

International Mutual Fund Flows

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Comments Welcome

The last few decades has witnessed a dramatic growth of U.S. based mutual funds that invest in non-U.S. stock markets. Yet we know little about what drives U.S. households to invest in these funds. This paper provides a comprehensive analysis of flows into these international mutual funds for 1970-2003. Our analysis uncovers several new facts about mutual fund flows. First, the empirical findings show a strong relationship between flows into U.S based international mutual funds and the correlation of the fund's assets and the U.S. market, consistent with a desire for international diversification. Furthermore, the flow-past performance relationship is stronger when these correlations are low and returns on U.S. markets are lower compared to non-U.S. markets. Second, the flows are related to contemporaneous and past fund returns supporting an 'information asymmetry' as well as 'return chasing' or 'trend following' hypothesis for international capital flows. Finally, although there is evidence of fund outflows prior to the currency crises in emerging markets, the relationship is not robust to inclusion of other variables. This does not support the idea that emerging market mutual fund flows are *hot money*.

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Abstract

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1. Introduction

This paper analyzes flows into U.S. mutual funds that invest in international (non-U.S.) stock markets. While there were less than twenty such funds prior to 1980, currently there are almost fifteen hundred such funds investing all across the globe. This dramatic growth is the result of increased globalization of capital markets, reduction of cross border investment barriers and perhaps an increased awareness of the potential benefits of international investments. In spite of this dramatic growth of international mutual funds, we know little about what factors drive flows into and out of these funds and what determine U.S. households (investors) purchase decisions of these funds.¹ The objective of this paper, therefore, is to provide a comprehensive analysis of the flows into U.S. based international mutual funds during 1970-2003.

The relationship between mutual funds flows, performance, and fund characteristics has been studied for diversified domestic equity mutual funds (see, for example, Gruber (1996), Chevalier and Ellison (1997), Sirri and Tufano (1998), and Barber, Odean and Zheng (2004) among others). Apart from their tremendous growth in numbers and size, examining flows into international mutual funds is important and interesting because it allows us to examine and answer some important questions about U.S. investor behavior regarding investment in foreign markets and international capital flows.²

¹ The prior literature on international mutual funds has primarily focused on performance of these funds (see, for example, Eun, Kolodny and Resnick 1991).

² Using a sample of international mutual funds also gives us a new and independent sample to re-examine the flow-performance relationship for mutual funds.

It is often suggested that investors should hold an internationally diversified portfolio. Because of the low correlations between international equity markets, investors could potentially improve their reward to risk ratio by investing globally (see, Levy and Sarnat 1970, Eun and Resnick 1984, Solnik 2004). However there is no direct evidence that investors flow this strategy. Therefore we hypothesize and test if flows into international mutual funds are driven by a ‘diversification motive’. As part of this analysis, we also examine how the flow-performance relationship varies for different correlations of the funds’ assets and the U.S. market. Furthermore, we examine how the flow-performance relation depends on relative performance of the U.S. stock market compared to the non-U.S. stock market. Thus ours is one of the first studies to examine if U.S. households decisions to buy international mutual funds is driven by a desire for international diversification. The investment decisions of small investors has also received growing attention in the literature (see, for example, Barber and Odean 2000, Grinblatt and Keloharju 2000, Bhattacharya and Groznic (2003), Bailey, Kumar and Ng (2004)). Ours is also one the first paper to examine the portfolio choices for small investors when it comes to foreign investments in the context of mutual funds.

Unlike flows into domestic funds, flows into international mutual funds are also cross-border capital flows and have implications for understanding determinants of international capital flows. Thus, the second set of hypothesis tested is drawn from the predictions of models of international capital flows such as Bohn and Tesar (1996) and Brennan and Cao (1997). The hypothesis tested based on predictions of these studies is that international mutual fund flows are related to past and current returns of the fund.³ This also builds on the empirical findings of these as well as other papers such as Tesar and Werner (1994, 1995),

³ This analysis is done both at the fund level and at the aggregate level for flows of all funds.

Bekaert and Harvey (2000) and Froot, O'Connell and Seasholes (2001). The analysis complements the findings of these studies which focus on flows of institutional investors, by providing results on behavior of small investors regarding international investments. Further, as discussed later, the mutual fund data also overcomes many of the biases associated with aggregate capital flow data from the U.S. treasury. The results from flows of small investors could be potentially different from results from flows of institutions since there is growing evidence that behavior of institutional and small retail investors differ (see, for example, Grinblatt and Keloharju 2000).

A subset of our sample includes emerging market mutual funds. International capital flows into emerging capital markets have received growing attention in recent years following several crises in emerging capital markets.⁴ Capital flows (both debt and equity) are sometimes blamed for causing or exacerbating a crisis (see, for example, Radelet and Sachs 1998, Furman and Stiglitz 1998). It is suggested that foreign investors may be first ones to leave at the first signs of trouble making these capital markets vulnerable to capital flight. We aim to contribute to this debate by examining flows into emerging market mutual funds. This will provide an understanding of how small investors behaved during these crisis periods. These findings may have some policy implications in terms encouraging growth of investments in a local stock market from foreign mutual funds. Therefore the third set of hypothesis we test in this paper are how the crises in various emerging markets affected the flows beyond what is warranted by fundamentals. We also examine if there is a causal relationship between mutual fund flows and market returns in these countries.

⁴ Our definition of an emerging market is based on the World Bank's classification. These are stock markets in middle income developing countries.

The empirical findings generally support many of our hypotheses and indicate several new facts about mutual fund flows. These findings contribute to the literature on mutual fund flows and their growth, the literature on international capital flows, and the literature on emerging markets and behavior of small investors. We find that the flows into international mutual funds are driven by a diversification motive and the flow-performance relationship is sensitive to this correlation. Second, there is a strong relationship between flows and returns for international mutual funds, consistent with the predictions of Bohn and Tesar (1996) and Brennan and Cao (1997). Finally, although there is evidence of fund outflows prior to the currency crises in emerging markets, the relationship is not robust when the other variables that affect flows are included. This does not support the idea that emerging market mutual fund flows are *hot money* and destabilize markets or exacerbate a crisis.⁵

The rest of the paper is organized as follows. Section 2 discusses the motivations for our hypotheses. Section 3 discusses the data. The methodology and the empirical results are discussed in section 4. Section 5 summarizes the main findings and concludes.

2. Motivation and Hypotheses

The size of the U.S. international mutual fund market is now almost \$300 billion. Furthermore, there are almost fifteen hundred such mutual funds. Therefore, clearly this is an important and growing sector of the U.S. economy. Yet we know little about determinants of flows into these international mutual funds. This paper aims to fill that void. Although there

⁵ *Hot money* could refer to flows by Institutional Investors or small investors. Of course the impact of flows from institutions would be larger. Even though the flows from mutual funds are mainly for small retail investors, there is growing money from institutions in many mutual funds that have special ‘institutional shares’ or large minimums (such as \$250,000 or more). See for example James and Karceski (2002).

is a well developed and growing literature on flows into diversified domestic equity funds, the literature has not considered international mutual funds.

It is often suggested and shown empirically that (see for example chapter 5 of Solnik 2004), international diversification can improve the optimal portfolio for an investor because low correlations between different countries equity markets. Motivated by these observations, the first hypothesis we test is if indeed flows into international mutual funds are driven by desire to diversify. Assuming that the U.S. investor holds a well diversified portfolio of U.S. equities, we test if the correlation between the U.S. market portfolio and the funds' assets (invested in foreign markets) is an important determinant of fund flows. Since higher correlation would imply lower diversification benefits, we expect that when flows are regressed on correlation, the sign is significantly negative. Furthermore, we hypothesize that the relationship between flows and past performance (which is well documented in the literature for domestic funds), not only exists for international funds, it is stronger when these correlations are small.

The diversification motive implies that a globally diversified portfolio may perform better than a domestic portfolio because when the U.S. markets are doing poorly, foreign markets may be doing better as long as their business cycles and economies are not too closely tied to the U.S. economy. It could also mean that during a bear market in the U.S., investors may seek other markets which are performing better. Therefore, we hypothesize that the flow-performance relationship is stronger for international mutual funds, when the past years U.S market return is lower than the non-U.S. market return (proxied by the MSCI world index excluding the U.S.). Further, we expect the flow-performance relationship to be stronger when the fund returns outperform the U.S. market returns. In this analysis, we also

include the changes in trade weighted value of the dollar to proxy for currency risk (see, Adler and Dumas (1984)). We do not have guidance from theory on the sign of this variable.

The theoretical basis for our tests relating flows and fund returns is based on the predictions of Brennan and Cao (1997), who develop a dynamic model of international capital flows under the assumption of information asymmetry between the domestic and foreign investors in a particular market. The model abstracts from currency risk and barriers to investments.⁶ In their model, the domestic investors in a market are better informed compared to foreign investors and therefore revise their expectation about returns more than domestic investors following a public signal such as the return on a market index. As a result, when the market index returns are high for a market, foreign investors buy more driving up the prices. This suggests a *contemporaneous relationship* between international flows and returns for a market. A lagged version of this model predicts that flows are related to past returns, which is also tested. Bohn and Tesar (1995) use mean-variance analysis to show that the investor's decision to invest in foreign markets has a 'portfolio rebalancing' component and a 'return chasing' component. The authors show that flows are related to expected returns which they interpret as evidence supporting the return chasing hypothesis. This is also consistent with the theoretical predictions of Brennan and Cao (1995). Thus the second set of hypothesis we test based on these studies is that international mutual fund flows are related to past and current returns.

These above mentioned studies, as well as studies by Tesar and Werner (1995) provide empirical support for these predictions using aggregate market flows recorded by the U.S. Treasury. However, there are many biases associated with country level capital flows

⁶ see, Stulz 1999, Eun and Janakiramana 1986 and Errunza and Losq 1989 for international asset pricing models which account for investment barriers.

data (see, Tesar and Werner 1995 and Bekaert and Harvey 2000).⁷ Therefore, Froot et. al. (2001) use a novel data set of daily flows from State Street Bank—one of the largest custodian banks. We aim to complement the findings of these studies by using flows into international mutual funds. Apart from overcoming the biases of not accounting for capital gain etc, the mutual fund data set is of interest as it is mainly held by small investors or households, whereas the treasury data is aggregate data for institutions.⁸ Therefore our analysis complements the findings of these studies by providing results on behavior of small investors regarding international investments. Of course, as discussed earlier, analyzing mutual fund flows is of independent interest because of their growing importance in international investments and the growing interest in understanding performance-flow relationships.

Several developing countries liberalized their financial markets during the 1980 and 1990s. These markets, often dubbed as ‘emerging markets’, have witnessed increased international capital flows into their capital markets. The recent crises in some of these markets, in particular in the financial markets of Mexico, East-Asia, Russia, Turkey and Argentina have drawn further attention to these markets, and capital inflows and outflows are sometimes faulted as a potential cause for these crises (see for example, Stiglitz, 1999). Policymakers sometime blame these flows dubbed ‘hot money’ as causing or exacerbating a crisis. We contribute to this debate by examining flows into emerging market mutual funds

⁷ These biases include mis-reporting of transactions, transactions at foreign financial centers, exclusion of reporting of sales and purchases for less than \$2 million and no accounting for capital gains.

⁸ We calculated the correlation of aggregate monthly mutual fund flows with the monthly U.S. flows to foreign stocks and find the correlation is -0.02 and not significant. This confirms that the flow patterns of individual and institutions differ. We also analyze aggregate flows for international mutual funds and find similar results to those obtained using fund flows. When we use aggregate flows we use market returns in place of fund returns.

and examining how the flows responded to these crises. Therefore the third set of hypothesis we test in this paper are how the crises in various emerging markets affected the flows and if there is a causal relationship between mutual fund flows and market returns in these countries. This helps us understand how small investors, who are the predominant owners of mutual funds, reacted to these crises.

Several studies including, Patel, Zeckhauser and Hendricks (1994), Gruber (1996), Chevalier and Ellison (1997), Sirri and Tufano (1998), Nanda, Wang and Zheng (2004) find that flows into and out of domestic mutual funds in the U.S. are related to past performance. The flow-performance relationship also follows from the theoretical model of Berk and Green (2004)—this is also consistent with the ‘trend following’ hypothesis from international capital flows. We hypothesize that this relationship will be similar for international mutual funds and allows us to test the findings of these earlier studies using a new independent sample. As, Sirri and Tufano (1997) suggest, investors may use past performance as indicative of future performance. Further, the authors find that fund flows are related to investors search costs proxied by size of the fund complex and advertising fees. Khorana and Servaes (1999) also find that the decision to start new fund is related to level of assets for funds with the same objective, past performance and fund fees. Chevalier and Ellison (1997) show that the performance-flow relationship is sensitive to the age of the fund. Motivated by these findings we include the past performance of the funds, size of the fund complex, age and fees of the funds as control variables. The total net assets of the fund at the end of the previous quarter is used to control for fund size—since the same dollar flow will have larger effect on smaller funds.

Thus based on the previous theoretical and empirical literature, we hypothesize that the fund flows are a function of the funds correlation with the U.S. market and past market returns of the country/region where the fund invests and past and current fund returns while we control for fund performance and fund characteristics. Further, we also hypothesize that the flow into emerging market mutual funds are driven by fundamentals and are not the cause of crisis in financial markets. To supplement our analysis, we also test if US investors prefer domestic funds over foreign funds when controlling for fund characteristics. The findings from tests of these hypotheses will complement the earlier findings from studies using aggregate capital flows at the country level and studies on fund flows for domestic mutual funds, helping us understand the determinants of international mutual fund flows. In the next section we discuss our data and the subsequent sections discuss the methodology and the empirical results.

3. Data

The sample used in the empirical analysis is from the *CRSP survivor-bias free database of U.S. mutual funds*. This database originally constructed and used by Carhart (1997) has been used by many researchers (see, for example, Wermers (2000)). From this database we sample all international mutual funds—funds that invest in non-US equity securities, for the entire history from January 1, 1962 till December 31, 2003. To provide a close comparison of our findings for flows of international mutual funds with flows for domestic mutual funds, we also select all diversified domestic equity mutual funds that invest primarily in US equity. For this domestic funds sample, as is the case with many other studies, we exclude all bond funds, balanced funds, sector funds, precious metal funds and

funds that have less than fifty percent of assets in equity securities in a given year. Also, for the sample of international mutual funds, global funds—funds that invest in both US and non-US securities are excluded. The diversified domestic funds include all growth, income and growth and income funds. The international mutual funds include all US based mutual funds that invested in non-US equity for the past 42 years.

The CRSP mutual fund database includes monthly returns from 1962. However, the total net assets of the funds (which are used to calculate the flows) are available annually from 1962, quarterly from 1970 and monthly from 1991. To have the largest possible sample of all mutual funds for the longest possible time-period, we focus on quarterly mutual fund flows from 1970-2003, a period of 34 years and 136 quarters. Thus, as long as a fund exists for a quarter, it is included in our analysis. We also use the monthly data from 1991-2003 to examine if our results using quarterly flows are robust to using monthly flows. Our full sample includes 2,412 international mutual funds of which 1,456 were live at the end of 2003. The sample of diversified domestic mutual funds includes 10,019 funds of which 6,641 were live at the end of December 2003. Even though we use the quarterly flows data from 1970, the returns data prior to 1970 are still used in this analysis for calculating past performance. The data appendix provides the details for our sample and a list of the ten largest mutual funds as of December 2003 for all international, emerging and domestic funds. This appendix also describes in detail the selection and categorization of all international funds.

Table 1 reports some descriptive statistics for our sample of funds. Panel A is for all international funds, panel B is for only emerging market funds while panel C is for diversified domestic funds. The statistics clearly indicate the dramatic growth of U.S. based international equity funds. While there were only 17 such funds in 1962 and 135 funds in 1989, there are

1569 funds in 2003. This dramatic growth is also why it is important to understand flows into these funds. The TNA-weighted annual average return for these funds is 12.69 percent which is higher than the 12.27 percent average return for domestic mutual funds.

The international funds also have higher median total fees of 2.08 percent, while the domestic funds have median total fees of 1.79 percent. The emerging market funds started much later in 1990 and have very highly volatile returns. In 1998 for example, they had an average return of -23.38 percent, perhaps due to the Russian financial crisis. However in 1999 the emerging market funds had average return of 69.33 percent. Whether such high and low returns are caused by flows or flows are caused by such return is of interest and is examined in a later section. The emerging market funds have even higher median fees of 2.34 percent. The next section discusses our empirical methodology and results.

4. Methodology and Empirical Results

This section discusses the methodology used to test the hypotheses which are drawn from the theoretical models and prior empirical research, followed by a discussion of the empirical results. The net flow for a fund in a given quarter (or month) is defined as:

$$Flow_{i,t} = \frac{TNA_{i,t} - TNA_{i,t-1} * (1 + r_{i,t}) - MA_{i,t}}{TNA_{i,t-1}} \quad (1)$$

where $TNA_{i,t}$ is fund i 's total net assets at the end of quarter t , $r_{i,t}$ is the fund's return during the quarter and $MA_{i,t}$ is the assets acquired during the quarter through mergers.⁹ Therefore, $Flow_{i,t}$ measures the growth rate of the fund's assets in excess of the growth due to capital

⁹ As in several other studies including Sirri and Tufano (1998) we assume that the flows occur at the end of the period (quarter or month).

gains and dividends. This is the dependent variable in all our regressions. To get an idea about the trend of flows, in Figure 1 we present the cumulative flows for all the international funds and the emerging market funds. The figure clearly indicates their dramatic growth and the decline in flows following the Asian and the Russian financial crises.

For all our empirical tests we use different versions of the following panel model, where the data are pooled across funds and quarters. The independent variables are motivated by prior theoretical and empirical research discussed earlier. Pooling data across funds and time allows us to test determinants of cross-sectional variations in fund flows as well as the dynamics of fund flows over time.¹⁰

$$\begin{aligned}
 Flow_{i,t} = & \mathbf{a} + \mathbf{b}_1(fund's_correlation_with_US_market)_{i,t} + \mathbf{b}_2(market_returns)_{i,t} + \\
 & \mathbf{b}_3(fund_performance)_t + \mathbf{b}_3(total_fees)_{i,t} + \mathbf{b}_4(real_changes_in_dollar)_t + \\
 & \mathbf{b}_5(Category_Flow)_{i,t} + \mathbf{b}_6(Std_devn_fund_returns)_{i,t-1} + \mathbf{b}_7(Log_Age)_{i,t-1} + \\
 & \mathbf{b}_8(Log_TNA)_{i,t-1} + \mathbf{b}_9(Log_Complex_TNA)_{i,t-1} + \mathbf{e}_{i,t}
 \end{aligned}
 \tag{2}$$

This is a generic specification and we use several versions of this model along with dummy variables to test our various hypotheses. The correlation of the fund with the U.S. market, relative market performance (U.S. vs Non-U.S.), and variables for currency crises are examples of new independent variables that are unique to international funds not used in previous research.

The first independent variable is the correlation of the fund's last twelve-month returns with the return on the U.S. market index. We expect that the flows will be negatively related to this variable, since higher correlation implies lower diversification potential. The

¹⁰ We also estimated models with fixed-effects for fund categories as well as time (both year and quarter separately) and excluding the market returns. However, since the findings are very similar, they are not reported.

market returns are the returns on the U.S. market and the return on the home market of the fund's assets. These foreign market returns are returns on the Morgan Stanley Capital International (MSCI) index for that country or region. The US market return is the return on the U.S. CRSP value weighted index. Several measures of *fund_performance* are used in alternate specifications. We use the fund's past and current quarter's returns, past year's returns, market adjusted returns, rankings based on risk-adjusted returns and rankings based on the intercept (alpha) from a factor model. When market adjusted fund returns (MAR) is used, its squared term is also included because of the non-linear relationship between flows and performance documented by earlier studies on domestic funds. We expect a positive relationship between flows and fund's past performance. The fund's returns for the current quarter or past quarter are also used to test the information asymmetry and the trend chasing hypotheses respectively.

We include the size of the fund complex, *Log_Complex_TNA* —the total net assets of all international funds of the fund complex (such as Templeton, Fidelity, Vanguard etc.) as a proxy for search costs. The percentage change in the Federal Reserves' real trade weighted value of the dollar is used as a proxy for currency risk. Risk of the fund is proxied by *Std_devn*— the standard deviation of monthly returns of the fund for the twelve months prior to that quarter, although we also use risk-adjusted performance measures. The motivation for using simple measures such as the mean and standard deviation of past returns is because most often that is what is advertised or revealed to investors.

In addition to the return and risk variables which are used to test our hypothesis, we use several control variables which have been shown to be significant determinants of domestic mutual fund flows. This also allows us to test if these variables have similar effects

as shown for domestic funds. The *fees* of the fund is the total fees calculated as the expense ratio plus the front-end load (if any) amortized over a seven year period as in Sirri and Tufano (1998).¹¹ *Category_flow* is the flow to all international funds in that quarter, used to control for any general market wide trends. *Log_age* is the logarithm of the age of the fund in years and *Log_TNA* is the size of the fund.

Several specifications of this pooled model are estimated. Since we are using panel data, heteroskedasticity and serial correlation are potential problems. For each specification, we use the Wooldridge (2002) test for autocorrelation in panel data and find that we can reject the null of first-order serial correlation. Furthermore, we have estimated the pair-wise correlations of the independent variables to ensure that none of them are very high. Finally, we also tested for heteroskedasticity using the White test. Since we cannot reject heteroskedasticity, we estimate and report White t-statistics based on standard errors robust to heteroskedasticity.¹²

4.1 Diversification, Market Performance and Mutual Fund Flows

To test our hypothesis that the flows into U.S. based international mutual funds are negatively related to the correlation of the fund's returns with the return on the U.S. market index, in Table 2 we report the results from panel regressions of fund flows on various fund characteristics, which may be interpreted as control variables for this analysis and the

¹¹ We obtain very similar results if we include only expense ratios.

¹² We also used Fama-Macbeth regressions as a robustness check. Here we are only able to examine cross-sectional variations excluding market returns. Since the results are similar they do not affect the significance of any variable, they are not reported.

correlation—which is calculated using the monthly return of the fund and the CRSP value weighted market index for twelve months prior to the quarter.

We report results from four alternate specifications. The results are striking and indicate that the correlations are significantly negative in all specifications (for example, in model 2, the t-statistic is (-3.218)). These findings support our assertions that there is a strong ‘diversification motive’ for U.S. households investing in international mutual funds. Holding all else constant, funds receive lower flows when correlations are high, because the potential diversification benefits are low. The results are very similar when we use the U.S. beta of the fund in place of correlation.¹³ Also, the results are not affected when fixed effects for different fund categories are included and hence not reported. Furthermore, the results reported are for all funds which include diversified international funds, regional funds and country funds. When we run these regressions for only diversified funds or only emerging market funds, the results are similar and therefore not reported. For these sub-samples the correlations are again negative and significant at the one percent level. The significance of the results for diversified funds also indicates that the results are not driven by desire to invest in a few countries with high expected returns.

Models 3 and 4 of Table 2 present results when an interaction variable, which is the product of a high correlation dummy (correlations higher than the median) and the fund’s returns in excess of the U.S. market return and its squared term are included, the coefficients are always negative and significant in two instances. This variable is used to test if the relationship between flows and past performance is weaker when the correlations are high. The negative sign and significance in two cases supports this hypothesis. Thus it appears that,

¹³ The U.S. beta is estimated by regressing the fund’s last twelve months returns on the CRSP value weighted U.S. market index.

not only U.S. investors prefer funds that have low correlation with U.S. markets, the flow-performance relationship is stronger when the correlations are low.

In Table 3, we report results from three alternate specifications, to examine if our findings are robust. In model 1, the past years returns of the fund are used. First, the previous year's return of the fund is used to rank all the funds from 0 to 1, which we define as *Rank*. Then we define the tercile ranks as: $\text{Bottom_tercile} = \text{Min}(1/3, \text{Rank})$, $\text{Middle_tercile} = \text{Min}(1/3, \text{Rank} - \text{Bottom_tercile})$ and $\text{Top_tercile} = \text{Min}(1/3, \text{Rank} - \text{Bottom_tercile} - \text{Middle_tercile})$. This piecewise linear relationship between fund flows and previous years returns follows Sirri and Tufano (1998). This is useful because of the non-linear relationship between flows and return shown by Carhart (1994), Gruber (1996), Chevalier and Ellison (1997) etc. Thus, this specification allows us to test if there is an asymmetric response to good and poor performance. In model 2, we use the same methodology but use a two factor model which includes the world market return and the changes in real trade weighted value of the dollar (based on the international asset pricing model of Adler and Dumas 1984). We use the alpha from the following two factor model¹⁴, using the twelve months returns prior to that quarter:

$$R_{ft} - R_{ft} = \mathbf{a} + \mathbf{b}_1 (R_{wt} - R_{ft}) + \mathbf{b}_2 R_{fx} + \mathbf{e}_{pt} \quad (3)$$

where, R_{ft} is the return on the fund, R_{ft} is the risk-free rate proxied by the return on 30 day T-bills, R_{wt} is the return on the MSCI world market index and R_{fx} is the return on the Federal Reserve's *real* trade weighted value of the dollar. In model 3, we use the world market returns instead of U.S. market returns for measuring performance.

¹⁴ We also estimated a six-factor model including these two factors, the three Fama-French factors and the Carhart momentum factor. The results are similar so they are not reported.

The results in Table 3 indicate that there is a significant positive relationship between top performers and fund flows (t-stat of 6.707). However we also find a surprisingly significant positive relationship between fund flows and funds in the bottom performance tercile. This again suggests that similar to domestic funds, while investors are eager to pour money into high performers, they are reluctant to take out money from poor performers. What is interesting is, however, that the correlation variable is always negative and significant suggesting that our findings are quite robust to alternate specifications.

As we discussed earlier, apart from fund performance and fund's correlation with U.S. equity markets, investors in the U.S. may choose to invest in international funds, if the U.S. markets have been doing poorly compared to the non-U.S. stock markets. This is in fact consistent with the diversification effect. Here we are suggesting that the flow-performance relation would be stronger when the foreign markets have performed better than U.S. markets. The results from this analysis are reported in Table 4. We use four separate specifications for tests of these hypotheses. In model 1, we simply include the past years return on the U.S. market. We find that the flows are stronger when return in the U.S. market is high. This may be due to a wealth effect. When we include interaction variables which are products of performance and whether the market adjusted return was positive (that is, the fund has higher returns than the U.S. market) and separately when return on the non-U.S. stock markets—the return on the MSCI world market index excluding the U.S., although they all have the expected positive sign, that is flows are higher when the foreign markets outperform the U.S. markets, they are not statistically significant. However, as we shall see later, when monthly flows are used these variables are significant. Since monthly data begins much later in the 1990s, it may indicate that this relationship is significant for the more recent periods.

4.2 Information Asymmetry, Return Chasing and International Mutual Fund Flows

In Table 5 we report the results from our panel regressions where we test the predictions of Bohn and Tesar (1996) and Brennan and Cao (1997). The flows are significantly (t-stat of 2.934) and positively related to current quarter fund returns as predicted by the model of Brennan and Cao (1997). This is consistent with the model and supports the idea that there may be information asymmetry between local and foreign investors in international equity markets. The flows are also significantly (t-stat of 3.176 in model 2) related to the previous quarters returns. The results clearly indicate that the net quarterly flows into or out of U.S. based international mutual funds exhibit ‘return chasing’ or ‘trend following’. These later results are also consistent with the empirical evidence for domestic mutual funds.

The change in the real value of the dollar for the current quarter is also significantly negative, although at the ten percent level (t-stat of 1.745). This suggests that when the U.S. dollar is stronger, flows to foreign funds are lower. We do not have guidance from theoretical models about the relationship between flows and the real value of the dollar. However, a declining dollar may result in more flows because of the returns from currency returns.¹⁵ When the performance variables are interacted with a dummy for a stronger dollar (when the real exchange rate change is positive), the variables are not significant.

Here and in previous tables, the control variables are significant and have signs consistent with previous findings in the context of diversified domestic mutual funds. A priori, there is no reason to believe them to be otherwise. Therefore, these results confirm our

¹⁵ See for example Wall Street Journal, Dec 24, 2004, “Dollar’s Pain Turns Out to be Investors Gain. Foreign-Stock Mutual Funds, Benefit as U.S. Currency Drops, Juicing Returns for Some Holders”.

expectations and support the findings from studies using domestic funds using a new dataset. The total fees of the fund is always significantly negative, which is similar to findings in Sirri and Tufano (1998) and more recent evidence in Barber et al (2004) for domestic funds. The previous twelve months standard deviation of returns is not significant in any specification.

The size of the fund measured by the TNA at the end of the previous quarter is significantly negative while the size of the fund family measured by the total TNA of all funds belonging to that family in that quarter is significantly positive. These findings are similar to the findings for domestic funds. The negative sign on fund size implies that bigger funds have smaller percentage flows for the same dollar flows. The significantly positive sign of the fund family size could be due to the search costs and familiarity with fund brand names as suggested by Sirri and Tufano (1998) and Khorana and Servaes (1999). Similarly the age of the fund is significantly negative as in Chevalier and Ellison (1997). In all specifications we also observe a significant relationship between fund flows and flows to all international funds.

4.3 Home Bias and International Mutual Fund Flows

Although not the main focus of our analysis, we also examine if controlling for fund characteristics, there is a preference for domestic funds by U.S. households. To examine if U.S. investors prefer domestic funds—because of the well documented home-bias (see, for example, French and Poterba 1991), in Table 6 we report results from panel regressions where we pool data for diversified domestic equity funds and international funds. A dummy variable is used to indicate the international funds. The coefficient on that variable is significantly negative (t-stat of -3.117). This suggests that, after controlling for the fund size, fees, complex size etc, i.e., everything else being equal, there is a strong preference for

domestic funds. When we use a dummy variable for emerging market funds, the coefficient for the emerging market funds is significantly negative (t-stat of -6.012). This suggests that *ceteris paribus* there is an aversion for foreign funds and even more aversion for emerging market funds. When the various fund characteristics are interacted with the dummy variable for international funds, only the age variable is negative and significant. Therefore, although when they invest globally, there is an investor preference for funds which help them diversify, there is a strong preference for domestic funds.

4.4 Monthly International Mutual Fund Flows

The results in the previous sections were based on quarterly flows since that gave us the largest number of funds for the longest time period. The CRSP database of mutual funds also has the monthly TNAs of funds since 1991. Therefore, as a robustness check we re-estimate our main regressions using this dataset. Although this spans a shorter time-period, we have more frequent observations for this sample. The results in general are very similar to what we have found using quarterly flows and therefore not reported.. However we analyze the impact of crisis on flows using monthly data, we report the results there in Table 9. The correlation variable is again significantly negative. Interestingly, when we interact the high correlation dummy with market performance, here the variable is significantly negative (for quarterly data, it was negative but not significant). Similarly, we find that the flow-performance relationship for international funds is stronger when the returns in the non-U.S. stock markets are higher than the return on U.S. stock markets. These results indicate that the flow-performance relationship is weaker for high correlations and stronger when foreign stock markets are outperforming U.S. stock markets. The sign and the significance of the other control variables are the same as before using quarterly flows.

4.5 Currency Crises and Emerging Market International Mutual Fund Flows

During the 1980s and 1990s, economic and financial reforms in several developing countries and opening up of stock markets to foreign investors resulted in so called ‘emerging capital markets’. Attraction for the higher returns in these markets and the potential high growth prospects in these countries resulted in rapid increased international equity investment in these countries. Bekaert and Harvey (2003) provide a thorough survey of the literature on emerging markets finance. Patro (2005) provides an analysis of market liberalization in the context of country funds that market liberalizations have a positive impact on emerging market prices. Patro (2005) also shows that most of the closed-end country funds were listed at the beginning of the market liberalization in these countries. For our sample, we find that most of the open-end funds were listed much later than when the program of liberalization started. However, subsequent to periods of liberalization, there were several crises in both currency and equity markets. Capital inflows and outflows are sometimes faulted as a potential cause for these crises (see Radelet and Sachs 1998, Furman and Stiglitz 1998, Choe, Kho and Stulz, 1999; Stiglitz, 1999, Edison and Reinhart 2001). Policymakers have attributed the crisis to *hot money* where the flows are very sensitive to market volatility. Although there are theoretical arguments that short debt flows may results in a crisis if it crates a banking crisis, there is scant empirical evidence on the effect of the crises on equity flows.

To contribute to this debate, we provide an analysis of how the mutual fund flows of U.S. based international mutual funds reacted to these crises. Apart from having implications for capital flows, this provides a better understanding of how small investors respond to crises in foreign markets. As a starting point of our analysis we identify all the major crises that

affected all emerging markets. For completeness, we also include the currency crises in the EMS, though we also provide separate analysis for just emerging market funds.

Table 7 reports the major crises in both developed and emerging markets and the initial dates of onset of the crises. Except for the crisis in the EMS in 1992, all the other crises are in emerging markets, the first major crisis being the Mexican crisis of December 1994. The crisis in East Asia started with the devaluation of the Thai Baht on July 2, 1997. The crisis spread to other countries after that. For example, Korea abandoned defense of the Won only on Nov 17, 1997. However, we use a starting date of July 1997 for all the countries in the region to control for contagion effects emanating from Thailand.

Although these announcement dates of devaluations and what is generally accepted as the beginning of the crisis period are used, it is important to note that many of the stock markets in these countries had a sharp downturn even before the crisis. For example, Thailand's stock market had declined by 52 percent the year before. Similarly, the Korea market had declined by 10.35 percent, the Russian market had declined by 49.4 percent and the Argentina's market had decline a whopping 51 percent before the crisis started. Of course these market returns affected the fund returns and therefore when we use the fund's performance for the previous year we control for these market movements. Nevertheless, we include a dummy variable for the three months before the crisis as a proxy for 'anticipation of crises by international investors and how flows behaved during that period. Furthermore, we include a dummy variable for the three months after the crisis to examine if the effects persisted for a long time. The after period is also when rescue packages were put in place by international agencies and the impact may be interpreted as the how the flows responded to these packages and if they restored investor confidence.

In Table 8 we provide some descriptive statistics for the flows into various categories of funds before, during and after the crises for each of the major crisis. For this analysis we use the monthly flows since all the crises are relatively recent and span the period covered by the monthly data.¹⁶ The impact of each crisis is quite different. For the diversified international funds as well as the developing country funds, we do not see any net outflows for the Mexican or the Asian currency crisis although in all cases we a sharp drop in growth rate of new money in these fund. For the Turkish and Argentine crises however we see outflows even before the crisis started. For the Russian crisis we see outflows of \$3 billion from the diversified funds during the crisis. Therefore we see that the investors responded more quickly for the later crises in Argentina and Turkey, perhaps due to the lessons learned from earlier crises. For the earlier crises in Mexico and Asia, although the diversified international funds did not have any outflows, the Latin American funds had outflows of \$121.24 million during the Mexican crisis and the Pacific funds(excluding Japan) had outflows of \$1.6 billion during the Asian crisis. In sum, we find evidence of outflows during the crisis for the earlier crises and before the crisis for the more recent crises.

In Table 9 we provide a more formal analysis of how flows responded to crisis by denoting the period of three-months beginning with the crisis as the ‘during’ period. The three-months after the crisis are denoted as the ‘after’ period. We use dummy variables for each of the three periods to examine how fund flows responded to crisis affecting the country or the region in which the fund is invested. If the outflows occurred after the crisis started, the equity flows may not be held responsible for precipitating the events. However, since the flows occurred before the crisis, while we control for market returns and currency rates,

¹⁶ We also used quarterly flows and find that the results are very similar and hence not reported.

suggest that international equity investors were the first to flee before the crisis started. For the sample of all international funds, the crisis dummies are insignificant suggesting that there are no significant outflows during crisis periods. This is similar to the findings by Froot et al (2001) in their sample that flows continue to be positive during the Asian crisis.

However, when only emerging market funds are considered (model 2), the dummy variable denoting the period before and during the crisis are negative, although insignificant. In previous specifications in earlier tables, we had found that the standard deviation of last twelve months returns is not significant. However, when we use only emerging market funds, the variable is negative and significant (t-stat of -3.777). This indicates that, although, the fund volatility (proxied by the standard deviation of returns for the previous twelve months) is generally not significant, during periods of high volatility as is the case with emerging markets before a crisis, the flows are affected negatively. Also note that the correlation of the fund's assets with the return on the U.S. market is significantly negative, indicating that this finding is robust to whether we use quarterly or monthly flows.

In models 3-7 we repeat our analysis only focusing on the impact of a specific crisis for emerging market funds. In all the specifications, the dummy variables take a value of one only for funds that invest in the region/country affected by the crisis. For the Mexican crisis we find that none of the dummy variables (for before, during or after) is significant. For the Asian crisis, we find that the 'before' dummy is negative and significant suggesting that perhaps because of the sharp market declines in Thailand and Korea etc the year before, there was an anticipation of an impending crisis. For the Russian crisis, both the before and during dummy variables are negative and significant. There is no significant negative outflow during the Argentine or the Turkish crisis. Therefore although the results are mixed, we find evidence

of significant negative reaction to the Asian and the Russian crisis even before the crisis started. There is no strong evidence of outflows during the window of the crisis period questioning the *hot money* hypothesis.

For aggregate domestic mutual fund flows, Warther (1995) finds that unexpected flows results in higher equity prices. In their analysis of the interaction of flows and returns, Froot et. al. (2001) finds that generally, it is the returns that predict future flows. However, for emerging markets, there is evidence of flows predicting returns. We also test this hypothesis using Granger causality tests, where the lag length is selected by the Akaike Information Criterion (AIC). For monthly flows we find that the null hypothesis that flows do not cause returns is not rejected for developing market funds (Chi-square of 1.07 and p-value of 0.58). However, we also find that we can not reject the null of returns do not cause flows. For the diversified international funds we do not find that flows do not Granger cause returns (p-value of 0.48), but returns Granger cause flows (p-value of 0.05). The results are mixed for other categories. Note that since the mutual fund flows are not the entire flows to a country or region, it is difficult to draw inference about causality from these findings.¹⁷ However, just looking at fund returns and flows seems to indicate that the flows do not cause returns. Froot et, al (2001) have found that for emerging markets, flows do cause returns, therefore, the outflows of mutual funds have partly contributed to the crises. That is, the outflows before the crisis may have contributed to a loss of investor confidence which may be partly responsible for the crisis. But the positive flows during the crisis in some countries and the lack of causality casts doubt on this interpretation.

¹⁷ Therefore these results are not reported. However they are available upon request.

5. Conclusions

We provide a comprehensive analysis of growth of U.S. based international mutual funds to understand what drives investors to buy these funds. Our analysis uncovers several new and unique features of flows into international mutual funds. The empirical findings show a strong relationship between flows into U.S based international mutual funds and the correlation of the fund's assets and the U.S. market consistent with a desire for international diversification. Second, the flows are related to contemporaneous and past fund returns supporting an 'information asymmetry' as well as 'return chasing' or 'trend following' hypothesis for international capital flows. For international funds too we find that while investors flock to funds with better past returns, they do not flee from funds with poor performance. Finally, although there is some evidence of fund outflows prior to the currency crises in emerging markets, the relationship is not robust when other variables which affect mutual fund flows are included. This does not support the idea that emerging market mutual fund flows are *hot money* and destabilize markets or exacerbate a crisis.

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Table 1
International Mutual Funds: Descriptive Statistics

This Table reports the descriptive statistics for the sample of equity mutual funds. Panel A reports the descriptive statistics for international mutual funds, Panel B reports the descriptive statistics for emerging market funds and Panel C reports the descriptive statistics for diversified domestic equity funds. The Table reports both annual returns and quarterly returns that are annualized. The total fees are the annual expenses plus one-seventh of the front-end load (if any).

Panel A: International Mutual Funds

Year	CRSP VW Return (%)	S&P 500 Return (%)	MSCI EAFE Return*	Number of funds	Mean annual return (%)	TNA-weighted mean annual return (%)	Annualized quarterly return (%)	Annualized TNA-weighted quarterly return (%)	Median TNA (\$ millions)	Total net assets (\$millions)	Median Total fees (%)
1962	-10.30	-8.91	.	17	-11.13	-9.99	-11.19	.	14.45	330.90	1.83
1963	20.89	22.83	.	18	8.48	10.38	8.59	.	15.60	310.10	1.69
1964	16.30	16.78	.	17	12.71	17.88	13.34	.	17.15	284.50	1.80
1965	14.39	12.66	.	15	7.72	3.77	7.96	.	14.85	230.90	1.81
1966	-8.69	-10.23	.	14	-6.12	-8.77	-6.76	.	11.90	168.40	1.70
1967	28.57	23.99	.	13	27.38	33.48	29.44	.	11.55	241.70	1.82
1968	14.17	10.88	.	14	27.99	27.57	28.12	22.40	21.40	506.24	0.94
1969	-10.84	-8.35	.	16	6.36	-12.90	2.99	1.56	19.86	585.63	1.28
1970	0.07	3.94	-10.51	18	-10.56	-12.19	-10.38	-11.01	16.35	547.50	1.40
1971	16.20	14.52	31.21	19	23.76	25.14	22.32	26.27	20.23	779.69	1.95
1972	17.34	19.17	37.60	19	21.45	11.59	20.69	14.72	31.26	779.71	2.02
1973	-18.77	-14.87	-14.17	18	-21.33	-24.36	-20.70	-23.58	38.12	691.43	2.03
1974	-27.93	-26.41	-22.15	17	-23.86	-27.84	-23.88	-27.09	24.80	484.60	2.15
1975	37.35	37.14	37.10	17	31.27	29.13	31.49	28.24	24.80	563.22	2.21
1976	26.77	24.08	3.74	16	18.02	18.61	17.86	18.81	22.70	616.43	2.14
1977	-2.98	-7.46	19.43	17	1.44	1.15	1.66	0.73	18.79	536.23	2.23
1978	8.55	6.37	34.30	19	26.50	19.15	25.76	16.46	18.70	481.99	2.31
1979	24.41	18.67	6.18	18	18.07	33.05	16.60	32.88	24.46	551.73	2.21
1980	33.23	32.83	24.43	18	37.10	49.20	36.33	46.81	39.30	875.04	2.09
1981	-3.98	-4.88	-1.03	20	0.12	-5.20	0.24	-5.43	38.90	1014.83	2.06
1982	20.42	22.30	-0.86	22	7.67	16.74	7.66	18.76	39.03	1230.37	2.23
1983	22.65	22.35	24.61	24	26.56	25.63	26.84	27.64	54.33	1721.19	2.19
1984	3.16	6.71	7.86	30	-4.17	-4.15	-3.71	-4.77	54.01	2357.99	2.00
1985	31.42	32.16	56.72	45	37.07	38.78	37.09	39.50	70.69	4545.77	2.05
1986	15.57	18.16	69.94	65	44.05	48.49	42.89	47.23	70.89	10252.82	1.84
1987	1.82	5.19	24.93	96	11.41	12.64	11.92	12.92	38.82	11321.01	2.05
1988	17.55	17.10	28.59	115	15.41	15.32	15.28	13.39	30.18	11737.58	2.09
1989	28.43	31.64	10.80	135	21.42	24.20	21.17	23.62	38.09	15620.80	2.20

* The MSCI EAFE index is not available before December 1969.

Table 1a: contd.

Year	CRSP VW Return (%)	S&P 500 Return (%)	MSCI EAFE Return (%)	Number of funds	Mean annual return (%)	TNA-weighted mean annual return (%)	Annualized quarterly return (%)	Annualized TNA-weighted quarterly return (%)	Median TNA (\$ millions)	Total net assets (\$millions)	Median Total fees (%)
1990	-6.08	-3.22	-23.20	161	-12.03	-9.02	-12.18	-9.26	34.20	17350.88	2.04
1991	33.64	30.90	12.50	194	13.22	15.87	13.57	15.11	35.08	22122.28	1.75
1992	9.06	7.77	-11.85	232	-5.08	-1.97	-4.77	-2.09	37.25	26818.76	2.00
1993	11.59	9.98	32.95	314	38.54	43.75	39.61	42.98	74.37	79240.82	2.00
1994	-0.76	1.36	8.06	552	-2.81	-2.77	-2.90	-2.15	47.44	110540.18	2.06
1995	35.67	38.12	11.55	699	5.93	10.13	6.06	9.98	33.99	130722.96	2.13
1996	21.16	23.45	6.36	833	12.33	15.84	12.31	15.40	32.26	181465.62	2.14
1997	30.35	33.99	2.06	1141	-0.20	7.45	-0.86	6.37	28.80	223322.42	2.08
1998	22.31	29.68	20.33	1337	2.29	11.50	1.31	9.90	23.33	248375.23	2.15
1999	25.39	21.78	27.30	1461	52.89	49.73	52.09	46.03	32.70	367343.54	2.17
2000	-11.16	-8.52	-13.96	1585	-18.53	-13.37	-19.17	-14.12	25.69	311298.60	2.16
2001	-11.26	-11.96	-21.21	1662	-17.75	-16.55	-17.86	-16.92	20.32	239440.49	2.17
2002	-20.98	-21.98	-15.66	1651	-14.44	-12.48	-14.38	-12.99	19.64	231901.01	2.17
2003	33.09	28.71	39.17	1569	40.51	38.28	40.24	37.59	24.80	288720.50	2.16
Average 1970-2003	12.45	12.90	13.03	415.85	11.07	12.69	10.89	12.41	34.83	74863.92	2.08

Panel B: Emerging Market funds

Year	CRSP VW Return (%)	S&P 500 Return (%)	MSCI EAFE Return (%)	Number of funds	Mean annual return (%)	TNA-weighted mean annual return (%)	Annualized quarterly return (%)	Annualized TNA-weighted quarterly return (%)	Median TNA (\$ millions)	Total net assets (\$millions)	Median Total fees (%)
1990	-6.08	-3.22	-23.20	4	-12.51	-8.68	-12.50	-7.38	14.50	147.06	0.018207
1991	33.64	30.90	12.50	5	21.27	23.60	22.22	26.51	26.40	445.84	0.0142
1992	9.06	7.77	-11.85	9	5.55	4.23	5.77	6.32	90.63	1097.72	0.024214
1993	11.59	9.98	32.95	23	68.47	75.73	68.51	76.45	120.19	15517.4	0.0245
1994	-0.76	1.36	8.06	52	-13.92	-14.08	-14.23	-12.79	29.58	18791.43	0.024429
1995	35.67	38.12	11.55	116	-5.06	-2.67	-4.73	-2.93	21.08	18692.23	0.024564
1996	21.16	23.45	6.36	166	13.43	15.38	13.90	15.29	23.58	26990.97	0.024243
1997	30.35	33.99	2.06	241	-7.74	-5.74	-9.64	-10.07	20.16	26250.64	0.0239
1998	22.31	29.68	20.33	299	-23.38	-21.80	-23.85	-22.53	12.87	17483.65	0.024407
1999	25.39	21.78	27.30	312	69.33	69.90	69.86	70.14	16.83	29365.15	0.0253
2000	-11.16	-8.52	-13.96	302	-28.05	-28.46	-28.68	-28.84	11.97	20251.42	0.025857
2001	-11.26	-11.96	-21.21	292	-3.80	-2.99	-3.87	-3.28	11.19	17548.72	0.025107
2002	-20.98	-21.98	-15.66	275	-8.28	-4.87	-8.19	-5.19	13.20	17011.83	0.024393
2003	33.09	28.71	39.17	253	55.84	56.94	55.94	57.05	24.10	33690.4	0.0238
Average 1970-2003	12.45	12.90	13.03	167.79	9.37	11.18	9.32	11.34	3116.29	17377.46	2.34

Panel C: Diversified domestic mutual funds

Year	CRSP VW Return (%)	S&P 500 Return (%)	MSCI EAFE Return (%)	Number of funds	Mean annual return (%)	TNA-weighted mean annual return (%)	Annualized quarterly return (%)	Annualized TNA-weighted quarterly return (%)	Median TNA (\$ millions)	Total net assets (\$millions)	Median Total fees (%)
1962	-10.30	-8.91	.	231	-11.68	-10.35	-12.11	-11.31	25.30	19179.38	1.84
1963	20.89	22.83	.	242	18.55	17.63	18.60	18.14	21.90	22888.25	1.82
1964	16.30	16.78	.	244	13.72	14.18	13.90	16.56	24.60	26953.57	1.80
1965	14.39	12.66	.	257	23.98	17.05	23.10	18.89	22.20	33099.13	1.82
1966	-8.69	-10.23	.	269	-5.03	-5.27	-4.69	-5.50	24.20	33077.94	1.80
1967	28.57	23.99	.	302	35.80	26.93	36.60	26.75	29.30	43375.04	1.83
1968	14.17	10.88	.	358	16.42	12.43	17.68	12.12	38.05	50186.91	1.83
1969	-10.84	-8.35	.	439	-13.88	-10.92	-14.27	-10.75	19.90	46407.00	1.89
1970	0.07	3.94	-10.51	509	-8.16	-3.29	-9.26	-3.06	14.55	44890.18	1.99
1971	16.20	14.52	31.21	518	19.35	18.19	19.23	17.73	15.50	51288.76	2.03
1972	17.34	19.17	37.60	521	11.07	14.05	10.67	14.15	19.31	55285.23	1.96
1973	-18.77	-14.87	-14.17	498	-23.21	-18.32	-23.80	-18.07	16.49	41963.80	1.97
1974	-27.93	-26.41	-22.15	471	-24.70	-24.31	-24.67	-24.04	14.30	29957.76	2.00
1975	37.35	37.14	37.10	429	34.89	32.54	34.72	32.74	21.26	37426.92	2.01
1976	26.77	24.08	3.74	403	25.81	23.71	25.60	23.76	28.04	41329.64	1.93
1977	-2.98	-7.46	19.43	377	1.52	-2.51	1.23	-2.68	29.25	35840.40	1.88
1978	8.55	6.37	34.30	372	11.29	9.42	11.20	9.38	28.92	34812.43	1.85
1979	24.41	18.67	6.18	352	28.32	24.93	27.99	24.18	36.46	37772.97	1.84
1980	33.23	32.83	24.43	361	32.62	32.05	32.20	31.44	50.57	46223.10	1.84
1981	-3.98	-4.88	-1.03	371	-0.90	-1.75	-0.92	-2.02	47.74	40982.95	1.81
1982	20.42	22.30	-0.86	401	26.03	25.93	25.71	25.71	60.72	52930.59	1.81
1983	22.65	22.35	24.61	442	20.81	22.03	21.12	21.57	70.62	74825.15	1.71
1984	3.16	6.71	7.86	481	-1.20	0.29	-1.37	-0.09	67.63	75501.56	1.66
1985	31.42	32.16	56.72	568	27.96	28.63	28.11	28.31	71.51	106495.79	1.63
1986	15.57	18.16	69.94	658	13.50	16.46	13.88	16.35	66.75	133000.27	1.66
1987	1.82	5.19	24.93	801	0.35	2.48	1.51	2.95	50.27	149818.09	1.68
1988	17.55	17.10	28.59	901	14.81	16.72	14.71	16.38	40.97	160761.02	1.76
1989	28.43	31.64	10.80	945	23.86	25.43	23.55	25.13	54.21	210538.16	1.76
1990	-6.08	-3.22	-23.20	1012	-5.52	-5.35	-5.30	-5.33	49.84	202176.43	1.74
1991	33.64	30.90	12.50	1101	35.65	35.34	35.00	34.30	68.93	304050.58	1.67
1992	9.06	7.77	-11.85	1383	8.90	8.69	9.04	8.91	64.45	396477.61	1.64
1993	11.59	9.98	32.95	1796	12.08	14.84	12.15	14.44	59.28	550261.99	1.63
1994	-0.76	1.36	8.06	2524	-1.71	-0.60	-1.75	-0.73	48.85	622123.46	1.70
1995	35.67	38.12	11.55	2877	30.47	32.54	30.31	32.33	47.77	931884.36	1.71
1996	21.16	23.45	6.36	3481	18.58	18.58	18.51	18.34	50.87	1289817.64	1.71
1997	30.35	33.99	2.06	4335	23.47	25.65	23.63	25.70	51.43	1796711.84	1.68
1998	22.31	29.68	20.33	5138	14.50	21.23	14.12	20.14	49.20	2275932.48	1.73
1999	25.39	21.78	27.30	5806	25.58	28.38	24.43	25.80	51.73	2957281.72	1.73
2000	-11.16	-8.52	-13.96	6496	-1.43	-4.40	-1.97	-4.74	46.49	2915733.27	1.74
2001	-11.26	-11.96	-21.21	6816	-10.46	-10.49	-10.29	-10.84	43.97	2606842.45	1.77
2002	-20.98	-21.98	-15.66	7177	-21.85	-19.98	-22.05	-20.47	34.59	2082062.88	1.82
2003	33.09	28.71	39.17	6925	31.63	30.10	31.35	30.00	43.70	2290344.40	1.80
Average 1970-2003	12.45	12.90	13.03	1977.82	11.59	12.27	11.43	11.99	44.59	667157.23	1.79

Table 2
Diversification and International Mutual Fund Flows

This Table reports the results from pooled panel regressions of quarterly net mutual fund flows on market returns and fund characteristics. The data spans 136 quarters from 1970-2003. The Table reports the coefficient estimates and the White heteroscedasticity consistent t-stats in the parentheses.

	(1)	(2)	(3)	(4)
Intercept	0.199	0.265	0.259	0.050
	(7.020)***	(10.099)***	(9.424)***	(0.927)
U.S. Market adjusted fund return (MAR)	0.160	0.165	0.215	0.118
	(5.593)***	(5.309)***	(3.954)***	(6.695)***
U.S. Market adjusted fund return (MAR)** ²	0.091	0.084	0.082	0.025
	(2.059)**	(1.988)**	(1.706)*	(1.360)
Flows to all international funds	1.206	1.032	1.068	0.762
	(9.051)***	(9.725)***	(9.004)***	(4.513)***
Std. dev. of last 12 months returns	0.133	0.266	0.354	-0.120
	(0.193)	(0.363)	(0.440)	(0.348)
Logarithm of age (in years)	-0.075	-0.068	-0.068	-0.015
	(-14.676)***	(-12.105)***	(-12.525)***	(-3.020)***
Total fees	-0.025	-0.026	-0.025	-0.004
	(-2.568)**	(-2.491)**	(-2.523)**	(-0.490)
Logarithm of lag TNA	-0.021	-0.021	-0.021	-0.001
	(-5.410)***	(-5.191)***	(-5.239)***	(-0.217)
Logarithm of lag fund complex TNA	0.007	0.007	0.007	0.000
	(3.607)***	(3.814)***	(3.771)***	(0.048)
Correlation of fund returns with US market index		-0.115	-0.110	-0.037
		(-3.218)***	(-3.519)***	(-2.364)**
Interaction of high correlation dummy and U.S. Market adjusted return			-0.099	-0.040
			(-1.908)*	(-1.359)
Interaction of high correlation dummy and U.S. Market adjusted return ** ²			-0.091	-0.058
			(-1.212)	(-1.946)*
Past three years mean return				-0.003
				(-0.085)
Past five years mean return				0.102
				(2.215)**
Observations	36581	35798	35798	11781
Adjusted R-squared	0.022	0.022	0.023	0.010

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3
Diversification and International Mutual Fund Flows: Alternate Performance Measures

This Table reports the results from pooled panel regressions of quarterly net mutual fund flows on market returns and fund characteristics. The data spans 136 quarters from 1970-2003. The Table reports the coefficient estimates and the White heteroscedasticity consistent t-stats in the parentheses.

	(1)	(2)	(3)
Intercept	0.142	0.146	0.242
	(3.875)***	(4.409)***	(8.675)***
Flows to all international funds	1.383	1.347	1.061
	(9.012)***	(8.935)***	(9.075)***
Std. dev. of last 12 months returns	0.828	0.675	0.487
	(0.868)	(0.723)	(0.590)
Logarithm of age (in years)	-0.061	-0.062	-0.067
	(-10.216)***	(-10.516)***	(-11.788)***
Total fees	-0.027	-0.026	-0.025
	(-2.613)***	(-2.494)**	(-2.547)**
Logarithm of lag TNA	-0.024	-0.023	-0.022
	(-5.664)***	(-5.579)***	(-5.286)***
Logarithm of lag fund complex TNA	0.008	0.008	0.007
	(3.887)***	(3.988)***	(3.680)***
Correlation of fund returns with US market index	-0.099	-0.104	-0.101
	(-2.545)**	(-2.618)***	(-3.363)***
Interaction of high correlation dummy and World Market adjusted fund return			-0.118
			(-2.036)**
Interaction of high correlation dummy and World Market adjusted fund return			-0.095
			(-1.238)
World Market adjusted fund return (MARW)			0.270
			(3.971)***
World Market adjusted fund return (MARW)** ²			0.065
			(1.387)
Change in real value of the dollar	-0.163	-0.176	
	(-1.016)	(-1.105)	
Bottom performance tercile (factor model)		0.002	
		(2.435)**	
Middle performance tercile (factor model)		0.001	
		(2.143)**	

Table 3 (contd.)

Top performance tercile (factor model)		0.003	
		(6.707)***	
Bottom performance tercile	0.001		
	(1.751)*		
Middle performance tercile	0.001		
	(1.843)*		
Top performance tercile	0.004		
	(8.339)***		
Observations	35727	35727	35798
Adjusted R-squared	0.020	0.019	0.023

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4
Market Performance and International Mutual Fund Flows

Table reports the results from pooled panel regressions of quarterly net mutual fund flows on market returns and fund characteristics. The data spans 136 quarters from 1970-2003. The Table reports the coefficient estimates and the White heteroscedasticity consistent t-stats in the parentheses.

	(1)	(2)	(3)	(4)
Intercept	0.229	0.260	0.252	0.263
	(8.749)***	(9.795)***	(9.544)***	(10.045)***
U.S. market return (previous year)	0.136			
	(5.657)***			
Correlation of fund returns with US market index	-0.083	-0.111	-0.108	-0.116
	(-2.422)**	(-2.965)***	(-3.192)***	(-3.128)***
U.S. Market adjusted fund return (MAR)	0.205	0.161	0.068	0.155
	(5.974)***	(4.878)***	(0.845)	(7.462)***
U.S. Market adjusted fund return (MAR)** ²	0.062	0.084	-0.032	0.055
	(1.508)	(1.976)**	(-0.230)	(0.990)
Flows to all international funds	0.943	1.023	1.048	1.035
	(9.003)***	(9.437)***	(8.530)***	(9.279)***
Std. dev. of last 12 months returns	0.352	0.291	0.217	0.308
	(0.476)	(0.400)	(0.253)	(0.368)
Logarithm of age (in years)	-0.061	-0.067	-0.067	-0.068
	(-10.702)***	(-12.549)***	(-11.587)***	(-12.084)***
Total fees	-0.027	-0.026	-0.026	-0.026
	(-2.640)***	(-2.544)**	(-2.562)**	(-2.523)**
Logarithm of lag TNA	-0.024	-0.022	-0.022	-0.021
	(-5.515)***	(-5.337)***	(-5.105)***	(-5.141)***
Logarithm of lag fund complex TNA	0.008	0.007	0.007	0.007
	(3.992)***	(3.894)***	(3.795)***	(3.825)***
Foreign market return (previous year)		0.021		
		(1.055)		
Interaction of MAR > 0 and MAR			0.149	
			(1.285)	
Interaction of MAR and Return on non-US > US				0.032
				(0.322)
Interaction of MAR** ² and Return on non-US > US				0.006
				(0.120)
Interaction of MAR > 0 and MAR** ²			0.097	
			(0.562)	
Observations	35798	35798	35798	35798
Adjusted R-squared	0.023	0.022	0.022	0.022

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5
Information Asymmetry, Trend following and International Mutual Fund Flows

This Table reports the results from pooled panel regressions of quarterly net mutual fund flows on market returns and fund characteristics. The data spans 136 quarters from 1970-2003. The Table reports the coefficient estimates and the White heteroscedasticity consistent t-stats in the parentheses.

	(1)	(2)	(3)	(4)	(5)
Intercept	0.249	0.260	0.261	0.261	0.260
	(9.444)***	(10.082)***	(10.100)***	(10.125)***	(10.305)***
Fund return (current quarter)	0.363				
	(2.934)***				
Correlation of fund returns with US market index	-0.102	-0.112	-0.113	-0.114	-0.114
	(-3.201)***	(-3.124)***	(-3.170)***	(-3.131)***	(-2.948)***
U.S. Market adjusted fund return (MAR)	0.123	0.148	0.143	0.154	0.116
	(6.586)***	(4.503)***	(4.265)***	(4.291)***	(2.614)***
U.S. Market adjusted fund return (MAR)** ²	0.098	0.079	0.081	0.076	0.050
	(2.134)**	(1.874)*	(1.919)*	(1.824)*	(1.081)
Flows to all international funds	0.835	0.987	0.977	0.987	0.986
	(8.760)***	(8.932)***	(8.707)***	(8.877)***	(9.538)***
Std. dev. of last 12 months returns	0.189	0.319	0.322	0.315	0.333
	(0.267)	(0.435)	(0.439)	(0.429)	(0.441)
Logarithm of age (in years)	-0.068	-0.067	-0.068	-0.067	-0.066
	(-12.289)***	(-12.009)***	(-12.069)***	(-11.379)***	(-11.492)***
Total fees	-0.024	-0.026	-0.026	-0.026	-0.026
	(-2.455)**	(-2.529)**	(-2.510)**	(-2.527)**	(-2.547)**
Logarithm of lag TNA	-0.020	-0.022	-0.021	-0.022	-0.022
	(-5.228)***	(-5.230)***	(-5.129)***	(-5.205)***	(-5.147)***
Logarithm of lag fund complex TNA	0.007	0.007	0.007	0.007	0.007
	(3.856)***	(3.772)***	(3.773)***	(3.687)***	(3.733)***
Fund return (previous quarter)		0.114	0.126	0.122	0.118
		(3.176)***	(3.713)***	(3.508)***	(3.598)***
changes in real value of the dollar			-0.255		
			(-1.745)*		
Lag of changes in real value of the dollar (previous year)				0.094	0.096
				(1.028)	(1.154)
Interaction of stronger dollar and MAR					0.054
					(0.895)
Interaction of stronger dollar and MAR** ²					0.026
					(0.352)
Observations	35798	35798	35717	35677	35677
Adjusted R-squared	0.025	0.022	0.022	0.022	0.022

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6
Home Bias and International Mutual Fund Flows

This Table reports the results from pooled panel regressions of quarterly net mutual fund flows on market returns and fund characteristics. The data spans 136 quarters from 1970-2003. The Table reports the coefficient estimates and the White heteroscedasticity consistent t-stats in the parentheses.

	(1)	(2)	(3)
Intercept	0.173	0.169	0.169
	(14.493)***	(13.774)***	(15.018)***
Dummy (Foreign funds)	-0.013		
	(-3.117)***		
Flows to all domestic funds	1.612	1.626	1.583
	(17.060)***	(17.010)***	(16.642)***
U.S. Market adjusted fund return (MAR)	0.230	0.229	0.237
	(17.435)***	(17.675)***	(19.344)***
U.S. Market adjusted fund return (MAR)** ²	0.014	0.014	-0.002
	(0.691)	(0.690)	(0.121)
Flows to all international funds	0.020	0.023	0.020
	(0.552)	(0.640)	(0.605)
Changes in real value of the dollar	0.111	0.113	0.093
	(1.318)	(1.342)	(1.112)
Std. dev. of last 12 months returns	-0.008	0.042	-0.018
	(-0.056)	(0.296)	(-0.303)
Logarithm of age (in years)	-0.047	-0.047	-0.043
	(-20.543)***	(-20.507)***	(-18.341)***
Total fees	-0.015	-0.015	-0.015
	(-5.945)***	(-6.034)***	(-6.569)***
Logarithm of lag TNA	-0.021	-0.021	-0.022
	(-12.754)***	(-12.599)***	(-12.510)***
Logarithm of lag fund complex TNA	0.006	0.006	0.007
	(7.888)***	(7.726)***	(7.344)***
Dummy (Emerging market funds)		-0.038	
		(-6.012)***	
Interaction of Foreign Dummy with			-0.025
U.S. Market adjusted fund return (MAR)			(-0.734)
U.S. Market adjusted fund return (MAR)** ²			0.081
			(1.719)*
Std. dev. of last 12 months returns			-0.006
			(-0.009)
Logarithm of age (in years)			-0.028
			(-5.171)***
Total fees			-0.002

Table 6 (contd..)

			(-0.175)
Logarithm of lag TNA			0.003
			(0.758)
Logarithm of lag fund complex TNA			0.001
			(0.642)
Observations	201260	201260	201260
Adjusted R-squared	0.019	0.019	0.019

Table 7
List of Currency Crisis

The following table describes events identified as “currency crises” in major financial newspapers such as the Wall Street Journal and the Financial Times, or in IMF’s Annual Report on Exchange Arrangements and Restrictions. The events are limited to those that started after funds belonging to that country/region were started in the U.S. The announcements are collected mainly from Factiva and Lexis-Nexis.

Nature Of Event—Announcement Dates	Mutual Funds investing in the crisis country/region *	Crisis period
September 1992-August 1993: Crisis In The European Monetary System —On September 13, Italy devalued the Lira by 7 percent and on September 16 Italy and U.K. floated and Spain devalued by 5 percent. Spain and Portugal devalued 3 percent on November 22, and Ireland devalued 10 percent on January 30, 1993. Spain devalued 8 percent on May 13, while Portugal devalued 6.5 percent. On August 1, target zones were widened from ± 2.25 or ± 6 percent to ± 15 percent for countries still in the Exchange Rate Mechanism.	Holland Italy, Spain, UK European International International Small Cap International Total Return	Sept 1992- Aug 1993
December 21, 1994- Mexican Currency Crisis —Thirty four percent devaluation of the Mexican Peso.	Mexico Latin America Developing International International Small Cap International Total Return	Dec 1994- Feb 1995
July 2, 1997-Onset of the East Asian Currency Crisis —Thailand devalues the Baht by twenty percent, July 11, 1997-Philippine peso devalued, July 17, 1997-Singapore monetary authority allows the depreciation of the Singapore dollar, July 24, 1997- general currency downturns in East Asia, Malaysian Ringgit hits 38-month low of 2.6530 to the dollar. August 14, 1997: Indonesian Rupiah plunges and Indonesia is forced to abandon its fixed exchange rate policy. October 20-23, 1997: Panic in the stock markets of Hong Kong.. Hong Kong reveals that US\$1 billion was spent on intervention during a period of two hours on an unspecified day in July. November 17, 1997: The Korean won collapses.	China Hong Long Korea Malaysia Pacific Pacific (no Japan) Singapore Developing International International Small Cap International Total Return	July 1997- Dec 1997

* There are other funds in the sample belonging to the countries/regions affected by the crisis but listed after the crisis. Therefore those countries/regions are not listed.

Table 7 (contd.)

Nature Of Event—Announcement Dates	Mutual Funds investing in the crisis country/region *	Crisis period
August 11, 1998- Russian Currency Crisis : The Russian market collapses and trading on the stock market is temporarily suspended. August 17, 1998: Russia announces a devaluation of the Ruble and 90-day moratorium on foreign debt repayment. Latin American stock and bond markets plunge on fears of default and devaluation in South America.	Russia Latin America Developing International International Small Cap International Total Return	Aug 1998- Oct 1998
Turkish Currency Crisis -February 2001: IMF lends Turkey up to \$10.4 billion on December 21. On February 21, 2001, a public spat between the president and prime minister caused investors to lose confidence in the stability of Turkey's coalition government. Interbank interest rates rose to 7,500 percent. The government let the lira float on February 22.	Developing International International Small Cap International Total Return	Feb 2001- Apr 2001
Argentine Financial Crisis -January 6, 2002 :The government ends the peso convertibility system and devalues it by 29%.	Latin America Developing International International Small Cap International Total Return	Jan 2002- Mar 2002

* There are other funds in the sample belonging to the countries/regions affected by the crisis but listed after the crisis. Therefore those countries/regions are not listed.

Table 8
Descriptive statistics of monthly mutual fund flows around currency crisis

The Table reports the net dollar flows (in millions) for various categories of mutual funds before, during and after a currency crisis. The dates of onset of the crisis are as in the previous Table. The before period is the prior three-months and the after period is the subsequent three-months. The flows are in millions of dollars.

Category of Mutual Fund	Flow (before)	Flow (during)	Flow (after)	Growth (before)	Growth (during)	Growth (after)
			Mexican crisis			
Developing	559.270	110.470	585.710	5.802%	1.444%	6.882%
International	2876.770	1502.070	1646.880	4.087%	2.225%	2.213%
Intl. Small Cap	206.180	-31.680	-68.430	7.137%	-1.195%	-2.628%
Intl. Total Return	62.450	-98.670	-270.400	1.265%	-2.098%	-6.070%
Latin America	134.100	-121.240	179.870	2.927%	-4.084%	6.141%
Mexico	-2.590	2.300	26.110	-17.241%	16.911%	61.086%
			Asian Crisis			
China	52.730	78.210	31.890	4.408%	3.302%	3.494%
Developing	1333.610	1242.180	890.060	6.778%	5.751%	5.077%
Hong Kong	-2.980	0.610	0.450	-38.500%	1.786%	4.489%
International	7335.670	4004.480	1106.360	5.176%	2.452%	0.651%
Intl. Small Cap	110.790	-156.550	-42.290	2.410%	-3.617%	-1.033%
Intl. Total Return	1047.640	1567.690	-601.830	5.925%	7.680%	-2.203%
Korea	4.060	21.590	70.570	17.358%	84.357%	57.487%
Malaysia	0.010	27.120	44.750	0.022%	117.339%	70.261%
Pacific	169.460	-814.580	-67.030	2.740%	-17.105%	-1.577%
Pacific (no Japan)	-365.410	-1621.980	122.040	-4.598%	-30.401%	3.517%
Singapore	0.000	16.450	42.860	0.028%	79.866%	88.302%
			Russian Crisis			
Developing	-211.550	-654.660	-676.330	-1.307%	-5.700%	-5.430%
International	3027.410	-3569.650	-2418.970	1.717%	-2.361%	-1.427%
Intl. Small Cap	309.360	-174.110	-120.430	5.504%	-3.700%	-2.445%
Intl. Total Return	1112.530	-485.000	-395.430	3.647%	-2.077%	-1.472%
Latin America	-406.420	-255.070	-234.810	-13.910%	-14.834%	-15.309%
Russia	-1.850	0.120	-1.230	-2.107%	0.409%	-6.752%
			Turkish Crisis			
Developing	-98.760	-555.114	-104.649	-0.976%	-3.833%	-0.704%
International	-1627.540	-713.358	164.141	-0.751%	-0.458%	0.111%
Intl. Small Cap	-305.260	-345.478	-113.337	-2.727%	-3.101%	-1.015%
Intl. Total Return	1040.700	568.346	285.511	1.793%	1.194%	0.654%
			Argentine Crisis			
Developing	-676.090	430.160	171.620	-5.365%	2.466%	1.036%
International	-3030.960	2765.940	3719.830	-2.137%	1.747%	2.239%
Intl. Small Cap	-442.200	35.660	777.660	-5.335%	0.312%	7.306%
Intl. Total Return	-45.120	699.150	1105.070	-0.170%	1.741%	2.606%
Latin America	-74.460	-39.380	-44.700	-7.654%	-3.757%	-4.786%

Table 9
Currency Crisis and Monthly Emerging Market Mutual Fund Flows

This Table reports the results from a pooled panel regression of quarterly net mutual fund flows on market returns and fund characteristics. The data spans 144 months from 1991-2003. The dummy variables for currency crises are: ‘during’ for the period in table 7. The before period is the prior three-months and the after period is the subsequent three-months. The dummy variables take a value of one only for the funds that invest in the country/region directly affected by the crisis as reported in table 7. The Table reports the coefficient estimates and the White heteroscedasticity consistent t-stats in the parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All funds		Emerging Market funds				
Constant	0.098	0.092	0.091	0.093	0.089	0.092	0.093
	(4.248)***	(7.175)***	(7.140)***	(7.163)***	(7.021)***	(7.228)***	(7.262)***
Dummy (Before crisis)	0.030	-0.004					
	(0.895)	(-1.477)					
Dummy (during crisis)	0.003	-0.000					
	(0.949)	(-0.042)					
Dummy (after crisis)	0.009	0.001					
	(1.139)	(0.289)					
Correlation of fund returns with US market index	-0.016	-0.037	-0.037	-0.038	-0.034	-0.038	-0.039
	(-1.781)*	(-3.992)***	(-3.908)***	(-4.147)***	(-3.742)***	(-4.136)***	(-4.122)***
U.S. Market adjusted fund return (MAR)	0.044	0.016	0.017	0.018	0.013	0.017	0.017
	(5.599)***	(4.450)***	(4.759)***	(5.352)***	(3.137)***	(4.759)***	(4.735)***
U.S. Market adjusted fund return (MAR)** ²	0.002	0.000	0.000	-0.001	0.003	0.001	0.001
	(0.296)	(0.124)	(0.128)	(-0.305)	(0.775)	(0.220)	(0.287)
Flows to all international funds	1.426	1.363	1.367	1.364	1.369	1.369	1.362
	(6.510)***	(12.860)***	(12.938)***	(13.025)***	(12.719)***	(12.830)***	(12.593)***
Std. dev. of last 12 months returns	-0.032	-0.163	-0.159	-0.164	-0.152	-0.159	-0.164
	(-0.351)	(-3.777)***	(-3.621)***	(-3.692)***	(-3.403)***	(-3.615)***	(-3.727)***
Logarithm of age (in years)	-0.024	-0.017	-0.017	-0.017	-0.017	-0.017	-0.017
	(-6.883)***	(-7.891)***	(-7.776)***	(-7.774)***	(-8.078)***	(-7.885)***	(-7.847)***
Total fees	-0.013	-0.007	-0.007	-0.007	-0.007	-0.007	-0.007
	(-2.236)**	(-3.359)***	(-3.353)***	(-3.365)***	(-3.346)***	(-3.368)***	(-3.361)***
Logarithm of lag TNA	-0.011	-0.007	-0.007	-0.006	-0.006	-0.007	-0.007
	(-3.828)***	(-6.513)***	(-6.417)***	(-6.418)***	(-6.456)***	(-6.471)***	(-6.437)***
Logarithm of lag fund complex TNA	0.003	0.001	0.001	0.001	0.001	0.001	0.001
	(3.405)***	(1.930)*	(1.939)*	(1.871)*	(1.971)**	(1.942)*	(1.954)*

Table 9 (contd..)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	All funds		Emerging Market funds				
Dummy : before Argentine Crisis							-0.001
							(0.355)
Dummy: during Argentine Crisis							0.017
							(2.589)***
Dummy: after Argentine Crisis							-0.011
							(1.958)*
Dummy : before Turkish Crisis						0.007	
						(1.378)	
Dummy: during Turkish Crisis						-0.000	
						(0.013)	
Dummy: after Turkish Crisis						0.002	
						(0.268)	
Dummy : before Russian Crisis					-0.015		
					(2.237)**		
Dummy: during Russian Crisis					-0.014		
					(2.625)***		
Dummy: after Russian Crisis					-0.013		
					(1.939)*		
Dummy : before Asian Crisis				-0.011			
				(1.779)*			
Dummy: during Asian Crisis				-0.002			
				(0.345)			
Dummy: after Asian Crisis				0.019			
				(2.281)**			
Dummy : before Mexican Crisis			0.002				
			(0.345)				
Dummy: during Mexican Crisis			-0.012				
			(1.548)				
Dummy: after Mexican Crisis			0.024				
			(0.942)				
Observations	102837	23623	23623	23623	23623	23623	23623
Adjusted R-squared	0.001	0.025	0.025	0.025	0.025	0.025	0.025

Robust t statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Data Appendix

To identify and categorize all international mutual funds we used the following four classifications and the sub-categories available in the CRSP mutual fund data base:

1. The *Weisenberger* fund types: *INT-international equity*
2. *Policy: C&I – Canadian and international*
3. ICDI's fund objective codes: *IE-international equity* and
4. Strategic Insight's Fund objectives codes:
 - ECH-Chinese Equity Funds invest primarily in equity securities of companies in China
 - ECN- Canada Equity Funds invest primarily in equity securities of companies in Canada
 - EID-International Developing Markets Equity Funds invest primarily in equity securities whose main trading markets are non-industrialized or developing market countries.
 - EIG-International Growth Funds invest primarily in equity securities whose main trading markets are outside the United States for capital appreciation.
 - EIS-International Small Company Funds invest primarily in equity securities of small capitalization companies whose main trading areas are outside the United States.
 - EIT-International Total Return Funds invest primarily in equity securities whose main trading markets are outside the United States for capital appreciation and current or future income.

- EJP-Japanese Equity Funds invest primarily in equity securities of companies in Japan.
- ELT-Latin America Equity Funds invest primarily in equity securities of companies in Latin America.
- EPC-Pacific Equity Funds including Japan Funds invest primarily in equity securities of companies in the Pacific Region including Japan.
- EPX-Pacific Equity excluding Japan Funds invest primarily in equity securities of companies in the Pacific Region excluding Japan.
- ERP-European Equity Funds invest in equity securities whose primary trading markets are confined to Europe or specific European countries.
- FLG-Flexible Global Funds are generally free to assign up to 100% of their assets across various asset classes including foreign and domestic equities, fixed-income securities and money market instruments. This is used if other classifications indicated that it is an international fund.
- JPN-Japanese equity.
- PAC-Pacific equity.
- ESC-Single Country Equity Funds invest primarily in equity securities of companies whose main trading market is in a single country outside the United States, Canada, China or Japan.

However, the funds such as the Fidelity France Fund, New England Growth Fund of Israel, and Pioneer India Fund were re-classified as funds from the respective countries. From 1962-1992 the classification is mainly based on the categories of Weisneberger and Policy. From 1992-2003 the classifications are mainly based on ICDI's fund objective codes and

Strategic Insight's Fund objectives codes. Finally we re-checked each and every fund's name and re-classified it into one of the following categories. An asterisk (*) denotes emerging market funds.

Region/Country	Number of funds
Australia	4
Austria	1
Belgium	2
Brazil*	1
Canada	8
China*	23
Developing*	279
European	165
France	3
Germany	7
Holland	2
Hong Kong	2
India*	5
International	1338
International Small cap	87
International Total Returns	177
Israel	3
Italy	4
Japan	56
Korea*	6
Latin American*	51
Malaysia*	1
Mexico*	3
New Zealand	1
Nordic	2
Pacific	89
Pacific (excluding Japan)	73
Poland*	2
Russia*	2
South Africa*	2
Singapore	1
Spain	3
Sweden	1
Switzerland	2
Taiwan*	1
UK	4

The following are lists of the largest funds in these categories: domestic funds, international funds and emerging market funds.

Largest Domestic Funds at the end of 2003

Name	Total assets (\$ millions)
Vanguard 500 Index/Inv	75342.5
Fidelity Magellan	67995.1
Investment Company of America Fund/A	58353.4
Washington Mutual Investors Fund/A	55575
Growth Fund of America/A	48073.8
Standard & Poors Depository Rcpt	43815.4
Fidelity Contrafund	36051.4
Income Fund of America/A	31955.0
Fidelity Growth & Income	30571.7
Vanguard Institutional Index/Instl	29457.5
Fidelity Low Priced Stock	26725.2

Largest International Funds at the end of 2003

Name	Total assets (\$ millions)
EuroPacific Growth Fund/A	29907.6
Capital Income Builder Fund/A	20605.0
Fidelity Diversified International	13559.1
Templeton Foreign Fund/A	12039.9
Artisan International Fund	9591.1
Vanguard International Growth	6424.1
Vanguard European Stock Index	6251.5
Morgan Stanley Instl: Intl Equity/A	5639.0
iShares MSCI EAFE Index Fd	5350.0
Vanguard Total Internatl Stock Index	5279.0
T Rowe Price Internatl Stock Fund	5197.4

Largest Emerging Market Funds at the end of 2003

Name	Total assets (\$ millions)
GMO Tr Emerging Markets Fund/III	4053.7
Templeton Instl Funds: Emerging Markets	2091.1
Templeton Developing Markets Trust/A	1879.5
Vanguard Emerging Markets Stock Index	1873.4
New World Fund/A	1727.5
GMO Tr Emerging Markets Fund/IV	1687.9
SEI Intl Tr Emerging Markets Equity	1096.8
Oppenheimer Developing Markets/A	1022.8
Morgan Stanley Instl: Emerging Markets/A	1017.8
Matthews Asian Growth and Income Fund	926.4
T Rowe Price New Asia Fund	886.1

Figure 1: Cumulative Flows of International Mutual Funds

The figure shows the cumulative quarterly flows for all emerging market funds and all international funds (in millions of dollars) from 1990-2003.

