

Mutual Fund Investment in Emerging Markets

An Overview

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How do mutual funds behave when they invest in emerging economies? For one thing, mutual funds' flows are not stable. Withdrawals from emerging markets during recent crises were large, which squares with existing evidence of financial contagion.



Summary findings

International mutual funds are one of the main channels for capital flows to emerging economies. Although mutual funds have become important contributors to financial market integration, little is known about their investment allocation and strategies. Kaminsky, Lyons, and Schmukler provide an overview of mutual fund activity in emerging markets.

First, they describe international mutual funds' relative size, asset allocation, and country allocation.

Second, they focus on fund behavior during crises, by analyzing data at the level of both investors and fund managers.

Among their findings: Equity investment in emerging markets has grown rapidly in the 1990s, much of it flowing through mutual funds. Collectively, these funds hold a sizable share of market capitalization in emerging economies. Asian and Latin American funds achieved the fastest growth, but are smaller than domestic U.S. funds and world funds.

When investing abroad, U.S. mutual funds invest more in equity than in bonds. World funds invest mainly in developed nations (Canada, Europe, Japan, and the United States). Ten percent of their investment is in Asia and Latin America. Mutual funds usually invest in a few countries within each region.

Mutual fund investment was very responsive to the crises of the 1990s. Withdrawals from emerging markets during recent crises were large, which squares with existing evidence of financial contagion.

Investments in Asian and Latin American mutual funds are volatile. Because redemptions and injections are large relative to total funds under management, funds' flows are not stable. The cash held by managers during injections and redemptions does not fluctuate significantly, so investors' actions are typically reflected in emerging market inflows and outflows.

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Mutual Fund Investment in Emerging Markets: An Overview *

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I. Introduction

The crises initiated in Mexico 1994, Thailand 1997, and Russia 1998 had strong spillover effects in their regions and around the world. As speculative attacks brought down long-standing pegs, the attacked countries were driven into some of the deepest recessions in modern times. Even countries that successfully defended their currencies were scarred by deep recession due to the tight monetary conditions needed to fight the attacks. These crises were not confined to national borders, nor were they confined to specific regions. The Thai crisis engulfed—within days—Malaysia, Indonesia, and the Philippines. The Russian crisis spread to countries as far apart as Brazil and Pakistan. Even developed countries have been affected, with the Russian default and devaluation reverberating in financial markets in the United States, Germany, and Great Britain.

The time clustering of crises in different countries generated a vast literature on contagion.² Several papers in the contagion literature concluded that financial links are important in transmitting crises across countries. There is evidence that banks were important in spreading the 1997 crisis, due to the lending channel, as shown by Kaminsky and Reinhart (2000) and Van Rijckeghem and Weder (2000). Also, various aspects of portfolio investors—such as hedge funds, closed-end country funds, and mutual funds—were studied. [See, for example, Brown, Goetzmann, and Park (1998), Eichengreen and Mathieson (1998), Frankel and Schmukler (1996, 1998, and 2000), Levy Yeyati and Ubide (1998), Bowe and Domuta (1999), Borensztein and Gelos (1999), and Kaminsky, Lyons, and Schmukler (2000a and 2000b), and Pan, Cham, and Wright (2000).] These papers

² Many of the papers in this literature can be downloaded from www.worldbank.org/contagion.

conclude that there is evidence of institutional panic and herding. This type of behavior might have helped spread crises even to countries with strong fundamentals. In Kaminsky, Lyons, and Schmukler (2000a), we note that individuals, too, can contribute to this panic by fleeing from funds—particularly mutual funds—forcing fund managers to sell when fundamentals do not warrant selling.

The focus on institutional investors in generating contagion is warranted by the simple fact that they are key players in the globalization of financial markets. International investors integrate financial markets by holding assets from economies around the world. Cross-border flows are important not only because they facilitate real investment and diversify risk around the world, but also because when portfolio flows reverse, they produce crises and sharp output contractions.

Cross-border investment, which has increased significantly in the 1990s, is mainly channeled through mutual funds and pension funds. These fund types are especially important for flows from developed countries to poorer countries.³ Moreover, these flows from developed to poorer countries are large: a small fraction of a developed country's assets can represent a large proportion of a middle-income country's market capitalization.

The objectives of this paper are twofold. First, the paper complements existing work by providing an overview of the importance and behavior of international mutual funds in emerging markets.⁴ The second objective is to determine whether mutual fund investment tends to be stable, and whether stability holds also for crisis times. In principle,

³ Investment by poorer-country residents in international assets has increased, but remains relatively limited (many restrictions still apply to local institutional investors). However, in many crises, local residents fled the domestic market, producing large capital outflows relative to inflows.

⁴ Mutual funds from developing countries are also becoming important in some countries, helping develop local capital markets. We do not cover those funds in this paper.

one would expect that mutual funds provide a way for individual investors, with long-run horizons, to invest in bonds and equity. (Long horizons being relevant here because, over the years, emerging countries—expected to converge to industrial countries—would need to grow at a faster rate, and in the process provide higher returns than industrial countries.) In this paper, we show the stability of mutual fund flows to emerging countries by comparing the flows over time and, particularly, by focusing on crises.

There are two key advantages—beyond their growing importance—to studying mutual funds vis-à-vis other investor types. The first is data quality. Mutual funds report holdings to the SEC semi-annually. In addition, private companies compile mutual fund data at higher frequencies, typically quarterly, by conducting surveys. These data enable analysis in both the cross-sectional and time-series dimensions. In contrast, other institutional investors, like pension funds and hedge funds, are not required to disclose holdings. Nor have we found sources that compile voluntary disclosures for these investor types.⁵ The second key advantage, beyond size, to studying mutual funds is that their emerging market investment has grown considerably in scope and size. There now exist quite specialized sub-categories within the broader mutual fund category. For example, some funds specialize in a particular country; others specialize within a region; others invest specifically in emerging markets; and others simply invest in emerging markets as part of a global strategy.

The paper is organized as follows. Section II briefly describes the evolution of capital flows to emerging markets. Section III covers the mutual fund investment in

⁵ Thus, to study the behavior of pension or hedge funds one would need estimates of portfolio changes. Brown, Goetzmann, and Park (1998) provide such estimates for hedge funds during the Asian crisis.

emerging markets, with particular attention to their size and holdings. Section IV analyzes the behavior of mutual funds during crises. Section V concludes.

II. Brief History of Capital Flows

Private capital flows are important for emerging economies, and that importance continues to increase over time. Private flows now constitute most of the capital going to emerging markets. By 1996, private flows accounted for 80 percent of total flows to all developing countries.⁶ Figure 1 and 2 summarize the major trends by plotting, respectively, net private capital flows to the three largest emerging regions and the composition of flows over the past 30 years.⁷

Figure 1 shows that the 1970s witnessed a remarkable surge of capital flows to emerging economies. The surge in flows was triggered by the oil shock in 1973-74, helped by the growth of the Eurodollar market, and amplified by a spurt of bank lending during 1979-81. Latin America was the main recipient of this heavy capital inflow, with net flows to the region peaking at \$41 billion in 1981. Relative to regional GDP, inflows reached about 6 percent. Flows in this episode mostly took the form of syndicated bank loans, as is shown in Figure 2. The pace of international lending came to an abrupt end in 1982 with the hike in world real interest rates to levels not seen since the 1930s. Suddenly, emerging countries became the pariahs of international capital markets. Not only were they excluded

⁶ Emerging markets are typically defined as middle-income developing countries.

⁷ The data on capital flows comes from the World Bank databases, and from the World Bank publications Private Capital Flows to Developing Countries and Global Development Finance.

from voluntary capital markets, they were also forced to run current-account surpluses to repay foreign debts.

By the late 1980s, there was a revival of international lending, with Latin America becoming, once again, the darling of Wall Street. Flows to these countries made a tremendous comeback. Capital flows to Asia also surged, increasing ten-fold from their averages in the late 1980s. This time, however, the composition of capital flows changed dramatically, with bank lending being replaced by foreign direct investment and portfolio investment. As shown in Figure 2, bank lending to both Asia and Latin America declined from 70 percent of net private capital flows in the 1970s to about 20 percent in the 1990s. While foreign direct investment (FDI) constitutes the largest share of capital flow to Asia and Latin America, portfolio investment (bonds and equity) has also increased substantially, accounting for about 40 percent of total capital flows in the 1990s. In absolute values, bond and equity flows to each region—excluding those counted as FDI—increased from \$1 billion in 1990 to \$40 billion in 1996, with bond flows exceeding equity flows since 1994 in Latin America. Note, too, that reported equity flows are underestimated: any equity flow meant to acquire more than 10 percent of a company's outstanding shares is recorded as FDI, which accounts for around 50 percent of total capital flows.

Again in the 1990s, as in the 1980s, booms were followed by a slowdown of capital inflows.⁸ The first episode occurred in the immediate aftermath of Mexico's currency crisis in December 1994. In this case, capital inflows resumed for most countries

⁸ Many people refer to a slowdown in inflows as a "reversal." However, the term reversal is used in the literature in various ways. For some, a reversal is a shift from inflows to outflows. For others, a reversal is a reduction in inflows relative to what is expected.

within six months, and returned to their peak values soon thereafter. Capital flows to Asian economies were largely unaffected, with the crisis being confined to a small number of Latin American countries. The second, more severe slowdown came in 1997, during the Asian crisis. The Russian default in August 1998 aggravated this process. This time, capital flows collapsed to a trickle. The change in inflows was similar in magnitude to the one after the so-called 1980s debt crisis, with total capital inflows to Latin America declining about 35 percent and capital flows to Asia also falling about 35 percent.⁹ The decline of short-term portfolio flows (bonds, equities, and bank lending) was even more brutal, with flows in these categories declining about 60 percent in Latin America in 1998. Overall, bond and equity flows to Latin America declined between 1996 and 1998, from about \$44 billion to about \$15 billion. Bond and equity flows to Asia collapsed in 1998 to \$9 billion, from their peak in 1996 of \$38 billion.

In sum, portfolio flows have become important among capital flows to emerging markets. At the same time, portfolio flows have experienced large changes, forcing countries to run current account surpluses and reduce internal demand, which lead to the sharp contractions in output witnessed during recent crises. These flows are mostly channeled through international institutional investors. In the next section, we analyze the investment allocation of mutual funds, one of the most important of these institutional investors in emerging markets.

⁹ During the debt crisis, capital inflows declined about 24 percent in the first year of the crisis and 53 percent in the second year.

III. Mutual Fund Investment

Different data sources are needed to study the role of institutional investors. Unlike the data on capital flows, which the World Bank collects on a regular basis, no agency has complete information on institutional investors. Companies and institutions like the OECD, the Securities and Exchange Commission (SEC), the Investment Company Institute, Morningstar, Emerging Market Funds Research, Frank Russell, AMG Data Services, Lipper Analytical Services, and State Street Bank have partial information on institutional investors. One can obtain a general picture only by analyzing and combining the different pieces of data, coming from various places.

This paper contributes to the literature not only by compiling information from different sources and displaying it in a systematic way, but also by presenting new evidence. The data from the World Bank and the BIS can be found in previous publications in a very similar format. The data from other sources are new evidence, although part of the data are displayed in a different format in some of the existing papers. The Appendix Table summarizes the data sets used in this paper and their sources.

III.a Size of Mutual Funds and Institutional Investors

Institutional investors—including mutual funds, pension funds, hedge funds, and insurance companies—are a growing force in developed markets. Table 1 shows that institutional investors held almost \$11 trillion in the United States alone in 1995. U.S. institutions of these four types held more than 50 percent of the assets held by institutions across the world. When individual investors choose their portfolio allocation to emerging

markets, they typically make their purchase via mutual funds. In actively managed funds, it is the fund manager who ultimately determines the portfolio allocation, by choosing how the fund invests its assets (within the limits of the fund's defined scope). In index funds, the manager's role is passive, aimed at replicating a predetermined index.

Mutual funds have become one of the main instruments for investing in emerging markets. The first funds, in the 1980s, were closed-end funds; they are well suited to invest in illiquid markets, because their shares cannot be redeemed. With increasing liquidity in emerging markets, open-end funds have become the most widely used instrument. It is important to recognize that mutual fund investors include other types of institutions as well. For example, more than half of pension funds invest in emerging markets through existing mutual funds. This is considered better for liquidity reasons and is also less expensive than giving specific mandates to managers. Therefore, by looking at mutual funds, one is counting much of pension fund investment in emerging markets as well. A survey published at World Bank (1997) estimates that pension funds hold around 1.5 to 2 percent of their portfolios (\$50 billion-\$70 billion) in assets from emerging markets.

Hedge funds are a newer type of institutional investor. They are still small relative to the other institutional investor types. It is estimated that hedge funds held total assets of around \$81 billion by year-end 1997, only a small fraction of which is invested in emerging markets.¹⁰ Like other institutional investors, insurance companies are also believed to invest only a small proportion of their assets in emerging markets. However,

¹⁰ See Eichengreen and Mathieson (1998) for a detailed study on hedge funds.

unlike hedge funds, they hold a large amount of assets. More evidence on the investment allocation of this industry is needed.¹¹

Of course, institutional investors in developed countries allocate part of their international investment to both in developed and emerging markets. International portfolios are more concentrated in equities than in bonds. However, banks invest part of their own capital and some of their clients' assets in foreign bonds. Even though institutional investors diversify internationally, there still exists a strong home bias. For example, according to the World Bank (1997), U.S. equity pension funds held less than 9 percent of their assets in international instruments, and around 2 percent in emerging markets (in 1994).

Even when international institutional investors only hold a small fraction of their portfolio in emerging markets, they have an important presence in these economies, given the relatively small size of their capital markets. Table 2 shows that funds dedicated to emerging markets alone hold on average between 4 and 15 percent of the Asian, Latin American, and transition economies' market capitalization. For comparison, Table 1 shows that holdings of U.S. mutual funds accounted for 15 percent of the U.S. market capitalization (in 1996). In countries like Japan and the U.K., domestic funds held 4 and 8 percent of the local market capitalization in the same year.

In fact, the above estimates are conservative, because we have only included the holdings of dedicated emerging market equity funds. This database excludes the holdings of world funds, which account for a substantially larger share of the stock market

¹¹ Beyond institutional investors, it is difficult to determine the direct holdings of individual investors. There are no regulatory agencies—like the Securities and Exchange Commission (SEC) or the Bank for International Settlements (BIS)—or private companies—like Morningstar or Lipper Analytical Services—that keep appropriate records.

capitalization of emerging markets.^{12 13} Moreover, some of the outstanding equity in emerging markets—as well as in many developed countries—is not publicly traded because it belongs to the families or corporations that control the companies. In sum, even though we cannot provide precise estimates, one can argue that international mutual funds hold a large and significant proportion of the publicly available equity.

Table 2 shows that the presence of mutual funds has grown substantially during the 1990s. Though net equity flows have declined from their 1993 peak—about 27 billion dollars to Latin America and 21 billion dollars to Asia—the relative importance of mutual funds has grown substantially. For example, dedicated emerging market equity funds held \$21 billion in Latin-American stocks at the end of 1995. By December 1997, their holdings had increased to \$40 billion. While mutual funds' growth in Asia has been less pronounced, the presence of mutual funds is still important in many countries. Overall, dedicated emerging market mutual funds held \$77 billion in Asia at the onset of the crisis (December 1996). While the absolute amount of mutual fund investment in transition economies is not comparable to that in Asia and Latin America, funds' growth in these transition economies has been remarkable. In fact, in terms of market capitalization, mutual

¹² The data come from Emerging Market Funds Research, which collects aggregate data of emerging market mutual funds to track the net cash flows of nearly 1,400 international emerging market equity funds, with an average position of about \$120 billion in 1996. The data set covers both U.S. registered and offshore funds as well as funds registered in Luxembourg, United Kingdom, Ireland, Cayman Islands, Canada, and Switzerland. It includes both open and closed-end funds. Our data start with the Mexican crisis and end in March 1999. Thus, it includes observations on the major currency crises of the 1990s.

¹³ For example, the mutual fund industry estimates that international mutual funds hold between 60 and 70 percent of the market capitalization in Hungary, instead of the estimates obtained in Table 2, which all are below 30 percent. We thank Jonathan Garner, from DLJ, for raising this point.

funds have become big players in these markets, with their positions reaching large proportions in Hungary and Poland.

III.b Holdings of U.S. Mutual Funds

In this sub-section, we focus specifically on the mutual fund industry in the U.S. We saw in Table 1 just how important the U.S. mutual fund industry is: it accounted for almost 60 percent of world mutual funds in 1995. Table 3 presents information on the number of funds in the U.S., their net asset value, and the share of the largest funds in the second half of the 1990s, reported according to the geographical specialization of their investment. Figure 3 displays the allocation of mutual fund assets at the end of 1998, by asset type and by regional exposure.¹⁴

Table 3 shows that the U.S. mutual fund industry expanded significantly during the 1990s. The total number of bond and stock funds increased from 2,355 to 10,144 from 1991 to 1998. Most assets were in bonds up to the end of 1993. In the last five years, most assets switched to equity, increasing from 50 percent at the end of 1994 to 68 percent at the end of 1998. The rest is mostly allocated to bonds (between 24 and 40 percent). Their net asset value increased from \$705 billion to \$3.6 trillion between 1991 and 1998.

The exposure of U.S. mutual funds to emerging markets expanded substantially during the 1990s as well. U.S. based open-end mutual funds had around \$35 billion in emerging markets by the end of 1996, from about \$1 billion at the end of 1991. Figure 3 shows that, in 1998, 74 percent of the assets were held in assets from U.S. and Canada, 10

percent in European assets, 1 percent in Japanese assets, 1.3 in Asian assets, and 0.9 percent in Latin American assets. Although the percentage dedicated to emerging markets is small, the large size of the U.S. mutual fund industry implies that the dollar amount held in assets from emerging countries is significant.

Turning now to world funds, the number of funds in this category grew from 52 to 273 in the 1991-1998 period. The total net asset value increased from \$16 billion to \$125 billion over the same period. Most assets are allocated in stocks (between 83 and 87 percent). Bond holdings are small (between 2 and 4 percent). At the end of 1998, world funds' assets were 34 percent from the U.S. and Canada, 37 percent from Europe, 4 percent from Japan, 3 percent from Latin America, and 6 percent from Asia.

The most rapidly growing fund categories since 1991 are the emerging market funds, Asia funds, and Latin American funds (though these funds did start from a low level). Emerging market funds increased from 3 funds in 1991 to 165 in 1998. The total net asset value increased from \$142 million to \$13.5 billion over the same period, with a peak of \$17 billion in late 1997. These funds hold between 70 and 90 percent in stocks and the rest in short-term interest-bearing securities ("cash"). In late 1998, 84 percent was allocated to stocks. Regarding the geographic allocation, 30 percent was allocated in Asia, 30 percent in Latin America, and 11 percent in Europe.

Asia funds, excluding specialized Japanese funds, grew from 11 funds in 1991 to 154 in 1998. Their net assets grew from \$1 billion to \$6.5 billion over the same period. Nevertheless, due to the Asian crisis, the total assets of Asian funds deteriorated during

¹⁴ Morningstar classifies the assets as being invested in one of six Countries/Regions: U.S. and Canada, Japan, Asia (ex Japan), Europe, Latin America, or other. Holdings are classified in one of four asset classes: cash, stocks, bonds, or other.

1997 and 1998. At the end of 1996, the net asset value of Asia funds peaked, reaching \$16 billion. One year later, the net asset value was \$9 billion. These funds tend to hold at least 90 percent of their assets in stocks and the rest in cash. On December 31, 1998, 21 percent was invested in Japan and 68 in the rest of Asia. The number of Latin American funds increased from 1 to 47 between 1991 and 1998. Their net asset values increased dramatically from \$44 million to \$1.8 billion. At the end of 1998, the Latin American funds held 88 percent of their assets in stocks and 7 percent in cash.

Within each fund-type category, assets are concentrated in the largest funds. (This does not hold for “All U.S. Funds” because 20 funds is a quite small share of the total number of funds). Since 1991, the 20 largest world funds represented between 71 and 81 percent of this category. In the same period, emerging market funds captured between 67 and 100 percent of the market. The top 20 Asia funds accounted for 71-97 percent of the market. In the case of the Latin American funds, the top funds accounted, on average, for 95 percent of the market.

Returning to Table 2, one can observe that not all the countries have the same representation in dedicated mutual fund portfolios. Some countries capture a large share of mutual fund assets. For example, Brazil, Mexico, Hong Kong, Korea, Malaysia, and Taiwan receive the highest weight in mutual funds’ portfolios; Colombia, Venezuela, and China receive quite low weights. The country shares change over time.

In Asia, mutual funds invest primarily in Hong Kong, India, Korea, Malaysia, Taiwan, and Thailand. Between 1995 and 1998, the share in Malaysia decreased from 12 percent to 4 percent, while the share in India Taiwan rose from 7 percent to around 14 percent. The top holding tends to be Hong Kong, with a share between 19 and 30 percent of

the fund assets. In Latin America, funds mostly invest in seven countries. On average they hold the following portfolio: Brazil (38 percent), Mexico (30), Argentina (13), Chile (11), Peru (3), Colombia (2), and Venezuela (2). The two largest countries—Brazil and Mexico—account on average for 68 percent of the funds' holdings; while the four largest countries—Argentina, Brazil, Chile, and Mexico—account for 93 percent of the assets. Funds hold large positions in ADRs/GDRs (American and Global Depository Receipts), traded on the New York Stock Exchange. Therefore, they often do not trade in the local stock markets when investing abroad. Within the sample period, the share for Mexico grew from 26 to 34 percent.¹⁵ In the case of transition economies, mutual fund investment is concentrated on five countries. On average, they hold assets in the Czech Republic (13 percent), Hungary (21), Poland (24), Russia & CIS (40), and the Slovak Republic (2). The shares are volatile, for example, with Russia raging from 25 to 59 percent.

IV. The Behavior of Mutual Funds during Crises

Crises in the 1990s have not been country-specific, or even region-specific. Indeed, there is consensus that crises have a contagious nature, with currency turmoil spreading to countries as far apart as Argentina, the Czech Republic, and South Africa. Crises before 1990 also had a contagious nature, witness the debt crisis in 1982. But until recently, contagion tended to be regional. The 1990s changed that. While the Asian flu was mostly confined to south East Asia, it also triggered currency turmoil in Argentina, Mexico, and Chile. The speculative attack on the Hong Kong dollar in October 1997 also traveled the

¹⁵ Data from Morningstar and SEC for Latin American funds show an almost identical picture.

globe, with even the stock market in the United States suffering sizable losses following the 15-percent fall of the Hang Seng index. The epidemic became more widespread following the Russian default in August 1998, with stock market prices in all industrial countries declining between 20 and 50 percent. The contagious nature of these recent crises has been partly attributed to financial links, as we noted above.

The behavior of mutual funds can be consistent with contagion, either because they generate spillovers or due to their feedback trading. First, international mutual funds can contribute to spreading crises across countries if, for example, investors holding fund shares might decide to sell their Asian funds when Russia devalues its currency. Or fund managers of Latin American funds may sell assets in Brazil when a crisis hits Mexico. These need not be irrational responses: new theories of rational herding explain the transmission of crises through financial links. These models are based on elements like asymmetric information and cross-market hedging.¹⁶ Alternatively, if mutual fund investors or managers follow past or current returns, their behavior will appear consistent with contagion even though mutual funds are not main force driving the spillovers.

On the other hand, it is also possible that institutional investors, like mutual funds, can be a stabilizing force. If investors buy mutual fund shares for long-run gains, they might not withdraw their investments when there is a temporary crisis. For example, Marcis et al.

¹⁶ For example, in the model of Calvo and Mendoza (1998), the costs of gathering country-specific information induce rational investors to follow the herd. In the model of Calvo (1998), uninformed investors replicate selling by liquidity-squeezed informed investors, because the uninformed investors mistakenly (but rationally) believe that these sales are signaling worsening fundamentals. Kodres and Pritsker (1999) focus on investors who engage in cross-market hedging of macroeconomic risks. In that paper, international market comovement can occur in the absence of any relevant information, and even in the absence of direct common factors across countries. For example, a negative shock to one country can lead informed investors to sell that country's assets and buy assets of another country, increasing their exposure to the idiosyncratic factor of the second country. Investors then hedge this new position by selling the assets of a third country, completing the chain of contagion from the first country to the third.

(1995) and Rea (1996) claim that shareholders did not redeem shares during crisis periods. Rather, they argue that net inflows to emerging markets are usually steady, and crisis-period outflows are small and short-lived (at least during Mexico's crisis). Froot, O'Connell, and Seasholes (2000) present a related picture, but without focusing on institutional investors. They analyze, among other things, aggregated net flows into individual emerging markets. Though net inflows decreased during the Mexican and Asian crises, they find little evidence of net outflows.

In this section we provide evidence on the stability of mutual fund investment and the behavior of mutual funds following speculative attacks. Where possible, we distinguish the behavior of mutual fund managers from the actions of underlying investors. This section examines data sets from various sources, including the Emerging Market Funds Research, Morningstar, the SEC, and the BIS.

IV.a Mutual Fund Flows

We first examine the evidence of net flows from dedicated emerging market mutual funds to Asia, Latin America, and transition economies (data from Emerging Market Funds Research). Figure 4 shows the average quarterly net flows to these regions from 1995 to 1999. On balance, mutual fund flows to emerging markets since 1995 have been muted, reaching about \$20 billion, with booms in the capital flows being followed by pronounced outflows, which were not persistent in the aftermath of the tequila crisis. Outflows from Latin America reached about \$4 billion in 1995, but mutual funds increased their positions in Latin America by about \$2 billion in the first half of 1996. The tequila crisis did not have any spillovers in Asia or in transition economies. In fact, flows to Asia ballooned to

almost \$11 billion, while flows to transition economies remained stable throughout 1995-96. The picture changes after the outburst of currency turmoil in Asia. This time, mutual funds pulled out not only from Asia, but from Latin America as well, with net outflows from Latin America reaching about \$1 billion in the six months following the collapse of the Thai baht. Overall in 1998, mutual fund withdrawals took a turn for the worse, reaching about \$4 billion in Asia, with substantial outflows from Latin America and transition economies.

Figure 5 provides a higher resolution picture of the spillover effects in crisis times. It shows how the crisis, initiated in one country, triggered withdrawals in other countries. The figure reports average quarterly flows (as a percent of mutual funds' initial positions) to emerging countries in the two quarters following the recent crises. The top panel is the aftermath of the Mexican devaluation in December 1994, the middle panel is the aftermath of the collapse of the Thai baht in July 1997, and the bottom panel is the aftermath of the Russian devaluation and moratorium in August 1998. To isolate the behavior of mutual funds in crisis times, we subtract the mean flow (also in percent of their initial positions) during the entire sample, 1995-1999.¹⁷ For example, following the Mexican devaluation, mutual funds sold about 5 percent of their Brazilian positions (relative to their average quarterly buying/selling during 1995 to 1999). Thus, as shown in the first panel in Figure 5, Brazil experienced unusual withdrawals of about 5 percent in the aftermath of the Mexican devaluation. To convey more clearly the extent of contagion across regions following the initial speculative attack, we organize the country data according to the degree of severity

¹⁷ Models of asset trade (e.g., microstructure finance models) provide a theoretical basis for focusing on changes in flow relative to what is expected; here, the latter is proxied by average flow.

of the outflows. Thus, for example, Malaysia was the country most affected in the aftermath of the Russian crisis, with abnormal outflows of approximately 30 percent.

As discussed above, the repercussion of the three episodes of crises was dramatically different. The so-called tequila crisis was circumscribed to Latin America. Moreover, “abnormal” mutual fund withdrawals following the collapse of the Mexican peso were confined to a handful of Latin American countries, with only Brazil and Venezuela—besides the crisis country, Mexico—suffering average withdrawals of 5 and 2 percent in the two quarters following the devaluation. In contrast, mutual funds increased their exposure to Asian countries and transition economies, with (above-trend) flows oscillating around 4 percent for Asia and 11 percent for the transition economies.

The aftermath of the collapse of the Thai baht presents a different picture of the international mutual funds industry. It is in this episode that we first observe signs of a more general retrenchment of mutual funds in emerging markets. Mutual fund flows to Asian economies are basically all well below trend in the two quarters following the collapse of the Thai baht. Only flows to China, Pakistan, and Sri Lanka are above average. Interestingly, after the collapse of the Thai baht, we observe substantial withdrawals from Hong Kong, Singapore, Taiwan, with average quarterly withdrawals oscillating at about 12 percent above average in the case of Singapore and Taiwan, and about 7 percent for Hong Kong. The retrenchment this time also reaches Latin America and the transition economies, with withdrawals reaching about 6 percent for Colombia and 4 percent for the Czech Republic during the two quarters following the outbreak of the Thai crisis. Colombia, the Czech Republic, Chile, Hungary, and Peru are the countries most affected in this episode, with outflows about 3 percent above average.

The flight away from emerging markets becomes more pronounced during the Russian crisis, with about half of the countries in the sample experiencing abnormal sales of about 10 percent or even larger. In some cases, withdrawals were massive. For example, average mutual funds sales in Malaysia reached 30 percent and in the Czech Republic were about 16 percent. Some Latin American countries were also dramatically affected following the Russian collapse. For example, Colombia and Venezuela suffered average quarterly outflows of about 8 percent. Mutual fund investments in Mexico and Peru were the only ones that did not suffer following the worldwide turmoil triggered by the Russian default. In fact, inflows to Mexico were 5 percent above the average observed in the 1995-99 period.

IV.b Investors and Managers

Though mutual funds are commonly included among institutional investors, they differ from hedge funds, pension funds, and insurance companies in the degree to which underlying investors control portfolio size. Funds' behavior is thus determined by the decisions of both managers *and* investors.¹⁸ This hybrid nature certainly affects mutual funds' flows to countries and regions, as described in the previous sub-section.

This characteristic gives us a unique opportunity to study in detail the behavior of two groups of agents. In Kaminsky, Lyons, and Schmukler (2000a), we study the behavior of these groups, focusing on whether their trading strategies are driven by current and past returns (e.g., momentum trading—the buying of past winners and selling of past losers).

Here, we provide more evidence on the influence of each group, reporting detailed data from the BIS and the SEC. These data sets help us isolate the behavior of investors and managers.

The behavior of underlying investors is described in Figures 6 and 7. Figure 6 shows the cash flows to Asian mutual funds over time, based in the U.S. and the U.K. This decision belongs to investors. The figure shows that inflows to Asia were high before the Asian crisis, particularly in 1995-96. After the Thai devaluation of 1997, large outflows took place in the second half of 1997. The outflows continued in 1998, being particularly large after the Russian crisis in the U.S.-based funds.

Figure 7 provides related information, plotting the evolution of aggregate net asset positions and the injections/redemptions into/from the 13 Latin American mutual funds.¹⁹ Again, the latter are part of the investors' decision set. Injections (redemptions) are measured by the percentage increase (decline) in the number of shares held by each mutual fund (to control for fund size changes due to capital gains and losses). The pattern of inflows and outflows corresponds to the recent crises. During the Mexican crisis, there were large redemptions from Latin American funds, accounting for 25 percent of the outstanding shares in the first quarter of 1995. Injections resumed to Latin American funds

¹⁸ Mutual funds here means open-end, non-index funds, which account for most of the funds that invest in emerging markets. For closed-end funds, investors do not control portfolio size. For index funds, managers have little control over portfolio holdings.

¹⁹ The data come from Morningstar and the SEC. We work with holdings of the largest 13 Latin-America equity funds (open-end) from April 1993 to January 1999 (24 quarters). Those funds are Fidelity Latin America, Morgan Stanley Dean Witter Institutional Latin America, Van Kampen Latin America (formerly Morgan Stanley), BT Investment Latin America Equity, TCW Galileo Latin America Equity, TCW/Dean Witter Latin America Growth, Excelsior Latin America, Govett Latin America, Ivy South America, Scudder Latin America, T. Rowe Price Latin America, Merrill Lynch Latin America, and Templeton Latin America. Not all of these funds existed from the beginning of our sample; on average we have about 10 quarters of data (out of a possible 24) per fund.

until the last quarter of 1997, during the Asian crisis. Redemptions continued during 1998, increasing during the Russian crisis, and reaching 20 percent in late 1998 and early 1999. As depicted in the graph, the fluctuations in injections/redemptions influence the funds' net asset values, which are also determined by movements in the underlying stock prices.

The patterns of Figures 6 and 7 are closely associated to the ones on Figure 4. During the Mexican crisis, investors pulled out of Latin American funds, and there was a large outflow from Latin American countries. Then, investors and flows returned to Latin American countries until the last quarter of 1997, when the Thai crisis expanded to other countries. In Asia, there are no signs of fund outflows or investor redemptions during the Mexican crisis, but there are large effects during the Asian crisis. This pattern suggests that investors' decisions influence fund flows.

Now we turn to the managers. Managers cannot control the injections/redemptions of underlying investors. What they can control is the use of "cash" or "short-term positions" (e.g., U.S. Treasury bills). These positions help to buffer portfolios from redemptions. Holding assets that are highly liquid allows managers to meet redemptions without the need to sell less liquid assets. In principle, this can mute the volatility of investment outflows. However, managers can also reinforce investors actions if they increase their liquid positions in times of investor retrenchment. In this case, the volatility of flows is amplified. It is also true that—in multiple-country portfolios—the decision about which country to withdraw from belongs to the managers.^{20 21}

²⁰ Investors obviously determine the withdrawal country in the case of single-country funds.

²¹ There are two drawbacks to this data set. First, here we use data only from Latin American funds. In the future, it will be interesting to study the behavior of managers by considering a broader set of mutual-fund types. Second, our data do not provide a complete picture of managers' responses to liquidity squeezes because we do not have information on funds' credit lines with banks. Funds mired in redemptions may have resorted to using such credit lines.

Interestingly, short-term positions do not change as funds experience redemptions or injections. This is clear from Table 4, which examines managers' choices about short-term positions. The first row shows average short-term positions for all mutual funds. On average, the funds in our sample hold approximately 5 percent of their assets in liquid positions. The next three rows examine short-term positions in more detail according to the size of the mutual fund. Again, we examine whether the size of the liquid positions changes according to whether funds experience redemptions or injections. For the period examined, it is the large funds that hold a larger share of their positions in liquid assets. This evidence is somewhat unexpected because these are the funds that are likely to have better access to bank credit lines and thus do not need to hold large liquid positions. With respect to the funds' behavior in times of redemption and injection, both large and small mutual funds hold smaller liquid positions in times of redemption, indicating that fund managers' behavior has helped to smooth the effects of investors' withdrawals on equity markets in Latin America. Medium-size funds, by contrast, hold more liquid assets in times of redemption, thus magnifying investors' withdrawals from emerging markets.

V. Conclusion

The increasing globalization of financial markets and the crises of the 1990s have spawned a vigorous literature on financial integration, international financial architecture, and contagion. In this literature, a central element of the debate is the behavior of financial markets. In particular, many have argued that financial markets are volatile and prone to contagion. Most of this literature has focused on market imperfections, and how these

imperfections lead to herding behavior and financial cycles that are unrelated to market fundamentals.

Though previous studies have covered several dimensions of foreign investors' role in emerging markets, this paper provides an overview of a missing dimension—the importance and behavior of international mutual funds. Institutional investors are the main channel of financial flows to emerging markets, and mutual funds are large among the institutional investors. Moreover, they are the only class of institutional investors for which reliable data are available on an ongoing basis.

Several general findings emerged. First, equity investment in emerging markets has grown rapidly in the 1990s. A significant proportion of that equity flow is channeled through mutual funds. Collectively, these funds are large investors, and hold a sizeable share of market capitalization in emerging countries.

Second, at the same time that mutual funds in general have experienced rapid growth, Asian and Latin American funds were the ones achieving the fastest growth. Their size remains small, however, when compared to domestic U.S. funds and world funds.

Third, when investing abroad, U.S. mutual funds invest mostly in equity rather than bonds. Funds in the “World” category mainly invest in developed nations (the U.S., Canada, Europe, and Japan). Ten percent of their investment is devoted to Asia and Latin America. Mutual funds mainly invest in the some countries within each region. In Latin America, they primarily invest in Brazil and Mexico, then in Argentina and Chile. In Asia, the largest shares are in Hong Kong, India, Korea, Malaysia, Taiwan, and Thailand. In transition economies, mutual funds invest most of the assets in the Czech Republic, Hungary, Poland, and Russia & CIS.

Fourth, mutual fund investment was very responsive during the crises of the 1990s. The Mexican crisis mostly affected Latin America, while the Asian and Russian crises had a large impact on Asian and Latin American funds. These findings are consistent with previous finding in the contagion literature and with reports by industry analysts.

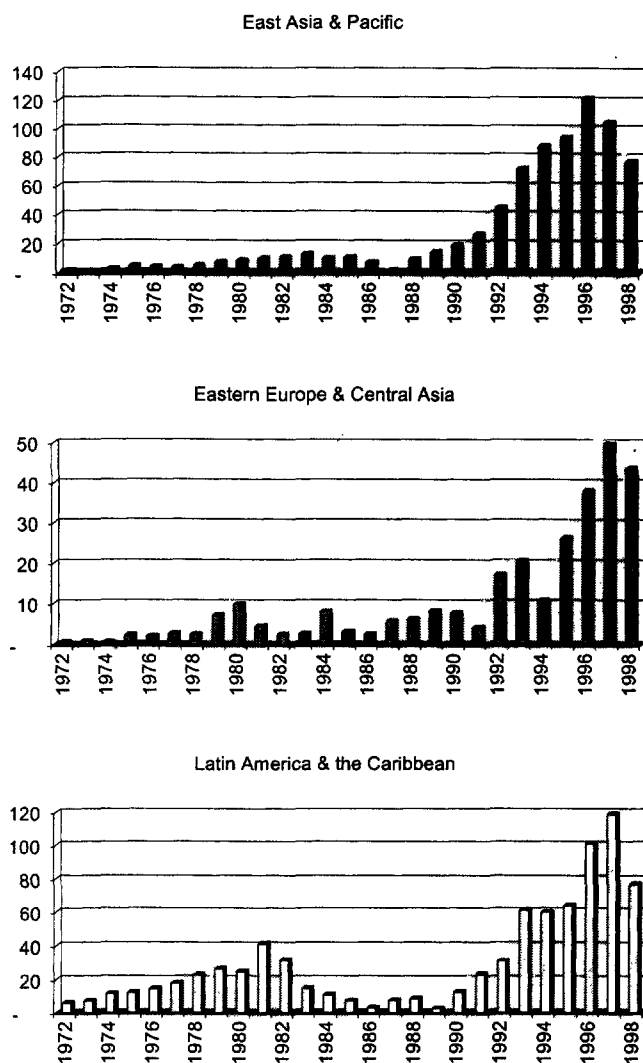
Fifth, the investment of underlying investors of Asian and Latin American funds is volatile. Injections and redemptions are large relative to total funds under management. The cash held by managers during injections/redemptions does not fluctuate significantly, so the investors' actions are typically reflected in emerging market inflows and outflows.

To conclude, there are many questions that provide material for future research. To test theories of financial crises, it would be valuable to examine the link between institutional-investor behavior and country/market characteristics. Also, it would be useful to compare the behavior of different types of funds—such as world, emerging market, and regional funds—to provide evidence for discussions of international financial architecture. These are areas that we are currently researching. Beyond studying institutional investors, it would also be interesting to analyze the behavior of banks' proprietary trading in emerging markets. This is an area where hard evidence is almost completely lacking.

References

- Bank for International Settlements, 1998, 68th Annual Report, Basle, Switzerland.
- Borensztein, E. and Gelos, 1999, "A Panic-Prone Pack? The Behavior of Emerging Market Mutual Funds," IMF.
- Bowe, Michal and Daniel Domuta, 1999, "Foreign Investor Behaviour and the Asian Financial Crisis," working paper, University of Manchester.
- Brown, S., W. Goetzmann, and J. Park, 1998, "Hedge Funds and the Asian Currency Crisis of 1997," NBER Working Paper 6427, February.
- Calvo, G., 1998, "Capital Market Contagion and Recession: An Explanation of the Russian Virus," University of Maryland working paper.
- Calvo, G., and E. Mendoza, 2000, "Rational Herd Behavior and the Globalization of Securities Markets," *Journal of International Economics*, 51:1, June.
- Eichengreen, B., and D. Mathieson, 1998, "Hedge Funds and Financial Market Dynamics," Occasional Paper No. 166.
- Frankel, J. and S. Schmukler, 1996, "Country Fund Discounts and the Mexican Crisis of December 1994: Did Local Residents Turn Pessimistic Before International Investors?" *Open Economies Review*, Vol. 7.
- Frankel, J., and S. Schmukler, 1998, "Crisis, Contagion, and Country Funds," in R. Glick, ed., *Managing Capital Flows and Exchange Rates* (Cambridge University Press).
- Frankel, J., and S. Schmukler, 2000, "Country Funds and Asymmetric Information," *International Journal of Finance and Economics*, 5:177-195.
- Froot, K., P. O'Connell, and M. Seasholes, 2000, "The Portfolio Flows of International Investors, I," forthcoming *Journal of Financial Economics*.
- Kaminsky, G. and C. Reinhart, 2000, "On Crises, Contagion, and Confusion," *Journal of International Economics*, 51:1, June, pp. 145-168.
- Kaminsky, G., R. Lyons, and S. Schmukler, 2000a, "Managers, Investors, and Crises: Mutual Fund Strategies in Emerging Markets," World Bank Working Paper No. 2399 and NBER Working Paper 7855.
- Kaminsky, G., R. Lyons, and S. Schmukler, 2000b, "Liquidity, Fragility, and Risk: The Behavior of Mutual Funds during Crises," mimeo.
- Kodres, L., and M. Pritsker, 1999, "A Rational Expectations Model of Financial Contagion," typescript, International Monetary Fund, May.
- Levy Yeyati, Eduardo and Angel Ubide, 1998, "Crises, Contagion, and the Closed-End Country Fund Puzzle," IMF Working Paper 98-143
- Marcis, R., S. West, and V. Leonard-Chambers, 1995, "Mutual Fund Shareholder Response to Market Disruptions," *Perspective*, Investment Company Institute, 1:1.
- Pan, Ming-Shiun, Kam Cham, and David Wright, 2000, "Divergent Expectations and the Asian Financial Crisis of 1997," forthcoming *Journal of Financial Research*.
- Rea, J., 1996, "U.S. Emerging Market Funds: Hot Money or Stable Source of Investment Capital?" *Perspective*, Investment Company Institute, Vol. 2, No. 6.
- Van Rijckeghem, Caroline and Beatrice Weder, 2000, "Financial Contagion: Spillovers through Banking Centers," International Monetary Fund.
- World Bank, 1997, Private Capital Flows to Developing Countries, World Bank Policy Research Report.

Figure 1
Total Net Private Capital Flows to Developing Countries
(Billions of U.S. Dollars)



The figures display net capital flows to developing countries, including bank and trade-related lending, portfolio equity and bond flows, and foreign direct investment.

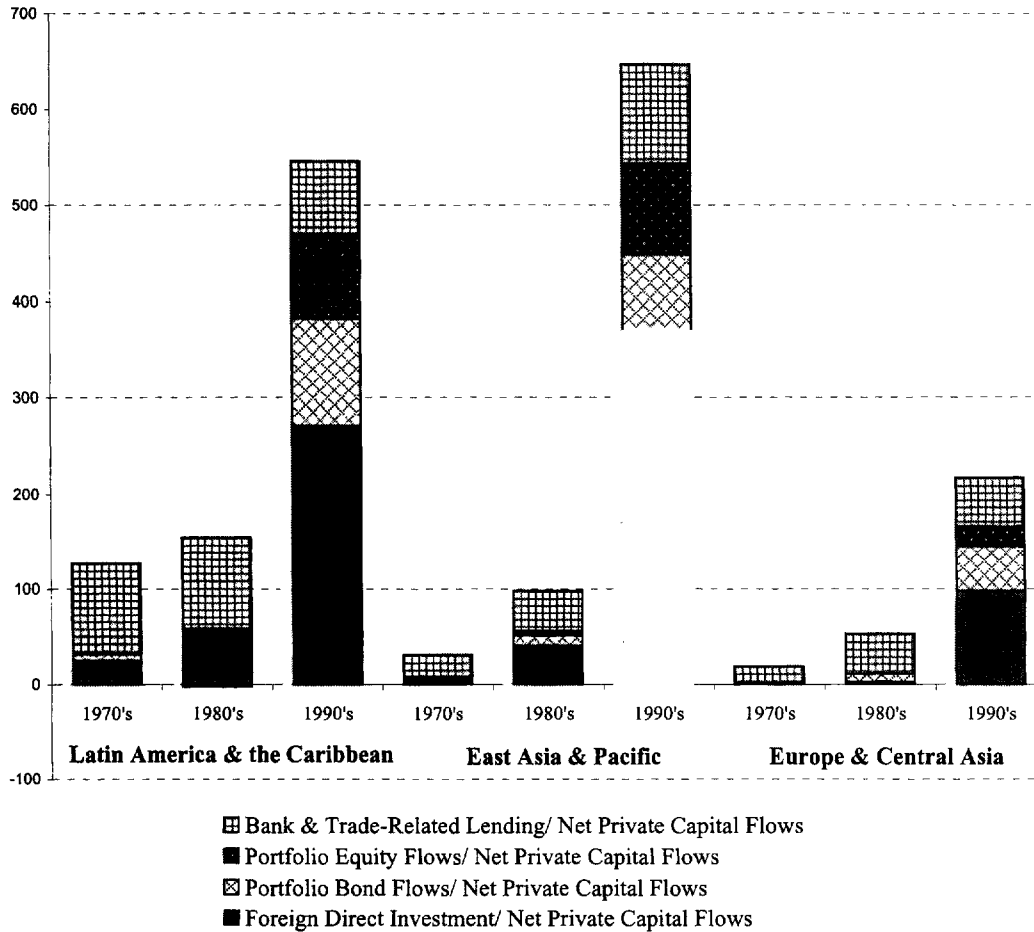
The countries comprising Latin America & Caribbean are Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela.

The countries comprising East Asia & Pacific are American Samoa, Cambodia, China, Fiji, Indonesia, Kiribati, Korea, Dem. Rep., Lao PDR, Malaysia, Marshall Islands, Micronesia, Fed. Sts., Mongolia, Myanmar, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Thailand, Tonga, Vanuatu, Vietnam.

The countries comprising Europe & Central Asia are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Isle of Man, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia FYR, Moldova, Poland, Romania, Russian Federation, Slovak Republic, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, Poland, Romania, Russian Federation, Slovak Republic, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, Yugoslavia FR (Serbia/Montenegro).

Source: The World Bank

Figure 2
Type of Net Private Capital Flows to Developing Countries
(Billions of U.S. Dollars)



The figures display net capital flows to developing countries by type of flow: bank and trade-related lending, portfolio equity and bond flows, and foreign direct investment.

The countries comprising Latin America & Caribbean are Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela.

The countries comprising East Asia & Pacific are American Samoa, Cambodia, China, Fiji, Indonesia, Kiribati, Korea, Dem. Rep., Lao PDR, Malaysia, Marshall Islands, Micronesia, Fed. Sts., Mongolia, Myanmar, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Thailand, Tonga, Vanuatu, Vietnam.

The countries comprising Europe & Central Asia are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Isle of Man, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia FYR, Moldova, Poland, Romania, Russian Federation, Slovak Republic, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, Poland, Romania, Russian Federation, Slovak Republic, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, Yugoslavia FR (Serbia/Montenegro).

Source: The World Bank

Table 1
International Institutional Investors

**Percentage of Global Assets Held by the United States and
Europe in 1995**

	U.S.	Europe
Pension Funds	66	24
Insurance Companies		
Total	37	37
Life Insurance	35	36
Non-life Insurance	45	37
Mutual Funds		
Total	59	33
Open-end	65	34
Closed-end	57	41
Aggregate		
Percentage	52	32
Billions of U.S. Dollars	10,994	6,666

Snapshot of Mutual Funds' Total Assets in 1996

	U.S.	Japan	U.K.	France
Percentage of Total Mutual Fund Assets Held by Each Country				
	76	9	4	11
By Type of Fund, As a Percentage of				
Money Market	25	29	0	45
Bond	22	45	5	29
Equity	49	24	88	11
Balanced	3	2	6	14
As a Percentage of				
GDP	46	9	16	34
Market Capitalization	15	4	8	18

The table reproduces the results from the BIS Annual Report. The top panel displays the distribution of institutional investors between the U.S. and Europe in 1995. The lower panel shows the size of mutual fund industry in the U.S., Japan, the U.K., and France. The upper part of the lower panel reports the percent distribution of mutual fund assets among the four countries.

Source: Bank for International Settlements, 68th Annual Report

Table 2
Holdings of Dedicated Emerging Market Fund Assets and Their Relative Importance
(in Billions of U.S. Dollars)

Country	1995		1996		1997		1998	
	End-of-Year Holdings	% Market Capitalization	End-of-Year Holdings	% Market Capitalization	End-of-Year Holdings	% Market Capitalization	End-of-Year Holdings	% Market Capitalization
China	1.9	4	2.3	3	3.1	2	1.9	1
Hong Kong	12.6	n/a	20.4	n/a	13.2	n/a	9.4	n/a
India	4.5	3	6.1	4	7.4	5	5.6	5
Indonesia	4.5	9	5.5	7	1.9	2	1.3	7
Korea	10.3	6	7.7	5	2.5	2	7.3	11
Malaysia	8.2	4	12.0	4	2.4	1	1.5	2
Pakistan	0.6	6	0.5	5	0.8	7	0.2	3
Philippines	3.4	6	4.2	6	1.7	3	1.9	6
Singapore	5.1	n/a	5.3	n/a	3.0	n/a	3.8	n/a
Sri Lanka	0.2	9	0.1	5	0.2	10	0.1	7
Taiwan	4.6	2	7.2	3	5.9	2	5.7	2
Thailand	9.8	7	5.9	4	2.2	4	3.1	10
Total Asia	65.7	6	77.2	5	44.2	4	41.7	5
Argentina	3.1	9	3.3	8	4.6	9	3.1	6
Brazil	8.1	5	11.5	6	15.4	6	8.3	4
Chile	3.4	5	2.9	4	3.4	4	2.6	4
Colombia	0.4	2	0.6	4	0.6	3	0.3	2
Mexico	5.5	6	7.8	7	13.4	10	7.9	7
Peru	0.7	7	0.9	7	1.1	6	0.7	5
Venezuela	0.3	6	0.7	12	1.2	9	0.5	5
Total Latin America	21.5	6	27.7	7	39.7	7	23.2	5
Czech Republic	0.5	3	1.0	6	1.0	6	0.7	6
Hungary	0.4	25	1.2	29	2.3	26	2.2	16
Poland	0.7	18	1.5	20	1.9	17	2.2	14
Russia & CIS	1.0	n/a	2.6	10	7.5	7	1.7	3
Slovak Republic	0.1	n/a	0.1	4	0.1	5	0.1	8
Total Transition Economies	2.7	15	6.4	14	12.8	12	7.0	10

The table displays the country holdings of dedicated emerging market funds (based inside and outside the U.S.) and the holdings as a percent of the corresponding country stock market capitalization. The figures only count the holdings of the dedicated emerging market funds. Thus, the importance of all foreign mutual funds in each country is significantly larger, in most cases.

Source: Emerging Market Funds Research and International Finance Corporation

Table 3
Size of U.S. Mutual Fund Universe

	12/31/91	12/31/92	12/31/93	12/31/94	12/31/95	12/31/96	12/31/97	12/31/98
All U.S. Funds								
NAV, Billions of U.S. Dollars	705	933	1,338	1,428	1,838	2,335	2,954	3,570
Number of Funds	2,355	2,522	3,422	5,594	6,937	7,746	8,655	10,144
NAV of Top 20 Largest Funds as a Percent of All U.S. Funds	2	2	3	4	3	4	4	3
Asia Pacific Funds								
NAV, Billions of U.S. Dollars	1.1	1.4	8.4	11.9	12.1	16.4	9.0	6.5
Number of Funds	11	14	27	59	79	106	127	154
NAV of Top 20 Largest Funds as a Percent of Asia Pacific Funds	100	100	97	94	94	93	90	82
Emerging Market Funds								
NAV, Billions of U.S. Dollars	0.1	0.5	3.7	8.7	8.5	15.6	16.9	13.5
Number of Funds	3	7	10	32	64	94	119	165
NAV of Top 20 Largest Funds as a Percent of Emerging Market Funds	100	100	100	92	89	72	71	67
Latin America Funds								
NAV, Billions of U.S. Dollars	0.04	0.2	1.3	3.9	2.5	2.9	4.1	1.8
Number of Funds	1	3	5	15	25	28	35	47
NAV of Top 20 Largest Funds as a Percent of Latin American Funds	100	100	100	100	73	95	97	95
World Funds								
NAV, Billions of U.S. Dollars	16.1	18.3	28.1	45.4	58.1	82.0	108.1	125.4
Number of Funds	52	56	78	143	180	198	223	273
NAV of Top 20 Largest Funds as a Percent of World Funds	81	80	74	73	71	76	79	77

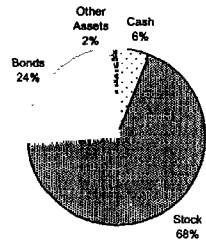
The table displays the net asset value (NAV) and number of U.S.-based mutual funds. The funds are divided in five categories by investment allocation: all funds, Asia Pacific funds, emerging market funds, Latin America funds, and world funds.

Source: Morningstar

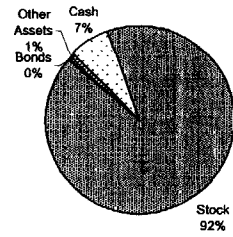
**Figure 3 --U.S. Mutual Fund Assets
December 31, 1998**

By Asset Type

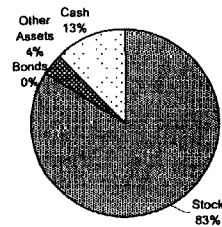
All U.S. Funds



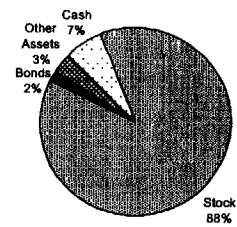
Asia Pacific Funds



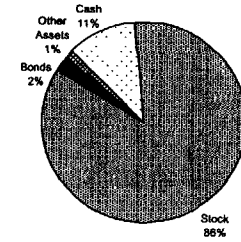
Emerging Market Funds



Latin America Funds

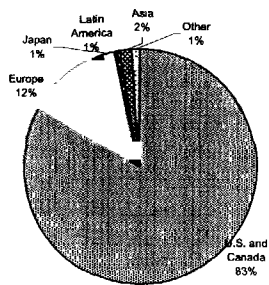


World Funds

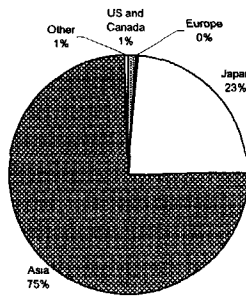


By Regional Exposure

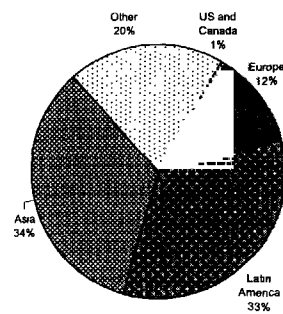
All U.S. Funds



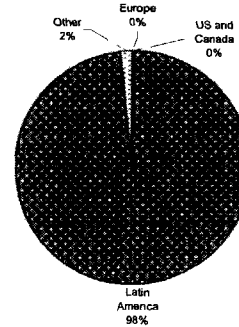
Asia Pacific Funds



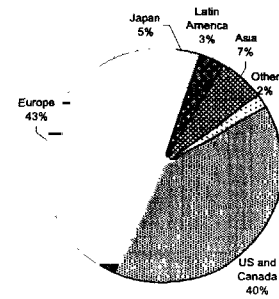
Emerging Market Funds



Latin America Funds

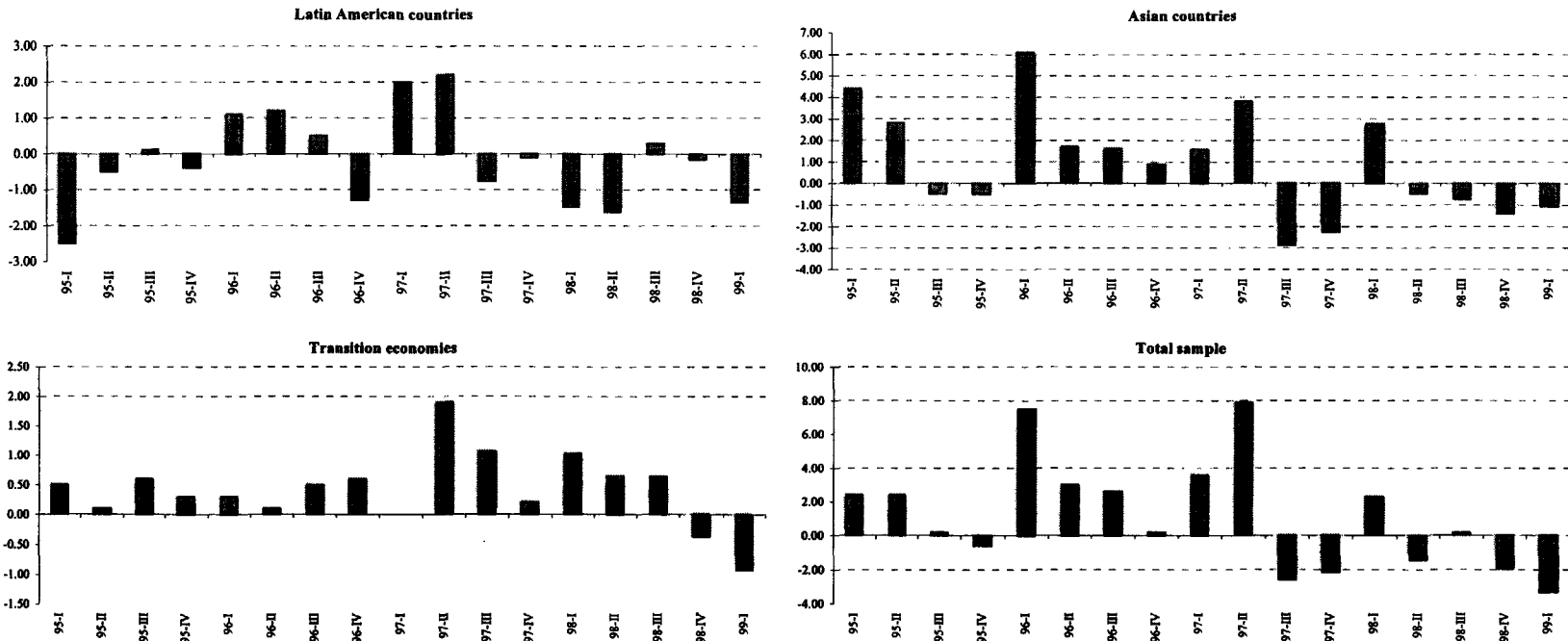


World Funds



Source: Morningstar

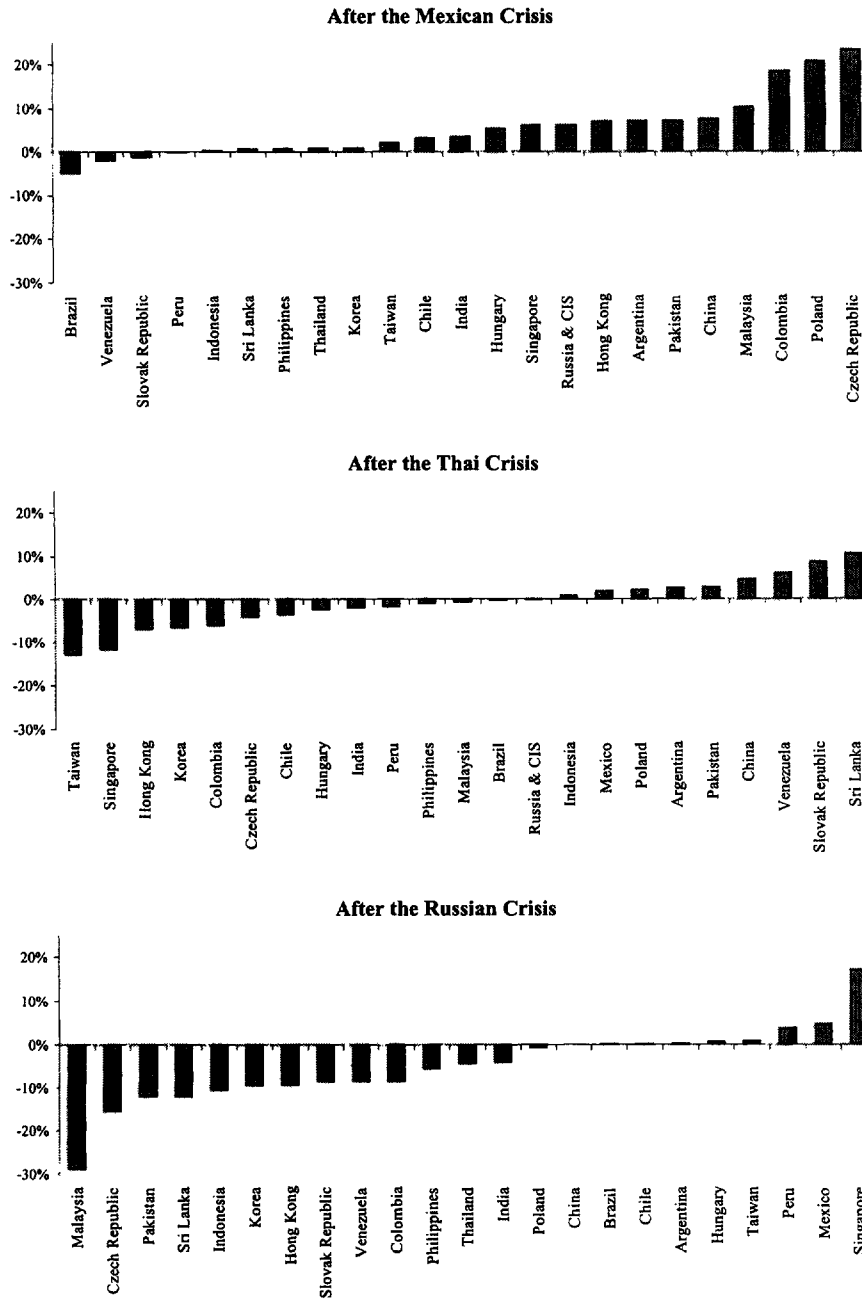
Figure 4
Mutual Funds: Quarterly Flows to Emerging Countries
(Billions of U.S. Dollars)



Notes: Latin American countries include Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela.
 Asian countries include China, Hong Kong, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Thailand.
 Transition economies include Czech Republic, Hungary, Poland, Russia & CIS, Slovak Republic.

Source: S&P Micropal Emerging Market Fund Monitor.

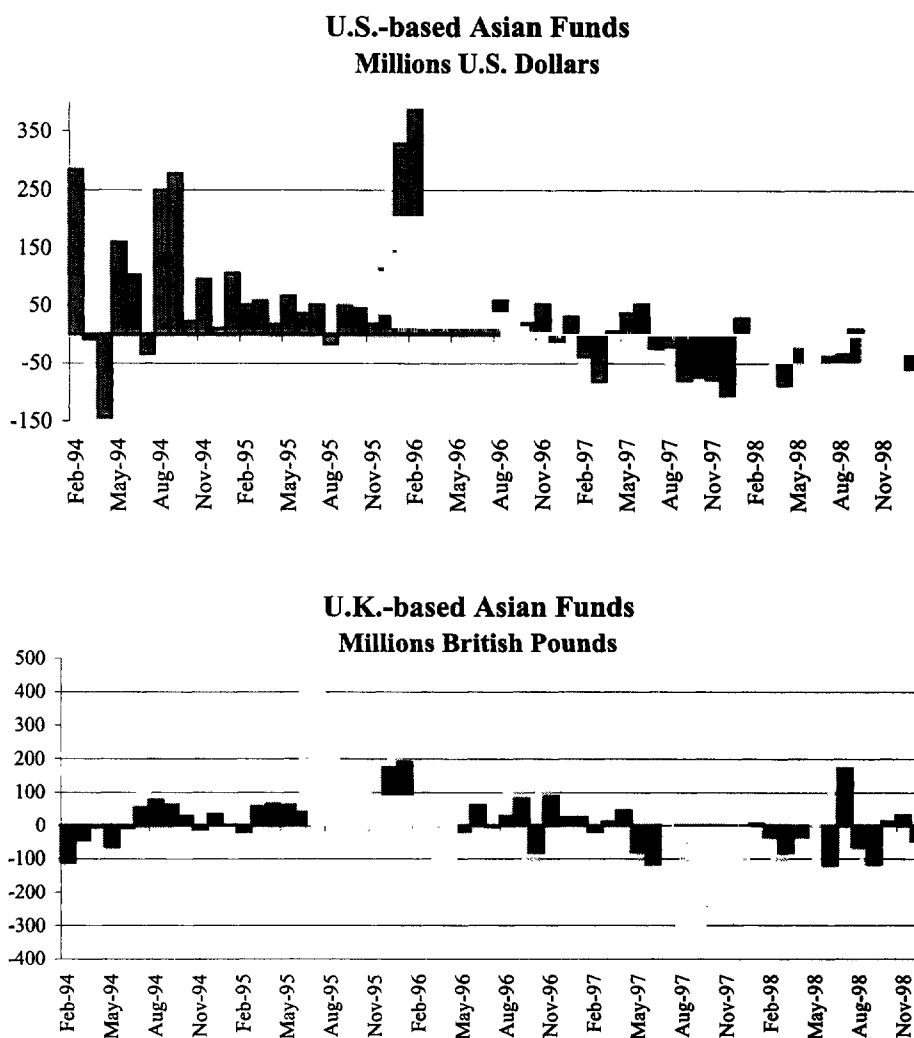
Figure 5
Global Spillovers of Crises
Mutual Fund Net Buying/Selling by Country Following Recent Crises



The figures show the spillover of crises in the rest of the developing countries. The figures display the average mutual fund flows (net buying/selling as percentage of the end of the preceding quarter holdings) in the two quarters following the outbreak of the crisis. The sample average is subtracted. The dates of the Mexican, Thai, and Russian crises are December 1994, July 1997, and August 1998, respectively.

Source: Emerging Market Funds Research

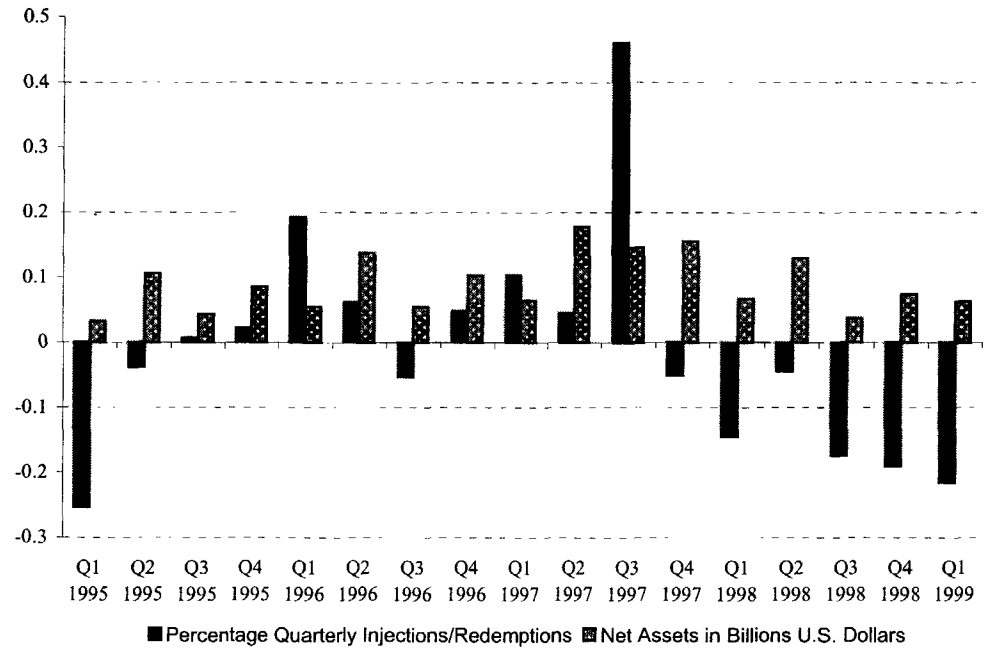
Figure 6
Cash Flows to Asian Equity Mutual Funds



The figures report monthly averages of cash to and from Asian funds in the U.S. and Great Britain.

Source: Bank for International Settlements, 68th Annual Report

Figure 7
Injections/Redemptions and NAVs of Latin American Funds



The figure reports aggregate values (across funds) of quarterly injections (positive values) / redemptions (negative) and the net asset values (NAVs) values of U.S.-based Latin American mutual funds. Injections (redemptions) reflect percent increases (decreases) of the number of the funds' outstanding shares, i.e. 0.1 stands for 10 percent. NAVs are in billions of U.S. dollars.

Source: Morningstar and the Securities and Exchange Commission, U.S.

Table 4
Average Short-Term Positions of Latin American Funds
(As Percentage of Total Net Assets)

	All Times	Injection Times	Redemption Times
All Funds	4.44	4.57	4.37
Large Funds	6.97	8.40	5.22
Medium Funds	3.81	2.24	4.40
Small Funds	4.16	4.48	3.61

The table displays the average short-term positions (mostly in cash) held by Latin American mutual funds. Injection (redemption) times are defined as periods when the number of the fund's outstanding shares increases (decreases). Large Mutual Funds are Merrill Lynch Latin America, Fidelity Latin America and Scudder Latin America. Medium Mutual Fund is TCW/Dean Witter Latin America Growth. Small Mutual Funds are BT Investment Latin America Equity, Excelsior Latin America, Govett Latin America, Ivy South America, Morgan Stanley Dean Witter Institutional Latin America, TCW Galileo Latin America Equity.

Source: Securities and Exchange Commission, U.S.

Appendix Table

This appendix lists the different data sets used throughout the paper.

Data set	Source	Use	Description
Net private capital flows	World Bank	Figure 1 Figure 2	Net capital flows to developing countries, including the so-called emerging economies, typically middle-income developing countries. The amounts include bank and trade-related lending, portfolio equity and bond flows, and foreign direct investment. The list of countries in each region are detailed in the figures.
International institutional investors	BIS, 68th Annual Report	Table 1 Figure 6	Distribution of institutional investors between the U.S. and Europe in 1995. Monthly averages of cash to and from Asian funds in the U.S. and Great Britain. Size of the mutual fund industry in the U.S., Japan, the U.K., and France.
Dedicated emerging market funds	Emerging Market Funds Research	Table 2 Figure 4 Figure 5	Country holdings of dedicated emerging market funds, based inside and outside the U.S. The data are aggregate, tracking of nearly 1,400 international emerging market equity funds, with an average position of about \$120 billion in 1996. The data set covers both U.S. registered and offshore funds as well as funds registered in Luxembourg, United Kingdom, Ireland, Cayman Islands, Canada, and Switzerland. It includes both open and closed-end funds.
Market capitalization	International Finance Corporation	Table 2	Total market capitalization by country.
U.S. mutual funds	Morningstar	Table 3 Figure 3	Net asset value (NAV) and number of U.S.-based mutual funds. The funds are divided in five categories by investment allocation: all funds, Asia Pacific funds, emerging market funds, Latin America funds, and world funds.
Latin American mutual funds	Morningstar and Securities and Exchange Commission, U.S.	Figure 7	Aggregate values (across funds) of quarterly injections / redemptions and the net asset values (NAVs) values of U.S.-based Latin American mutual funds. Injections (redemptions) reflect percent increases (decreases) of the number of the funds' outstanding shares, i.e. 0.1 stands for 10 percent. NAVs are in billions of U.S. dollars.
Short-term positions of Latin American funds	Securities and Exchange Commission, U.S.	Table 4	Average short-term positions (mostly in cash) held by Latin American mutual funds. Large Mutual Funds are Merrill Lynch Latin America, Fidelity Latin America and Scudder Latin America. Medium Mutual Fund is TCW/Dean Witter Latin America Growth. Small Mutual Funds are BT Investment Latin America Equity, Excelsior Latin America, Govett Latin America, Ivy South America, Morgan Stanley Dean Witter Institutional Latin America, TCW Galileo Latin America Equity.

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