence of a difference of opinion (Dumas, Lewis, and Osambela, 2011). To this extent, orthogonal returns may not be representative of the actual signal that investors observe when deciding whether to reallocate their wealth abroad. In unreported robustness checks, I repeat all the models estimated in Table 3 with foreign returns that are not orthogonal to current and lagged U.S. returns. I find that the results remain statistically and economically significant.

The results from Table 3 support three key predictions of the wealth hypothesis. First, the change in the U.S. foreign portfolio share is positively associated with contemporaneous foreign returns. Second, changes in U.S. portfolio weights display a positive relation with a target country's current return and future industrial production growth. Finally, I find that changes in U.S. portfolio weights are negatively associated with changes in a target country's dividend yield. I take this result as behavior consistent with U.S. investors reducing their allocation to foreign markets in response to bad economic news. However, changes in U.S. investors' portfolio weights display a negative association with past foreign market returns.

4.2 Did changes in uncertainty cause investors to increase their foreign portfolio share?

In this section, I examine whether the growth in the U.S. foreign portfolio share was consistent with ambiguity averse investors increasing their allocation to foreign markets. Ambiguity averse investors prefer lotteries with outcomes that are certain over lotteries with outcomes that are uncertain (Ellsberg, 1961). Within the context of global investment, if investors are ambiguity averse, the uncertainty of a foreign country's return process can impact the portion of wealth investors choose to allocate abroad (Uppal and Wang, 2003; Epstein, 2001). Holding the level of ambiguity aversion constant, the ambiguity aversion hypothesis predicts that investors increase their allocation less in target countries where uncertainty is higher.

I test the uncertainty hypothesis at the target country level by regressing changes in the portfolio weights of U.S. investors on proxies for uncertainty. While a common measure for the change in uncertainty is the Chicago Board Options and Exchange (CBOE) VIX index (Giannetti and Laeven, 2012; Forbes and Warnock, 2011); the VIX is not available for my sample of countries. To proxy for the uncertainty of a target country's return distribution, I take the ratio of the highest standard deviation of daily market returns for any month *t-3* to month *t*, divided by the monthly minimum of the standard deviation of daily market returns for any month *t-3* to month *t.* In untabulated results, I find the sample average of the maximum volatility ratio nearly doubles from Q3 2008 to Q4 2008 and dramatically falls in 2009. As before, I control for the current and lagged passive change in U.S. portfolio weights. If investors are ambiguity averse, the passive changes should reflect the impact of changes in uncertainty on market returns and exchange rates. In this specification, the ambiguity aversion hypothesis predicts that the coefficient on the maximum volatility ratio is to be negative. As before, all specifications include country and monthly fixed effects; standard errors are clustered by target country and bootstrapped within each cluster.

Table 4 presents the results. Regression (1) includes the maximum volatility ratio and the current and lagged passive change in U.S. portfolio weights. Consistent with the predictions of the ambiguity aversion hypothesis, the coefficient on the maximum volatility ratio is significantly negative. The coefficient implies that, all else equal, when a target country's maximum volatility ratio increases by 1 percentage point, U.S. investors reduce their portfolio weights by 0.0015 percentage points that same month. The results imply that over the sample period, U.S. investors increase their allocation less towards markets with relatively higher uncertainty. This result supports the ambiguity aversion hypothesis.

Alternatively, the significantly negative relation between the maximum volatility ratio and changes in U.S. portfolio weights may be due to the maximum volatility ratio capturing risk and not uncertainty. To investigate whether the significantly negative association is driven by risk, I use the monthly average of the standard deviation of daily market returns over a rolling 3-month span. When I include the average standard deviation into specification (1), Regression (2) shows the estimated coefficient on the volatility ratio remains significantly negative and relatively unchanged from the previous specification. An alternative measure of risk is the range (Garman and Klass, 1980; Alizadeh, Brandt, and Diebold, 2002). Regression (3) replaces the standard deviation with range of monthly market returns over a rolling 3-month span. The coefficient on the maximum volatility ratio remains significant and relatively unchanged. The finding suggests that the negative relation between the proxy for uncertainty and U.S. investors' reallocations is not driven by the ratio measuring risk.

One concern may be the sensitivity of the association between uncertainty and changes in the U.S. portfolio weights to the specification of the volatility ratio. Regression (4) switches the volatility ratio's denominator, the monthly minimum volatility of daily market returns, with the monthly average volatility of daily market returns over a rolling 3-month span. I find that the relation between uncertainty and changes in the U.S. portfolio weights remains significantly negative. The proxy for uncertainty

suggests that U.S. investors increased their allocations less towards markets where uncertainty was relatively higher and supports the ambiguity aversion hypothesis.

Regressions (5) through (8) examine monthly changes in each home country's share of the U.S. stock market. As before, I augment the previous specifications with the lagged change in each country's share of the U.S. stock market. When I repeat the experiment across home countries, I do not find that the maximum volatility ratio is significantly associated with changes in foreign investors' holdings of U.S. equity. These results contrast the previous findings and suggest that across home countries, changes in foreign investors' share of the U.S. stock market are not associated with uncertainty in their local market.

To examine the sensitivity of the findings that changes in the U.S. portfolio weights have a significantly negative association with a target country's maximum volatility ratio, I perform unreported robustness checks based on Regression (4). The maximum volatility ratio results may be driven by my choice to restrict the window over which returns are observed to 3-months. However, when I expand the window from 3-month to 6-months, the relation between the maximum volatility ratio and U.S. investors' portfolio weight changes remains significantly negative and economically comparable. Alternatively, the maximum volatility ratio may proxy for emerging markets, which tend to be more volatile and as shown in Section (3), experienced relatively less growth in the total equity portfolio of U.S. investors. Contrary to this prediction, I find that the significantly negative relation holds when I estimate the model separately for both developed and emerging target countries. Overall, these findings support the ambiguity aversion hypothesis.

The results presented in Table 4 generally support the ambiguity aversion hypothesis. I find that the association between the maximum volatility ratio, my proxy for the distribution uncertainty of a foreign return process, and changes in U.S. investors' portfolio allocations is significantly negative. First, the results show that across target countries, U.S. investors reduced their allocation to markets with relatively higher levels of uncertainty. Second, the significantly negative association is not subsumed by a

target country's volatility or return range. I take this as evidence consistent with the volatility ratio measuring uncertainty and not risk. Lastly, I do not find that the negative relation holds for changes in foreign investors' shares of the U.S. market. This suggests that at the home country-level, changes in foreign investors' share of the U.S. stock market are not associated local market uncertainty.

4.3 Did speculative investment cause investors to increase their foreign portfolio share?

International behavioral work suggests that sentiment may influence international capital flows (Baker, Foley, Wurgler, 2009; Hwang, 2009; Baker, Wurgler, Yuan, 2012). Speculative investment predicts that noise traders may speculate on foreign markets. If local misvaluation attracts foreign speculation, then holding the limits to arbitrage constant, the speculative investment theory predicts a positive relation between market misvaluation and investors allocation to foreign markets.

I test the speculation hypothesis at the target country level by regressing changes in the portfolio weights of U.S. investors on a proxy for market misvaluation. To proxy for mispricing I use the Baker, Foley, and Wurgler (2009) methodology to calculate the misvaluation component of the market-to-book ratio. The misvaluation component is the fitted value from a first stage regression of future six-month-market returns on country-level market-to-book ratios.[16] As before, foreign market returns are orthogonal to current and lagged U.S. market returns. Monthly market-to-book ratios are obtained from DataStream. Because mispricing can cause 'overvalued' assets to appreciate prior to returning to their fundamental values, an increase in the share of equity wealth allocated to a mispriced-market does not necessarily imply speculative investment.[17] In other words, passive changes can make it seem like investors speculate even if they do not. Therefore, I control for current and lagged passive changes. Within this specification, the speculation theory predicts the estimated coefficients on the misvaluation proxy will be positive if

[16]Baker, Foley, and Wurgler (2009) show that two main assumptions are that the market-to-book ratio contains a fundamental and misvaluation component and that the misvaluation component is associated with lower future returns.

[17]The same logic applies to markets where pessimistic mispricing leads to 'undervalued' assets.

investors increase their allocations to misvalued markets beyond what can be attributed to passive changes. If equity reallocations are not significantly associated with misvaluation, the estimated coefficient should not be distinguishable from zero. Lastly, if investors reduce their allocation to markets when misvaluation is more severe, the estimated coefficient should be significantly negative. As before, I include monthly fixed effects and target country fixed effects. Standard errors are clustered by target country and bootstrapped within each cluster.

Table 5 reports the panel regression results. For U.S. investors, Regressions (1) through (4) show a significantly negative relation between the misvaluation component of a target country's market-to-book ratio and changes in portfolio weights. When I estimate a model containing the misvaluation component and the current and lagged passive changes in portfolio weights, the coefficient on misvaluation component is significantly negative (Regression 1). The coefficient implies that when passive changes are held constant, a 1 percentage point increase in misvaluation is associated with a -0.0605 percentage point decrease in U.S. portfolio weights. This finding is consistent with U.S. investors increasing their equity allocations less towards markets in which mispricing is more severe.

The significantly negative association between the misvaluation component and portfolio weight changes may be due the misvaluation component capturing the differences in returns. I examine whether lagged target market returns subsume the misvaluation component. When I add lagged target market returns, Regression (2) shows that the coefficient on the misvaluation component remains significantly negative. An additional alternative explanation for the negative association between the mispricing component and changes in U.S. portfolio weights is that the misvaluation proxy captures bad news about future investment opportunities. Regression (3) adds the previously defined changes in the dividend yield to the estimation. The relation between the misvaluation component and changes in U.S. investors' portfolio weights remains significantly negative. The results are consistent with U.S. investors increasing their allocation less towards markets that exhibit higher levels of mispricing.

If illiquidity makes arbitrage costly, then a target markets' liquidity may impact the extent to which investors are able to react to mispricing. I test the relation between the proxy for mispricing and a target country's liquidity by adding foreign turnover and it's interaction with the misvaluation component (Regression 4). As before, turnover is demeaned at the target-country level using a rolling twelve month window. The estimated coefficient on the misvaluation component remains economically large and significantly negative. The interaction between the misvaluation component and a target country's turnover produces a significantly negative estimated coefficient. The result is consistent with a target country's liquidity easing investors' ability to actively rebalance their portfolios away from markets with higher mispricing, conditional on investors encountering misvaluation in their equity allocations. These results do not generally support the hypothesis that over the sample period, U.S. investors actively reallocated their equity wealth towards markets where misvaluation was more severe.

At the home country level, I examine changes in foreign investors' shares of the U.S. stock market in Regressions (5) through (8). I find a significantly negative relation between the misvaluation component and changes in foreign investors' shares of the U.S. stock market. Regression (5) includes current and lagged passive changes in U.S. portfolio weights, the lagged change in each home country's share of the U.S. stock market, and the misvaluation component. The estimated coefficient on the misvaluation component implies that, all else equal, a 1 percentage point increase in local misvaluation reduce their share of the U.S. stock market by -0.0539 percentage points of that increase. Regressions (6) through (8) show that the significantly negative association is not subsumed by lagged local returns, changes in the dividend yield, or demeaned home-market turnover interacted with misvaluation. The results suggest that investors in markets that experience higher levels of misvaluation increase their share of the U.S. equity market at a relatively lower rate.

Table 5 shows that the misvaluation component of the market-to-book ratio has a significantly negative relation with U.S. investors' reallocations to foreign markets. The relation appears consistent

with U.S. investors increasing their portfolio weights at lower rates to markets where misvaluation is more severe. Using monthly turnover, I find evidence consistent with a target market's liquidity easing U.S. investors' reallocation away from markets with higher degrees of misvaluation. Lastly, across home countries, I find a significantly negative relation between the misvaluation component of the market-to-book ratio and foreign changes in the share U.S. the stock market. This finding suggests that foreign investors in markets that experience higher levels of misvaluation increased their holdings of U.S. equity at relatively lower rates.

Section 5. Conclusion

In this paper, I document that from 1994 to 2010, on average the share of equity wealth that U.S. investors allocated to foreign equity increased. The accumulated change resulted in the U.S. foreign portfolio share nearly doubling over this time span. Separating the monthly change in the U.S. foreign portfolio share into the change due to trades and the change caused by valuation changes, I find that most of this increase has been due to passive changes in the foreign portfolio share. On average, across a sample of 45 target countries, the monthly active changes are not distinguishable from zero. Over this period, U.S. investors significantly reduced their share of the U.S. equity market. For my sample, I find that the passive appreciation of the foreign portfolio share and reduced share of domestic holdings have combined to increase the relative share of equity wealth U.S. investors allocated to foreign markets.

After showing the impact of passive changes on the U.S. foreign portfolio share, I examine whether theories of traditional portfolio choice, uncertainty, or speculation can help explain U.S. portfolio reallocations through time. For the traditional portfolio choice theory, I test whether the portfolio reallocations were significantly associated with changes in wealth. In my sample, current and future changes in foreign wealth are associated with U.S. portfolio reallocations. I find evidence that U.S. portfolio reallocations are negatively associated with past changes in foreign wealth. A growing literature

in uncertainty aversion predicts that uncertainty can limit foreign investment. I find supportive evidence that U.S. investors increased their foreign portfolio share less towards markets where uncertainty increased. Behavioral portfolio choice literature suggests that foreign investment can be speculative. Using a proxy for market misvaluation, I find the relation between foreign misvaluation and U.S. portfolio reallocations is significantly negative. I also find a significantly negative relation between foreign misvaluation and changes in foreign investors share of the U.S. equity market.

References

Acemoglu, D., S. Johnson, J. Robinson, and Y. Thaicharoen, 2003. Institutional Causes, Macroeconomic Symptoms: Volatility, Crises and Growth, *Journal of Monetary Economics* 50, 49-123.

Alizadeh, S., M. Brandt, and F. Diebold, 2002. Range-Based Estimation of Stochastic Volatility Models, 57(3), 1047-1091.

Andrade, S., and V. Chhaochharia, 2010. Information Immobility and Foreign Portfolio Investment, *Review of Financial Services* 23, 2429-2463.

Ang, A. and G. Bekaert, 2007. Stock Return Predictability: Is it There?, *Review of Financial Studies*, 20(3), 651-707.

Ang, A., R. Hodrick, Y. Xing, and X. Zhang, 2006. The Cross-Section of Volatility and Expected Returns, *Journal of Finance*, 61(1), 259-299.

Baele, L., G. Bekaert, K. Inghelbrecht, and M. Wei, 2013. Flights to Safety, National Bank of Belgium, Working Paper No. 230.

Baker, M., C.F. Foley, and J. Wurgler, 2009. Multinational as Arbitrageurs: The Effect of Stock Market Valuations on Foreign Direct Investment, *Review of Financial Studies*, 22(1), 337-369.

Baker, M. and J. Wurgler, 2006. Investors Sentiment and the Cross-Section of Stock Returns, *Journal of Finance*, 61(4), 1645-1680.

Baker, M., J. Wurgler, and Y. Yuan, 2012. Global, Local, and Contagious Investor Sentiment, *Journal of Financial Economics*, 104, 272-287.

Barber, S. and A. Shleifer, 2003. Style Investing, *Journal of Financial Economics*, 68, 161-199.

Barber, S. and A. Shleifer, J. Wurgler, 2005. Comovement, *Journal of Financial Economics*, 75, 283-317.

Bartram, S., J. Griffin, and D. Ng, 2011. How Important are Foreign Ownership Linkages for International Stock Returns, Working Paper.

Bekaert, G., X. Wang, 2009. Home Bias Revisited, Columbia Business School.

Bekaert, G., M. Ehrmann, M. Fratzscher, and A. Mehl, 2011. Global Crises and Equity Market Contagion, *National Bureau of Economic Research*, Working Paper No. 17121.

Bernanke, B., C. Bertaut, L. Pounder DeMarco, and S. Kamin, 2011. International Capital Flows and the Returns to Safe Assets in the United States, 2003-2007, *Federal Reserve Board International Finance Discussion* Paper No 1014.

Bertaut, C., and R. Tryon, 2007. Monthly Estimates of U.S. Cross-Border Securities Positions, *International Finance Discussion Papers 910*. Board of Governors of the Federal Reserve System (U.S.).

Bertaut, C. and L. Pounder, 2009. The Financial Crisis and U.S. Cross-Border Financial Flows, *Federal Reserve Bulletin*, 93(A): 147-67.

Black, F., 1974. International Capital Market Equilibrium with Investment Barriers, *Journal of Financial Economics*, 1, 337-352.

Bohn, H. and L. Tesar, 1996. U.S. Equity Investment in Foreign Markets: Portfolio Rebalancing or Return Chasing, *American Economic Review,* 86(2), 77-81.

Brennan, M., and H. Cao, 1997. International portfolio investment flows, *Journal of Finance*, 52, 1851-80.

Brennan, M., T. Chordia, and A. Subrahmanyman, 1998. Alternative Factor Specifications, Security Characteristics and the Cross-Section of Expected Stock Returns, *Journal of Financial Economics*, 49, 345-373.

Caballero, R. J. and A. Krishnamurthy, 2008. Collective Risk Management in a Flight to Quality Episode, *Journal of Finance* 63, 2195-2230.

Caballero, R. and A. Krishnamurthy, 2009. Global Imbalances and Financial Fragility, *American Economic Review*, 99(2): 584-588.

Cao, H., B. Han, D. Hirshleifer, and H. Zhang, 2011. Fear of the Unknown: Familiarity and Economic Decisions, *Review of Finance*, 15(1), 173-206.

Campbell, J. and L. Hentschel, 1992. No News Is Good News: An Asymmetric Model of Changing Volatility in Stock Returns, *Journal of Financial Economics,* 31, 281-318.

Campbell, J. and R. Shiller, 1988. The Dividend-Price Ratio and Expectations of Future Dividends and Discount Factors, *Review of Financial Studies*, 1(3), 195-228.

Calvo, G. A., 1998. Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops, *Journal of Applied Economics*, 1(1), 34-54.

Calvo, G. A., A. Izquierdo, L-F. Mejia, 2008. Systemic Sudden Stops: The Relevance of Balance-Sheet Effects and Financial Integration, *Inter-American Development Bank, Research Department,* Working Paper No. 637.

Carhart, M. M., 1997. On Persistence in Mutual Fund Performance, *Journal of Finance,* 52(1), 57-82.

Choe, H, B-C. Kho, and R. Stulz, 2005. Do Domestic Investors Have an Edge? The Trading Experience of Foreign Investors in Korea, *Review of Financial Studies*, 18(3), 795-829.

Christoffersen, P. and V. Errunza, K. Jacobs, H. Langlois, 2012. Is the Potential for International Diversification Disappearing? A Dynamic Copula Approach, *Review of Financial Studies,* Forthcoming.

Cochrane, J., 2007. The Dog That Did Not Bark: A Defense of Return Predictability, *Review of Financial Studies*, 21(4), 1533-1575.

Curcuru, S., C. Thomas, F. Warnock, and J. Wongsman, 2010. What influences U.S. International Equity Investment: Equity or Currency Returns?, Working Paper.

Curcuru, S., C. Thomas, F. Warnock, and J. Wongsman, 2011. U.S. International Equity Investment and Past and Prospective Returns, *American Economic Review*, 101(7): 3340-3455.

Dahlquist, M. and G. Robertson, 2001. Direct foreign ownership, institutional investors, and firm characteristics. *Journal of Financial Economics,* 59, 413-440.

Dahlquist, M., L. Pinkowitz, R. Stulz, and R. Williamson, 2003. Corporate governance, investor protection, and the home bias. *Journal of Financial Quantitative Analysis*, 87-110.

Daniel, C. Q. and S. Titman, 1997. Evidence of the Characteristics of Cross Sectional Variation in Stock Returns, *Journal of Finance,* 52, 1-33.

Dumas, B., K. Lewis, and E. Osambela, 2011. Differences of Opinion and International Equity Markets, *NBER,* Working Paper No. 16726.

Easley, D. and O'Hara, M., 2010. Liquidity and Valuation in an Uncertain World, *Journal of Financial Economics,* 97(1), 1-11.

Ellsberg, D., 1961. Risk, ambiguity, and the Savage axioms, *Quarterly Journal of Economics*, 75, 643–669.

Epstein, L., 2001. Sharing Ambiguity, *American Economic Review*, 91(2), 45-50.

Fama, E. and K. French, 1993. The Cross-Section of Expected Stock Returns, *Journal of Finance,* 47, 427-465.

Fama, E. and J. MacBeth, 1973. Risk, Return, and Equilibrium: Empirical Tests. *Journal of Political Economy,* 81 (3), 607-636.

Fratzscher, M., 2009. What explains global exchange rate movements during the financial crisis?, *Journal of International Money and Finance,* 28(8), 1390-1407.

Fratzscher, M. 2011. Capital Flows, Push versus Pull Factors and the Global Financial Crisis, *NBER Working Paper,* Paper No 17357.

French, K. and J. Poterba, 1991. Investor Diversification and International Equity Markets, *American Economic Review,* 81 (2), 222–226.

French, K., G. W. Schwert, R. Stambaugh, 1987. Expected Stock Returns and Volatility, *Journal of Financial Economics,* 19, 3-29.

Forbes, K. and R. Rigobon, 2002. No Contagion, Only Interdependence: Measuring Stock Market Comovements, *Journal of Finance,* 57, 2223-2261.

Forbes, K. and F. Warnock, 2011, Capital Flow Waves: Surges, Stops, Flight, and Retrenchment, *NBER Working Paper,* Paper No 17351.

Froot, K., P. O'Connell, and M. Seasholes, 2001, The portfolio flows of international investors, *Journal of Financial Economics,* 59, 151-193.

Froot, K., and T. Ramadorai, 2008. Institutional Portfolio Flows and International Investments, *Review of Financial Studies,* 21, 937-971.

Garman, M. and M. Klass, 1980. On the Estimation of Security Price Volatility from Historical Data, *Journal of Business,* 53(1), 67-78.

Gelos, G. and S-J Wei, 2005. Transparency and International Portfolio Holdings, *Journal of Finance* 60, 2987-3020.

Giannetti, M. and A. Simonov, 2006. Which Investors Fear Expropriation? Evidence from Investors' Portfolio Choices, *Journal of Finance,* 61(3), 1507-1547.

Giannetti, M. and L. Laeven, 2012. The Flight Home Effect: Evidence from the Syndicated Loan Market During Financial Crises, *Journal of Financial Economics 104,* 23-43.

Gorton, G., 2008, The Panic of 2007. *Prepared for the Federal Reserve Bank of Kansas City, Jackson Hole Conference, August 4, 2008.*

Gourinchas, P-O, H. Rey, and K. Truempler, 2011. The Financial Crisis and The Geography of Wealth Transfers, *NBER Working Paper*, Paper No 17353.

Griever, W., G. Lee, and F. Warnock, 2001. The U.S. System for Measuring Cross-Border Investment in Securities: A Primer with Discussion of Recent Developments, *Federal Reserve Bulletin*, 87(10).

Griffin, J. M., F. Nardari, and R. M. Stulz, 2004, Are daily cross-border equity flows pushed or pulled?, *Review of Economics and Statistics*, 86, 641–657.

Heaton, J. and D. Lucas, 2000. Portfolio Choice in the Presence of Background Risk, *Economic Journal*, 110(460), 1-26.

Hobijn, B. and C. Steindel, 2009. Do Alternative Measures of GDP Affect Its Interpretation?, *Current Issues in Economics and Finance*, Federal Reserve Bank of New York, Volume 15.

Hwang, B. 2011. Country-Specific Sentiment and Security Prices, *Journal of Financial Economics*, 100, 382-401.

Jinjarak, Y., J. Wongswan, and H. Zheng, 2011. International fund investment and local market returns, *Journal of Banking and Finance*, 35, 572-587.

Johnson, S., P. Boone, A. Breach, and E. Friedman, 2000. Corporate governance in the Asian financial crisis, *Journal of Financial Economics*, 58(2), 141-186.

Johnson, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, 2000. Tunneling, *American Economic Review*, 90(2), 22-27.

Karolyi, G. A., and R. Stulz, 2003. Are assets priced globally or locally?, *Handbook of the Economics of Finance, Edited by G.M. Constantinides, M. Harris and R. Stulz, Elsevier Science B.V., Chapter 16*, 973-1018.

Kaufmann, D., A. Kraay, and M. Mastruzzi, 2009. Governance matters VIII: Aggregate and individual governance indicators 1996-2008, *Policy Research Working Paper Series 4978*, The World Bank.

Ke, D., L. Ng, and Q. Wang, 2010. Home Bias in Foreign Investment Decisions, *Journal of International Business Studies*, 41, 960–979.

Kho, B.C., R. Stulz, and F. Warnock, 2009. Financial globalization, governance, and the evolution of the home bias, *Journal of Accounting Research*, 47, 597-635.

Lane, P. and L. Milesi-Ferretti, 2008. The Drivers of Financial Globalization, *American Economic Review*, 98(2), 327-32.

Lee, K-H, 2010. The World Price of Liquidity, *Journal of Financial Economics*, 99, 136-161.

Lemmon, M. and E. Portniaguiana, 2006. Consumer Confidence and Asset Prices: Some Empirical Evidence, *Review of Financial Studies*, 19, 1499-1523.

Lewis, K., 2011. Global Asset Pricing, Annual *Review of Financial Economics*, 3, 435-466.

Leuz, C., K. Lins, and F. Warnock, 2009. Do foreigners invest less in poorly governed firms?, *Review of Financial Studies* 22(8), 3245-3285.

Li, K., 2004. Confidence in the Familiar: An International Perspective. *Journal of Financial and Quantitative Analysis*, 39(01), 47-68.

Milesi-Ferretti, G-M and C. Tille, 2011. The Great Retrenchment: International Capital Flows During the Global Crisis, *Economic Policy*, 26, 295-342.

Pastor, L. and R. Stambaugh, 2003. Liquidity Risk and Stock Returns, *Journal of Political Economy*, 11, 642-685.

Reinhart, C. and V. Reinhart, 2009. Capital Flow Bonanzas: An Encompassing View of the Past and Present, *NBER International Seminar on Macroeconomics*, Working Paper W14321.

Rose, A. and M. Spiegel, 2010. Cross-country causes and consequences of the crisis: an update, *CPER Discussion Paper*, Paper No 7901.

Stulz, R., 1981. A Model of International Asset Pricing, *Journal of Financial Economics*, 9, 383-406.

Stulz, R. and R. Williamson, 2003. Culture, openness, and finance, *Journal of Financial Economics*, 70(3), 313-349.

Thapa, C. and S. Poshakwwle, 2010. International equity portfolio allocations and transaction costs, *Journal of Banking & Finance*, 2627-38.

Vagias, D. and M. van Dijk, 2010. International Capital Flows and Liquidity, Working Paper.

Van Nieuwerburgh, S. and L. Veldkamp, 2010. Information Acquisition and Under-Diversification, *Review of Economic Studies*, 77(2), 779-805.

Table 1 Descriptive Statistics of Changes in U.S. Foreign Portfolio Share of Equity Wealth and Foreign Holdings of U.S. Equity, 1994 – 2010.

The table shows descriptive statistics on the total foreign portfolio share of U.S. investors in the sample from 1994 to 2010. The sample contains country-level month-end equity-holding observations from the Bertaut and Tryon database, across 45 home countries and 45 target countries. *U.S. Foreign Portfolio Share Weight* labels U.S. investors' relative allocation to target countries in the sample, as computed from Bertaut and Tryon bilateral holdings. *Total Growth* sums the monthly change in portfolio weights to target countries over the entire sample period. *Passive Growth* sums the change in allocation to non-domestic assets from month *t-1* to month *t*, given investors' allocation at the end of month *t-1* and assuming investors do not trade foreign stocks. *Active Allocation* sums the change in allocation not due to price and exchange rate changes from month *t-1* to month *t. Foreign Holdings* labels foreign investors' holdings of the U.S. equity as a share of the U.S. stock market capitalization. The U.S. monthly stock market capitalization is obtained from CRSP. The equity holdings data for Belgium and New Zealand are available from January of 2000. All standard errors are bootstrapped. ***,**,* report cases where the estimated coefficient is different from zero at 10%, 5%, 1% significant level, respectively.

		U.S. Foreign Portfolio Share Weight 1994 -2010 (% US Total Equity Wealth)					Foreign Holdings (% US Market Cap)		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		March 1994	Dec 2010	Total	Passive	Active	March 1994	Dec 2010	Total
Developed Markets	N	Level	Level	Growth	Growth	(4) - (3)	Level	Level	Growth
AUSTRALIA	200	0.337	0.833	0.483	0.538	-0.055	0.130	0.548	0.418
AUSTRIA	200	0.024	0.068	0.043	0.042	0.001	0.041	0.036	-0.006
BELGIUM†	107	0.000	0.160	0.100	0.096	0.004	0.000	0.137	-0.016
CANADA	200	0.790	2.273	1.502	1.570	-0.068	0.956	1.839	0.883
DENMARK	200	0.036	0.213	0.175	0.170	0.005	0.032	0.176	0.144
FINLAND	200	0.059	0.152	0.086	0.087	-0.000	0.002	0.065	0.063
FRANCE	200	0.511	1.359	0.819	0.809	0.009	0.216	0.872	0.656
GERMANY	200	0.510	1.150	0.603	0.599	0.004	0.286	0.409	0.123
GREECE	200	0.011	0.034	0.023	0.024	-0.001	0.008	0.008	0.000
HONG KONG	200	0.349	0.737	0.386	0.384	0.002	0.112	0.236	0.124
ISRAEL	200	0.051	0.249	0.197	0.190	0.006	0.022	0.102	0.080
ITALY	200	0.275	0.285	-0.022	-0.018	-0.004	0.090	0.088	-0.003
JAPAN	200	1.981	2.504	0.427	0.398	0.029	0.624	1.616	0.993
KOREA	200	0.087	0.681	0.573	0.569	0.005	0.002	0.098	0.095
NETHERLANDS	200	0.758	0.670	-0.130	-0.138	0.008	0.377	0.971	0.594
NEW ZEALAND†	107	0.000	0.017	0.002	0.001	0.000	0.000	0.041	0.031
NORWAY	200	0.078	0.128	0.048	0.046	0.002	0.008	0.640	0.632
PORTUGAL	200	0.022	0.030	0.008	0.008	0.000	0.004	0.019	0.015
SINGAPORE	200	0.136	0.314	0.155	0.147	0.008	0.176	0.591	0.416
SPAIN	200	0.274	0.364	0.088	0.083	0.004	0.022	0.050	0.029
SWEDEN	200	0.235	0.352	0.098	0.093	0.005	0.064	0.355	0.291
SWITZERLAND	200	0.419	1.778	1.370	1.278	0.091	0.783	1.212	0.429
UK	200	1.988	2.780	0.773	0.773	-0.001	1.797	1.839	0.042
Country (Average)	23	0.425	0.745	0.339***	0.337***	0.002	0.250	0.519	0.261***
Total (Sum)	4414	8.933	17.132	7.807	7.752	0.054	5.754	11.949	6.032

Continued

Table 1, Continued

		U.S. Foreign Portfolio Share Growth 1994 -2010 (% US Total Equity Wealth)					Foreign Holdings (% US Market Cap)		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		March 1994	Dec 2010	Total	Passive	Active	March 1994	Dec 2010	Total
Emerging Markets	N	Level	Level	Growth	Growth	(4) - (3)	Level	Level	Growth
ARGENTINA	200	0.152	0.014	-0.139	-0.136	-0.003	0.023	0.026	0.003
BRAZIL	196	0.168	1.079	0.854	0.852	0.002	0.017	0.013	-0.003
CHILE	200	0.050	0.071	0.018	0.016	0.002	0.008	0.094	0.086
CHINA	195	0.018	0.560	0.538	0.533	0.005	0.003	0.872	0.869
COLOMBIA	200	0.006	0.020	0.015	0.014	0.000	0.010	0.032	0.022
CZECH	200	0.006	0.025	0.019	0.020	-0.001	0.000	0.006	0.006
EGYPT	170	0.001	0.028	0.025	0.024	0.001	0.002	0.001	-0.001
HUNGARY	200	0.003	0.019	0.016	0.016	-0.000	0.000	0.006	0.006
INDIA	200	0.023	0.481	0.458	0.450	0.008	0.005	0.006	0.001
INDONESIA	200	0.039	0.140	0.104	0.100	0.004	0.003	0.002	-0.001
MALAYSIA	200	0.182	0.113	-0.084	-0.091	0.007	0.002	0.017	0.015
MEXICO	200	0.691	0.426	-0.236	-0.255	0.019	0.035	0.123	0.088
MOROCCO	200	0.001	0.002	0.002	0.001	0.001	0.000	0.000	-0.000
PAKISTAN	200	0.005	0.005	0.001	0.001	0.000	0.002	0.000	-0.001
PERU	200	0.009	0.019	0.011	0.011	-0.000	0.003	0.013	0.010
PHILIPPINES	200	0.038	0.050	0.009	0.010	-0.001	0.007	0.006	-0.001
POLAND	200	0.001	0.049	0.047	0.044	0.004	0.002	0.002	0.000
RUSSIA	165	0.001	0.309	0.272	0.266	0.006	0.001	0.001	0.001
SOUTH AFRICA	200	0.088	0.391	0.286	0.265	0.021	0.000	0.015	0.015
TAIWAN	200	0.009	0.524	0.513	0.495	0.018	0.021	0.087	0.066
THAILAND	200	0.082	0.117	0.028	0.029	-0.002	0.003	0.009	0.006
TURKEY	200	0.013	0.170	0.159	0.160	-0.001	0.002	0.001	-0.000
Country (Average)	22	0.072	0.210	0.133**	0.128**	0.004***	0.007	0.061	0.054
Total (Sum)	4326	1.583	4.614	2.914	2.826	0.088	0.151	1.334	1.183
All Countries									
Country (Average)	45	0.245	0.483	0.238***	0.235***	0.003	0.137	0.295	0.160***
Total (Sum)	8740	10.516	21.746	10.721	10.578	0.143	5.905	13.283	7.215

Table 2 U.S. International Equity Flows, 1994 – 2010

The table presents an overview of the monthly equity flows between the U.S. and the countries in the sample. U.S. net purcahse of foreign equity (outflow) is measured as a percentage of lagged U.S. total equity wealth; forein investors' net purchase of U.S. equity (inflow) is measured as a percentage of the U.S. market captilaztion, the netted difference of outflow less inflow (netflow) is measured as a percentage fo the U.S. market captilization. U.S. holdigns of foreign equity and non-resident holdings of U.S. equity are obtained from Bertaut-Tryon database. Monthly equity flows are obtained from the U.S. Treasury Department *TIC* database; the U.S. monthly stock market capitalization market capitalzation is obstained from CRSP.

		US Net Purchase$_t$ (% US Total Equity Wealth$_{t-1}$)		For Net Purchase$_t$ (% US Stock Market Capitalization$_t$)		Net Flow$_t$ (% US Stock Market Capitalization$_t$)	
		(1)	(2)	(3)	(4)	(5)	(6)
Developed Markets	N	Mean	Sum	Mean	Sum	Mean	Sum
AUSTRALIA	201	0.001	0.231	0.001	0.105	0.001	0.133
AUSTRIA	201	0.000	0.004	0.000	0.027	-0.000	-0.022
BELGIUM	120	-0.000	-0.014	0.001	0.075	-0.001	-0.089
CANADA	201	0.001	0.257	0.002	0.479	-0.001	-0.212
DENMARK	201	0.000	0.040	0.000	0.088	-0.000	-0.046
FINLAND	201	0.000	0.027	0.000	0.029	-0.000	-0.001
FRANCE	201	0.001	0.165	0.003	0.577	-0.002	-0.404
GERMANY	201	-0.000	-0.008	0.001	0.289	-0.001	-0.295
GREECE	201	0.000	0.010	0.000	0.003	0.000	0.008
HONG KONG	201	0.003	0.510	0.002	0.438	0.000	0.084
ISRAEL	201	-0.000	-0.000	0.001	0.184	-0.001	-0.184
ITALY	201	0.000	0.035	0.001	0.112	-0.000	-0.076
JAPAN	201	0.009	1.812	0.003	0.510	0.007	1.325
KOREA	201	0.001	0.246	0.000	0.028	0.001	0.223
NETHERLANDS	201	-0.001	-0.151	0.002	0.408	-0.003	-0.563
NEW ZEALAND	120	0.000	0.001	0.000	0.017	-0.000	-0.016
NORWAY	201	-0.000	-0.032	0.001	0.290	-0.002	-0.322
PORTUGAL	201	0.000	0.026	0.000	0.001	0.000	0.025
SINGAPORE	201	-0.000	-0.009	0.002	0.378	-0.002	-0.386
SPAIN	201	0.000	0.002	0.000	0.069	-0.000	-0.067
SWEDEN	201	0.000	0.040	0.001	0.189	-0.001	-0.149
SWITZERLAND	201	0.000	0.022	0.002	0.387	-0.002	-0.365
UK	201	0.009	1.776	0.016	3.266	-0.007	-1.433
Total	4461	0.001	4.990	0.002	7.950	-0.001	-2.832

Continued

Table 2, Continued.

Emerging Markets	N	(1) Mean	(2) Sum	(3) Mean	(4) Sum	(5) Mean	(6) Sum
ARGENTINA	201	0.000	0.032	0.000	0.034	-0.000	-0.001
BRAZIL	201	0.003	0.545	-0.000	-0.007	0.003	0.572
CHILE	201	0.000	0.020	0.000	0.028	-0.000	-0.007
CHINA	201	0.000	0.058	0.000	0.062	-0.000	-0.003
COLOMBIA	201	0.000	0.009	0.000	0.013	-0.000	-0.003
CZECH	201	-0.000	-0.006	0.000	0.004	-0.000	-0.010
EGYPT	201	0.000	0.006	-0.000	-0.002	0.000	0.008
HUNGARY	201	0.000	0.001	0.000	0.007	-0.000	-0.005
INDIA	201	0.000	0.097	-0.000	-0.019	0.001	0.117
INDONESIA	201	0.000	0.047	0.000	0.001	0.000	0.047
MALAYSIA	201	0.000	0.042	-0.000	-0.001	0.000	0.045
MEXICO	201	-0.000	-0.029	0.000	0.049	-0.000	-0.078
MOROCCO	201	0.000	0.001	0.000	0.001	-0.000	-0.000
PAKISTAN	201	0.000	0.006	-0.000	-0.000	0.000	0.006
PERU	201	0.000	0.019	0.000	0.002	0.000	0.017
PHILIPPINES	201	0.000	0.024	0.000	0.001	0.000	0.024
POLAND	201	0.000	0.010	-0.000	-0.003	0.000	0.014
RUSSIA	201	0.000	0.005	0.000	0.004	0.000	0.002
SOUTH AFRICA	201	0.000	0.060	0.000	0.017	0.000	0.045
TAIWAN	201	0.002	0.333	0.000	0.014	0.002	0.321
THAILAND	201	0.000	0.022	-0.000	-0.000	0.000	0.023
TURKEY	201	0.000	0.040	0.000	0.001	0.000	0.038
Total	4422	0.000	1.344	0.000	0.206	0.000	1.173
Full Sample							
Total	8883	0.001	6.335	0.001	8.156	-0.000	-1.659

Table 3 Changes in Financial and Non-Financial Wealth and Changes in the U.S. Foreign Portfolio Share

This table presents results OLS estimates of the effect of changes in wealth on U.S. investors' total foreign portfolio share and non-U.S. investors share of the U.S. stock market capitalization. Panel A presents time-series regressions of the total change in U.S. foreign portfolio share in Column (1) through (4) and the total change in the share of the U.S. stock market capitalization held by foreign investors in Column (5) through (8). The time-series contain aggregate month-end bilateral equity holdings from the Bertaut and Tryon database from 1994 to 2010. *Passive changes* are calculated using holdings from month *t-1* to month *t* and the change in prices and exchanges rates from month *t-1* to month *t*. *US Market Return* is the excess monthly return to the U.S. market and obtained from the S&P BMI index. *Foreign Market Return* is the world market return, excluding the U.S. market and obtained from MSCI. Following Bekaert et al (2011), foreign returns are orthogonal to current and lagged U.S. market returns. *US Industrial Production* measures the change in U.S. industrial production from month *t-3* to month *t*. *Foreign Share t-1* measures the change in the share of U.S. equity held by foreign investors from month *t-1* to *t*. Panel B presents country-level monthly panel-regression results of the total change in U.S. investors' portfolio weights at time *t* to country *j* and changes in the share of the U.S. market capitalization held by foreign investors' from country *j* at time *t*. *Return* is the excess monthly return for country *j* at time *t* in U.S. dollars and obtained from S&P and DataStream and are orthogonal to current and lagged U.S. market returns. *Industrial Production* measures the change in country j's seasonally adjusted industrial production from month *t-3* to month *t*, provided by IMF. *Dividend Yield* measures the change the dividend yield from month *t-3* to month *t* and is obtained from DataStream. *Turnover* the monthly value of stocks traded in country *j* divided country *j's* monthly market, all values are obtained from DataStream. *Turnover* is demeaned by the country *j's* rolling 12-month average. In Panel A, standard errors are clustred by month; Panel B clusters standard errors by country. All standard errors are bootstrapped within each cluster and presented in paranthesis. ***,**,* report cases where the estimated coefficient is different from zero at 10%, 5%, 1% significant level, respectively.

Table 3 Panel A

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Change in US FPS				Total Change For. Share US Market			
VARIABLES								
Passive Δ US FPS *t*	0.6045***	0.3158***	0.6053***	0.3205***	0.0464	0.0934***	0.0489	0.1103***
	(0.062)	(0.036)	(0.054)	(0.035)	(0.031)	(0.032)	(0.032)	(0.032)
Passive Δ US FPS *t-1*	0.1290**	0.1360***	0.1493***	0.1487***	0.0129	0.0398	0.0376	0.0542*
	(0.052)	(0.031)	(0.050)	(0.029)	(0.024)	(0.033)	(0.027)	(0.031)
US Market Return *t*	0.0030			0.0008	-0.0051***			-0.0035*
	(0.004)			(0.003)	(0.002)			(0.002)
US Market Return *t-1*	-0.0024			0.0017	-0.0071***			-0.0066***
	(0.004)			(0.002)	(0.002)			(0.002)
Foreign Market Return *t*		0.0850***		0.0829***		-0.0115***		-0.0127***
		(0.004)		(0.004)		(0.004)		(0.004)
Foreign Market Return *t-1*		-0.0182***		-0.0187***		-0.0033		-0.0042
		(0.005)		(0.005)		(0.004)		(0.004)
ΔUS Ind. Pro *t+3*			-0.0063	0.0009			-0.0216	-0.0079
			(0.025)	(0.013)			(0.015)	(0.014)
ΔUS Ind. Pro *t-3*			0.0098	-0.0053			-0.0102	-0.0091
			(0.026)	(0.011)			(0.012)	(0.010)
ΔFor Share US *t-1*					-0.0525	0.0064	-0.0582	-0.0728
					(0.129)	(0.139)	(0.142)	(0.150)
Constant	0.0149	0.0322***	0.0146	0.0330***	0.0725***	0.0544***	0.0742***	0.0719***
	(0.031)	(0.008)	(0.033)	(0.011)	(0.012)	(0.012)	(0.015)	(0.014)
Observations	199	199	196	196	199	199	196	196
Number of Clusters	12	12	12	12	12	12	12	12
Cluster	Month	Month	Month	Month	Month	Month	Month	Month
Adjusted R-squared	0.409	0.816	0.43	0.818	0.0768	0.0201	0.0506	0.120

Table 3. Continued, Panel B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Change US Portfolio Weight *j,t*				Change For. Share US Market *j,t*			
VARIABLES								
Passive Δ US FPS *j,t*	0.4266***	0.4748***	0.4682***	0.4185***	0.0231	0.0218	0.0228*	0.0228*
	(0.057)	(0.061)	(0.053)	(0.052)	(0.014)	(0.016)	(0.014)	(0.014)
Passive Δ US FPS *j,t-1*	0.0893***	0.0874***	0.0865***	0.0886***	0.0104**	0.0100*	0.0106**	0.0110**
	(0.017)	(0.018)	(0.017)	(0.015)	(0.005)	(0.006)	(0.005)	(0.005)
Return *j,t*	0.0759***			0.0760***	-0.0012			-0.0010
	(0.017)			(0.017)	(0.001)			(0.001)
Return *j,t-1*	-0.0170***			-0.0169***	-0.0001			-0.0001
	(0.005)			(0.005)	(0.001)			(0.001)
Δ Ind. Pro *j,t-3*		0.0036				-0.0040		
		(0.006)				(0.008)		
Δ Ind. Pro *j,t+3*		0.0326**				-0.0060		
		(0.015)				(0.007)		
Δ DivYield *j,t-3*			-0.1210***				0.0242*	
			(0.038)				(0.013)	
Turnover *j,t*				-0.0000				0.0901
				(0.000)				(0.085)
Return *j,t**Turnover *j,t*				0.0001				-0.0000
				(0.000)				(0.000)
Return *j,t-1**Turnover *j,t*				0.0001				0.0000*
				(0.000)				(0.000)
ΔFor Share US *j,t-1*					0.0889	0.0223	0.0883	-0.0000
					(0.087)	(0.078)	(0.082)	(0.000)
Constant	-0.0039***	-0.0071***	-0.0043***	-0.0042***	0.0013***	0.0018***	0.0013***	0.0014***
	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Monthly FE	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	8,695	4,747	8,684	8,278	8,695	4,747	8,684	8,278
Number of Clusters	45	25	45	45	45	25	45	45
Cluster	Home	Home	Home	Home	Target	Target	Target	Target
Adjusted R-squared	0.372	0.321	0.320	0.366	0.0502	0.0431	0.0507	0.0504

Table 4 Distribution Uncertainty and Changes in the Foreign Portfolio Share

This table presents OLS panel regressions of changes in U.S. investors' portfolio weights and foreign investors share of the U.S. stock market capitalization on proxies for uncertainty from 1994 to 2010. The panel contains monthly, country-level, bilateral holdings obtained from the Bertaut and Tryon (2007) database. *Max/Min Volatility* is the ratio of the highest standard deviation of daily returns for any month from *t-3* to *t*, divided by the minimum standard deviation of daily returns from any month *t-3* to *t. Max/Avg Volatility* is the ratio of the highest standard deviation of daily returns for any month from *t* to *t-3*, divided by the monthly average standard deviation of daily returns from month *t-3* to *t. Avg Volatility* is the monthly average standard deviation of daily returns from month *t-3* to *t. Return Max – Min* is the range of the monthly returns for from *t-3* to *t. For Share* and *Passive changes* are previously defined. All standard errors are clustered by home country and bootstrapped within each cluster. *, **, *** indicate the statistical significance at the 10%, 5%, and 1% level, respectively.

Uncertainty								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Change US Portfolio Weight *j,t*				Change For. Share US Market *j,t*			
VARIABLES								
(*Max/Min Volatility*) *j,t*	-0.0015***	-0.0015***	-0.0015***		0.0001	0.0000	0.0001	
	(0.000)	(0.001)	(0.000)		(0.000)	(0.000)	(0.000)	
(*Max/Avg Volatility*) *j,t*				-0.0043***				0.0005
				(0.001)				(0.000)
Avg Volatility		0.0204				0.0348**		
		(0.019)				(0.014)		
Return Max – Min, *j,t*			-0.0000	-0.0009			0.0008	0.0008
			(0.001)	(0.002)			(0.001)	(0.001)
ΔFor Share US *j,t-1*					0.0887	0.0871	0.0885	0.0885
					(0.086)	(0.084)	(0.087)	(0.085)
Passive Δ US FPS *j,t*	0.4693***	0.4696***	0.4693***	0.4694***	0.0224*	0.0228*	0.0225*	0.0225*
	(0.052)	(0.053)	(0.052)	(0.053)	(0.013)	(0.014)	(0.013)	(0.014)
Passive Δ US FPS *j,t-1*	0.0881***	0.0884***	0.0881***	0.0883***	0.0103**	0.0109**	0.0103**	0.0103**
	(0.017)	(0.017)	(0.017)	(0.017)	(0.005)	(0.005)	(0.004)	(0.005)
Constant	-0.0016	-0.0018	-0.0016	0.0014	0.0010***	0.0007**	0.0009***	0.0005
	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)	(0.001)
Monthly FE	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	8,677	8,677	8,677	8,681	8,677	8,677	8,677	8,681
Number of Countries	45	45	45	45	45	45	45	45
Cluster	Home	Home	Home	Home	Target	Target	Target	Target
Adjusted R-squared	0.321	0.321	0.321	0.320	0.0504	0.0514	0.0503	0.0504

Table 5 Misvaluation and Changes in the US Foreign Portfolio Share

This table presents OLS panel regressions of changes in U.S. investors' portfolio weights and foreign investors share of the U.S. stock market capitalization on proxies for market misvaluation from 1994 to 2010. The panel contains monthly, country-level, bilateral holdings obtained from the Bertaut and Tryon (2007) database. *MarketToBookFitted* is the misvaluation component of the country-level market-to-book ratio. The misvaluation component is the fitted value from a first stage regression of future six-month-market returns on country-level market-to-book ratio (Baker, Foley, Wurgler, 2009). Monthly market-to-book ratios are obtained from DataStream. *Return, DivYield, Turnover, For Share* and *Passive changes* are previously defined. All standard errors are clustered by home country and bootstrapped within each cluster. *, **, *** indicate the statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Change US Portfolio Weight *j,t*				Change For. Share US MKT *j,t*			
VARIABLES								
MarketToBookFitted	-0.0605***	-0.0733***	-0.0650***	-0.0652***	-0.0539*	-0.0555*	-0.0555*	-0.0562*
	(0.019)	(0.019)	(0.018)	(0.021)	(0.033)	(0.033)	(0.033)	(0.034)
Return j,t-1		-0.0130***	-0.0160***	-0.0147***	-0.0003	0.0002	0.0002	0.0001
		(0.005)	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	(0.001)
Δ DivYield j,t-3			-0.1431***	-0.1373***		0.0266*	0.0266*	0.0267*
			(0.040)	(0.037)		(0.014)	(0.015)	(0.014)
Turnover j,t				-0.0000				0.0000
				(0.000)				(0.000)
MTBFitted* Turnover j,t				-0.0018*				-0.0000
				(0.001)				(0.001)
ΔFor Share US j,t-1					0.0876	0.0870	0.0870	0.0882
					(0.085)	(0.086)	(0.084)	(0.085)
Passive Δ US FPS j,t	0.4644***	0.4674***	0.4656***	0.4566***	0.0228	0.0232*	0.0232*	0.0229*
	(0.054)	(0.057)	(0.055)	(0.054)	(0.014)	(0.014)	(0.014)	(0.014)
Passive Δ US FPS j,t-1	0.0869***	0.0952***	0.0947***	0.0932***	0.0107**	0.0108**	0.0108**	0.0113**
	(0.018)	(0.019)	(0.019)	(0.018)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.0042***	-0.0040***	-0.0041***	-0.0041***	0.0013***	0.0013***	0.0013***	0.0014***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Monthly FE	Y	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	8,446	8,446	8,443	8,123	8,446	8,443	8,443	8,123
Number of Countries	44	44	44	44	44	44	44	44
Cluster	Home	Home	Home	Home	Target	Target	Target	Target
Adjusted R-squared	0.316	0.318	0.319	0.315	0.0514	0.0518	0.0518	0.0521