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Foreign Portfolio Investors and Financial Sector Stability: Lessons from the Asian Crisis

by

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Abstract

Under asymmetric information and imperfect contract enforcement, foreign portfolio capital flows inevitably entail the interplay of benefits and risks. Given the considerable advantages foreign investors offer, however, a country cannot afford simply to walk away from global capital markets by imposing strict capital controls and/or severely limiting the activities of foreign portfolio investors within its borders. The best way to maximize net benefits is to keep the door open to global capital flows while minimizing the risks they pose to financial sector stability by attacking unwanted distortions at their sources. The Asian crisis demonstrated that major weaknesses in the domestic financial system can magnify risks to the extent that host economies eventually incur a financial crisis. Problems that intensify risks are: (i) inconsistent and shaky macroeconomic management; (ii) severe asymmetric information problems (e.g. inadequate accounting, auditing, and disclosure practices) in the financial and corporate sectors; and (iii) inadequate prudential supervision and regulation of domestic financial institutions and markets. The Asian experience also suggests that short-term foreign debt poses special problems for the maintenance of financial sector stability.

1. Introduction

Foreign portfolio investors bring various benefits to host economies. Their investment flows can enlarge the investor base, and contribute to the process of financial innovation in the domestic market. If foreign investors provide financial services as well as capital flows, the import of financial services results in additional efficiency gains through increased competition and the spread of good practices. In addition, the availability of foreign investors willing to lend can dampen business cycles by reducing the need for households and firms to contract consumption and investment spending when hit by negative shocks to domestic production and income. At the global level, capital flows created by foreign investors permit a more efficient allocation of world
savings and direct resources to their most productive uses. Global capital flows produce opportunities for intertemporal trade, portfolio diversification, and risk sharing.

Despite these large potential benefits, there are also risks associated with foreign portfolio investment. Recent crises suggest that foreign investors can make host economies more susceptible to volatility. These concerns may be all the more warranted if the host economies have weak fiscal policies, unsound banking systems, and highly distorted domestic markets. Under some circumstances, the presence of foreign investors can intensify herding behavior and play a key role in crisis contagion. The actions of foreign investors can amplify the effects of policy distortions.

Cross-border flows of portfolio capital have grown at an explosive pace since the beginning of the 1990s, deepening the integration of global capital markets. At the same time, however, regional financial crises seem to have become more frequent and more widespread. Critics of global capital flows blame them for destabilizing domestic financial systems and hurling economies into crisis. They argue that portfolio investors in particular move vast sums of money in and out of countries quickly in their tireless pursuit of profit, thereby sparking the volatile “hot money” flows that can disrupt the financial sector stability of their unwitting hosts. In the Asian financial crisis, for example, hedge funds were often painted as a major culprit in destabilizing economies.

Under asymmetric information and imperfect contract enforcement, foreign portfolio capital flows inevitably entail an interplay between benefits and risks. Given
the considerable advantages foreign investors offer, however, a country cannot afford to simply walk away from global capital markets by imposing strict capital controls and/or severely limiting the activities of foreign portfolio investors within its borders. The best way to maximize net benefits is to keep the door open to global capital flows while minimizing the risks they pose to financial sector stability by attacking unwanted distortions at their sources. Since large private capital inflows were followed by severe financial crises in East Asia in 1997, a review of that will help us understand better the tradeoff between the benefits and risks associated with foreign portfolio investors.

2. Foreign Portfolio Investors: Overview

Foreign investors are often separated into two groups: direct investors and portfolio investors. However, that distinction is both arbitrary and blurry. For example, the U.S. Department of Commerce uses an ownership position of 10 percent as a cut-off point to distinguish between direct investment and portfolio investment in compiling data on U.S. investment abroad. The logic is that a 10 percent stake is enough to exert control over the foreign-invested firm. Some analysts disagree, and argue that only majority-owned subsidiaries can be truly regarded as direct investment. Still others even distinguish between joint ventures and direct investment, and define direct investment just as investment through wholly-owned subsidiaries. Whatever the definition, the concept behind the distinction of direct from portfolio investment is the existence of management control and a long-term commitment on the part of investors. That is why direct
investment flows are often regarded as long-term and stable, whereas portfolio investment flows are suspected to be fickle by many.

In this paper, I will define foreign direct investors to be those long-term foreign investors who tend to respond to macroeconomic shocks in the same fashion as do domestic controlling shareholders. Following this definition, it is reasonable to focus on portfolio investors in investigating the role of foreign investors in the context of financial crises since direct investors would show behavioral patterns similar to those of domestic controlling shareholders.

The 1990s saw an explosive growth of cross-border flows of portfolio capital, with developing countries attracting an increasing share of portfolio capital. The share, however, was still far less than that of industrial countries, and the flows were concentrated among a small group of developing countries.

A rising interest in emerging markets in the 1990s coincided with the emergence of "push" factors, a drop in US interest rates and a slowdown in US industrial production. This implied temporary and unstable capital flows to emerging markets. “Pull” factors

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1 This definition does not amount to claiming that all foreign portfolio investors are not long-term investors. A portfolio investor may have made a long-term commitment for various reasons as well. For example, her stake in a particular firm may be big enough to move the market against her whenever she tries to jettison her shares, especially in an illiquid market. At the same time, this definition does not confine the scope of foreign direct investment to majority-owned subsidiaries because domestic controlling shareholders, the behavioral benchmark of direct investors, often own less than 50 percent of shares in the firms they control as most controlling families of chaebols in Korea do.

2 Whereas gross inflows of portfolio investment to industrial countries during 1989-96 amount to $892.9 billion, the corresponding figure for developing countries was $123.4 billion. (Eichengreen, Mussa, et al., 1998)

3 Chuhan, Claessens, and Mamingi (1998)
include increasingly stabilized macroeconomic environments (at least before the Asian crisis), and continuing efforts to liberalize by developing countries. Empirical evidence seems to point to the importance of push factors in explaining portfolio capital flows to developing countries, but country-specific developments could be at least as important for some regions and seem to be more important for bond flows than equity flows.\textsuperscript{4}

2.1. International Investment by Institutional Investors

Institutional investors from the OECD comprising pension funds, insurance companies, and mutual funds, were the major force behind the cross-border portfolio flows in the 1990s. Of these investors, pension funds and insurance companies have traditionally been the more important institutional investors in OECD capital markets.\textsuperscript{5} Recently, however, mutual fund assets have grown much faster than have the assets of other institutional investors in the United States and many other countries. In fact, assets of US mutual funds now exceed 50 percent of GDP, although some of these represent investments by company pension funds.\textsuperscript{6}

Investment in emerging markets by institutional investors is a relatively recent phenomenon. Only since the mid-1980s have closed-end investment funds (including country funds) begun to invest in emerging stock markets. Pension fund investment in

\textsuperscript{4} For example, see Chuhan, Claessens and Mamingi (1998).
\textsuperscript{5} Their combined share in 1995 is estimated to be 63 percent of total assets held by institutional investors. See Blommenstein, 1998.
\textsuperscript{6} Vittas (1998)
emerging markets is an even more recent phenomenon. Expansion of the OECD pension sector has increasingly been the main source of the continued flow of portfolio capital into emerging markets; investment has been through mutual funds or directly on their own account.7

2.1.1. International Diversification of Portfolio

Institutional investors diversify their portfolios globally by investing in foreign securities. By diversifying into emerging market securities, many investors believe (or believed before the Asian crisis) that they reduce overall portfolio risk and increase returns.8 Pension funds exhibit a gradual but clear trend toward internationally diversified portfolios. Life insurance companies’ portfolios are less diversified internationally than those of pension funds. And mutual funds in larger OECD countries have significantly more diversified portfolios than those of either insurance companies or pension funds.9

Nevertheless, institutional investors as a group are much less internationally diversified than would be true of a global market portfolio. The reasons for this “home bias” have been identified in the literature10 and include, for emerging countries, exchange rate risk, transfer risk, settlement risk, and liquidity risk. The use of such

7 Blommenstein (1997)
8 For example, see Deutsche Morgan Grenfell (1996) for this line of argument with respect to international fixed-income portfolios.
9 Blommenstein (1997)
10 See Blommenstein (1998).
hedging instruments as forwards, futures and options can reduce exchange rate risk,\textsuperscript{11} but these instruments are not always available for emerging market currencies. Furthermore, the price of these instruments will offset part of the gain from foreign investment; they may only be available for short periods, and trust deeds for pension funds may limit their use. Transfer risk may affect the ability to repatriate returns; examples are exchange controls and nationalization of foreign assets. Settlement risk in less-developed securities markets may be large, with a high proportion of delayed or failing transactions. Liquidity risk may be significant in narrow overseas markets.

Other impediments to international diversification include the nature of institutional investor liabilities. Many pension schemes and life insurance contracts have very precisely defined nominal liabilities. In these cases, the preferred investment strategy may be to match domestic liabilities with domestic assets. Regulatory constraints on foreign investments, the “benchmark” orientation of fund managers, and treatment by institutional investors of emerging market securities as a separate asset class\textsuperscript{12} constitute yet other reasons. The portfolio allocation guidelines outlined in their prospectuses limit broadly based mutual funds (in contrast to dedicated developing country mutual funds) in the proportion of fund assets that can be invested in developing country securities.

\textbf{2.1.2. Characteristics of Institutional Investors}

\textsuperscript{11} See BIS (1986).
\textsuperscript{12} See IMF (1995a) for statistical evidence on the hypothesis of investors’ treating developing country equities as a separate asset class.
Institutional investors have different investment objectives and fiduciary mandates, operate under different regulatory and tax regimes, and have different tolerances for risk. The international investment behavior of pension funds, insurance companies and investment funds differs largely because of the different structure of their liabilities. There is also a dynamic two-way process in which the expansion of the institutional sector is fostering financial integration at the same time financial integration is having a profound impact on the investment behavior of the institutional sector.

2.1.2.1. Pension Funds

Quantitative regulation of the portfolio holdings of pension funds are in place in a number of OECD countries. Regulations are intended to protect pension fund beneficiaries or benefit insurers and, in some countries, to stabilize demand for government securities. Limits are often imposed on holdings with relatively volatile returns, such as equities, real estate and foreign assets, even though the average return on these assets might be higher than that on assets with so-called stable returns (e.g. government bond with a fixed coupon). There are often also limits on self investment.

Other OECD countries do not impose quantitative limits, but impose guidelines such as the so-called “prudent man rule”. “Prudence” is a design standard, not a performance standard. This is reflected in the two most significant elements of the rule, the requirement to diversify and the exhortation to favor “seasoned” situations that similarly placed institutions find appropriate. In the United States, the application of this
design standard to investment decisions has led to the overwhelming preponderance of pension equity money being invested in a limited number of listed securities of American corporations with large capitalization. It may also account for the increase in the “index mode” of investments.

Prudential concerns are often the rationale for regulatory constraints on portfolio holdings of foreign securities. The basic contrast is between countries that follow the “prudent man rule”, thus enjoining diversification, and those that impose direct restrictions on foreign investment for prudential reasons. For the latter countries, prudential concerns may refer to asymmetric information (i.e., information deficiencies about local business and financial conditions), and the regulatory standards for issuing securities, as well as to the various risks to foreign investment.\(^\text{13}\) Even pension funds operating in countries that have adopted a “prudent man rule” have also exhibited a strong “home bias”.\(^\text{14}\) In fact, pension funds in developed countries have shown a clear “home bias” in their investment allocations and have usually stayed well within officially imposed limits.

Unlike banks, pension funds benefit from regular inflows of funds on a contractual basis and from long-term liabilities (i.e. with no premature withdrawal of funds), which together imply low liquidity risk.\(^\text{15}\) Given such liabilities, pension funds may concentrate portfolios on long-term assets yielding the highest returns, compensating for the

\(^\text{13}\) See Davis (1995).
\(^\text{14}\) See IMF (1995b), and Reisen (1997).
\(^\text{15}\) Davis (1995)
increased risk by pooling across assets whose returns are imperfectly correlated. Pooling is facilitated by the size of funds.\textsuperscript{16}

Members of pension funds are willing to accept low liquidity in return for the promise of higher returns from contractual annuities supported by tax deferral and for the implicit insurance of pension levels by the sponsor (in defined-benefit schemes). By contrast, life insurance policies entail a higher degree of liquidity through premature withdrawals and policy loans. As a result, pension funds tend to have much more liberal portfolio regulations than life insurance companies.\textsuperscript{17}

\textbf{2.1.2.2. Insurance Companies}

Each OECD country has regulations governing the eligibility of types of securities in which insurance companies can invest and the valuation of these securities for regulatory purposes. All OECD countries, and in the United States the individual states, have approved lists of investments that insurance companies are allowed to hold. These lists are to ensure that eligible investments possess acceptable levels of investment risk.

Most OECD countries impose maximum limits on classes of investment: quoted and unquoted domestic shares, foreign securities, real estate, mortgage loans and other loans. The limits' intent is to restrict the default and liquidity risks of investments and to ensure sufficient portfolio diversification. Although regulatory investment maxima vary

\textsuperscript{16} Davis (1995) \\
\textsuperscript{17} Davis (1995)
widely across OECD countries, the actual investment portfolios of insurance companies do not appear very much constrained by them. The limits have apparently often been higher than what most insurance companies would themselves view as prudent levels.\textsuperscript{18}

Another important area of investment regulation concerns the matching by maturity and currency of assets and liabilities. Although only a very few countries have statutory requirements for maturity or duration matching, in most OECD countries regulatory authorities review informally the time profiles of assets and liabilities when they assess the solvency of insurance companies. A serious mismatch of assets and liabilities would endanger the solvency of life insurance companies, which tend to have long-term liabilities often with implicit interest guarantees. To minimize interest rate risk, life insurance companies should maintain the duration of their investments broadly in line with the duration of their mainly long-term liabilities. Life insurance companies with too high a proportion of short-term assets would incur reinvestment risk in market situations where interest rates are lower than warranted by the (often implicit) interest guarantees on their liabilities. Similarly, in nearly all OECD countries there are statutory requirements for some degree of currency matching.

In all OECD countries, insurance companies are free to use derivatives in connection with the investment of their capital funds, but in almost all OECD countries the use of derivatives is restricted to risk management.

\textsuperscript{18} Blommenstein (1997)
In most OECD countries, the same maximum investment class percentages apply to non-life and life companies. Since investment risks in the two sectors differ, this degree of uniformity is surprising. Practical problems regarding the enforceability of these rules seem to be the main reason why there are no bigger differences.

For non-life companies, maturity matching is relatively unimportant, because the duration of technical provisions is shorter than that of life companies and there are no interest guarantees. On the other hand, currency matching is of greater importance for non-life companies, since there is considerable uncertainty about the timing of claim payments.

2.1.2.3. Mutual Funds

Heavy regulation by governmental authorities is a characteristic of mutual fund activities in many OECD countries. Regulations usually cover the following key areas: self dealings and affiliated party transactions; management fees of professional fund managers; capital structures; investment objectives and policies; protection of physical integrity of the asset pool; fair valuation of investor purchase and redemption; and disclosure of reliable information to investors. Restrictions on the distribution of investment fund products (including restrictions on cross-border sales of products and services) are usually motivated by investor protection concerns. In the United States the sale of investment fund products has traditionally been subject to tight and detailed regulations.
The types of securities purchased by investment funds depend on the company’s investment strategy. Direct regulation of portfolio holdings of investment funds are largely in the form of constraints on outward portfolio investments and usually place limits on illiquid securities or require asset diversification.

2.2. Hedge Funds

Hedge funds can be defined as “eclectic investment pools, organized as private partnership and often resident offshore for tax and regulatory purposes, whose managers are paid on a fee-for-performance basis. Their prospectuses and legal status place few restrictions on their portfolios and transactions. Consequently, their principal partners and managers are free to flexibly use a variety of investment techniques, including short positions, transactions in derivative securities, and leverage, to raise returns and cushion risk.” (Eichengreen, Mathieson, et al., 1998)

In the United States, the share ownership of hedge funds is distributed through private placements and restricted to high net worth individuals and institutions. This frees hedge funds from regulations based on investor protection concerns. For example, they are not subject to the disclosure and regulation requirements of the Securities and Exchange Commission (SEC). Offshore funds face even less regulation. As a result, the
information on hedge funds is limited, contributing to the aura of secrecy surrounding them.

Hedge funds are by no means monolithic creatures within the industry. However, they are broadly classified into two main classes, macro hedge funds and relative value funds. Macro hedge funds try to identify misaligned macroeconomic or financial variables and take large directional positions in national markets based on their analysis, whereas relative value funds bet on the relative prices of closely related securities. Since smaller markets can impose considerable costs in establishing and liquidating large positions, hedge funds only rarely allocate a sizable portion of their portfolios to emerging markets.

One other characteristic of hedge funds is their frequent use of leverage. According to one estimate, seven out of ten hedge funds use leverage. As the near bankruptcy of Long-Term Capital Management (LTCM) revealed in 1998, they sometimes use leverage very aggressively. The leverage ratio of LTCM was more than twenty. However, such overleveraging is not typical. For about five out of six hedge funds, the leverage ratios do not exceed one. The mode of leveraging by hedge funds includes buying securities on margin, putting up collateral, and/or using collateralized borrowing in repo markets. Since the level of haircuts or margin requirements depends on the riskiness of underlying assets, hedge funds’ use of leverage is greatly affected by the mix of assets in their portfolios. For example, those betting on the relative prices of U.S. treasury securities tend to be more highly leveraged than those taking long equity positions in emerging
markets. Macro funds also tend to make more aggressive use of leverage. According to one estimate, their leverage ratios are four to seven on average.

The line between hedge funds and other institutional investors is becoming increasingly blurred. Other institutional investors frequently engage in many of the same practices as hedge funds. Although high net worth individuals continue to be a steady source of investment in hedge funds, pension and mutual funds, insurance companies, and university endowments also are among the more important investors in hedge funds.

3. Foreign Investors: Double-edged Sword?

3.1. Benefits in Attracting Foreign Investors

At the global level, capital flows created by foreign investors permit a more efficient allocation of world savings and direct resources to their most productive uses. Global capital flows produce opportunities for intertemporal trade, portfolio diversification, and risk sharing.

For a country suffering a temporary recession or natural disaster, foreign investor lending can smooth the consumption of households and firms.\(^{19}\) Foreign investor lending can thus dampen business cycles.\(^{20}\)

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\(^{19}\) See Backus, Kehoe, and Kydland (1992) and Obstfeld (1994) for whether restrictions on capital mobility limit a country’s ability to smooth consumption when hit by shocks to income. Official restrictions on
Foreign investor lending allows developing countries with limited capital to finance investment so that economic growth is promoted without sharp increases in saving rates. As the following identity shows, the financing of domestic investment and the government budget deficit is not constrained by domestic private saving when foreign investors are present.

\[ S^p + K = I + BD \]

Where:
- \( S^p \) is private saving
- \( K \) is net capital inflows
- \( I \) is domestic investment
- \( BD \) is budget deficit

The increased investor base when foreign investors are present is particularly important in the debt markets; they help deepen liquidity and extend maturities. An important aspect of the investor base for government bonds in industrial countries is that foreign holders of bonds increasingly dominate the market.\(^{21}\) Through sophisticated trading and investment strategies, foreign institutional investors can create additional capital mobility can help explain the lack of international risk sharing. For example, Lewis (1996, 1997) confirms that co-movements in consumption and output are stronger in countries with tighter restrictions on capital flows.\(^{20}\)


\(^{21}\) Broader markets induced by a growing presence of foreign investors can help a government reduce borrowing costs, but, at the same time, they can make it more difficult for a government to implement domestic goals because of an increasing interdependence among financial markets. See Dalla (1997).
liquidity in the form of arbitrage activities and diversification of investor portfolios.\textsuperscript{22} Foreign investors can contribute to maturity extension of government debt when the government debt market is initially centered around short maturities.

The import of foreign financial services results in additional efficiency gains. Free capital flows tend to cause specialization in the production of financial services, thereby creating global efficiency gains. For some countries, importing financial services will be more efficient than producing them.\textsuperscript{23} Financial services can be imported primarily through domestic establishment and cross-border delivery.

The import of financial services can also bring dynamic efficiency to the domestic financial sector. It can bring valuable examples and help spread good practices. The increased competition from abroad can make domestic producers of financial services more efficient, promoting innovation and enhancing productivity.\textsuperscript{24}

Locally incorporated foreign-owned insurers could bring additional, and possibly innovative, marketing and product competition to the national market that can deepen and broaden the domestic financial services marketplace. Foreign insurers often are

\begin{flushleft}
\textsuperscript{22} Institutional investors themselves are very much interested in market liquidity—the ability to transact in large size without moving the price against them and at low transaction costs. They demand a market infrastructure characterized by specialized wholesale markets, which can process large transactions very rapidly and contribute to liquidity. (Blommenstein, 1997)
\textsuperscript{23} “The fact that the production of many financial services, wholesale financial services in particular, is characterized by economies of scale and scope implies that their production will be concentrated in certain countries on efficiency grounds.” (Eichengreen, Mussa, et al., 1998, p. 12)
\textsuperscript{24} When the domestic banking system is weak, opening it to competition from foreign banks (either through acquisition of domestic banks or startups of new institutions) is a delicate matter. Placing too much pressure suddenly on a weak system can incur great risk to the domestic banking sector. For example, increased international competition may cause decreases in franchise value, giving domestic banks an incentive to assume excessive risks. See below for more details.
\end{flushleft}
particularly good at risk pricing, a vital aspect of the insurance business. Foreign insurers bring additional capacity to the insurance business, which helps businesses and individuals to transform their property, liability, income and other risk exposures to suit the liquidity, security and other risk profiles they desire. As foreign-owned insurers are often part of much larger international groups, their risk pooling activities might be particularly helpful, thus offering the potential for greater pricing and investment stability. By bringing innovative and more efficient means of gathering and evaluating information, foreign insurers aid capital allocation.25

The process of financial innovation has been strongly driven by the growth of institutional investors and has been relatively slow in markets where the domestic institutional sector is less developed. Foreign investors can speed the process. Foreign investors may introduce financial innovations, such as sophisticated trading arrangements and investment techniques, which may be quickly adopted and further developed by domestic financial institutions.

3.2. Risks Associated with Foreign Investors

Incomplete information can make lenders prone to engage in herding behavior, causing sudden market movements and volatility.26 Since foreign investors may have an

25 Skipper (1997)
26 Herding behavior is not necessarily “irrational”. The models of rational herding are typically built on one of three effects: (i) payoff externalities, where the payoffs to an agent adopting an action increase with the number of other agents adopting the same action; (ii) principal-agent models, where managers prefer to
information disadvantage as compared with domestic investors, their presence can increase the extent of herding. 27 Kim and Wei (1999) provide evidence consistent with models suggesting information disadvantages of foreign investors.

Some theoretical studies show that when international investors can choose from many risky foreign investments and face a fixed cost of information about each country, well-diversified investors may have relatively little incentive to acquire information about all the countries in which they invest. 28

Foreign investors can also play a key role in contagion of crises. One possibility is the “monsoonal effect” 29 caused by shifts in capital flows. A large volume of literature tends to conclude that external “push” factors have in fact exerted an important influence on overall capital flows to emerging markets.

Other possible mechanisms through which foreign investors can contribute to contagion include demonstration effects. Information revealed about one asset or country can be used by investors (both domestic and foreign) to update information about other

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27 See Kim and Wei (1999) for the Korean case. Froot, O’Connell and Seasholes (1999) provide evidence of very strong trend-following in international inflows. Kaminsky, Lyons and Schmukler (1999) find Latin America equity funds tend to use positive feedback strategies in both crisis and non-crisis periods. However, Choe, Kho and Stulz (1999) find that foreign investors as a group engaged in positive feedback trading before the crisis in Korea, but during the crisis feedback trading mostly disappeared.

28 For example, see Calvo and Mendoza (1997). In their model, international investors experience less incentive to gather information when financial markets in many countries are being liberalized at the same time. In this kind of model, financial market liberalization and the presence of foreign investors increase the extent of herding permanently. On the other hand, Bacchetta and van Wincoop (1998) present a model where international investors possess the least information about recently liberalized markets and they overcome this problem as learning takes place. Their model differs from Calvo and Mendoza’s in that incomplete information is a transitional problem confined to recent liberalization.

29 Masson (1998)
similar assets or countries. Assuming that asset prices depend on an idiosyncratic factor and a common factor, King and Wadhwani (1990) show that a shock to the idiosyncratic factor in one market in general will prompt investors to adjust positions in other markets, because they are uncertain about the type of shock that has occurred. Calvo (1999) argues that if informed investors trade for reasons other than just information, uninformed investors may mimic informed investors even though \textit{ex post} it turns out that no new information about fundamentals was actually revealed. He suggests margin calls as one of the possible non-informational reasons.\textsuperscript{30}

Another possible explanation for contagion is treatment by institutional investors of emerging market securities as a separate asset class. The across-the-board liquidation of developing country equity holdings in the wake of the Mexican devaluation suggests that there was insufficient differentiation among developing country equity investors about risks in individual markets. A more direct link for contagion is provided by open-end mutual funds satisfying redemption demand in the wake of a crisis in one country by selling assets of other countries in the region.\textsuperscript{31}

The presence of foreign investors can amplify the effects of policy distortions and agency problems associated with domestic financial liberalization. Domestic financial liberalization, by intensifying competition and squeezing margins in the financial sector, can bring risks to an economy. Without adequate prudential supervision and regulation,

\textsuperscript{30} Schnasi and Smith (1999) show that portfolio diversification and leverage may be sufficient to explain why investors would find it optimal to sell many higher-risk assets when a shock to one asset occurs, regardless of whether the leverage is margined or not.

\textsuperscript{31} Kaminsky, Lyons and Schmukler (2000) find that when faced by investor redemptions, mutual fund managers tend to liquidate their most liquid positions.
domestic financial liberalization can allow financial institutions to expand risky activities beyond their capacity to manage them. External financial liberalization can expose the economy to additional risks. The entry of foreign financial institutions can erode margins further, and foreign investors can facilitate gambling for redemption by offering access to elastically supplied offshore funding. If a culture of implicit guarantees exists (for example, a situation in which both lenders and borrowers perceive an exchange rate peg as a link in a chain of implicit guarantees), the high nominal interest rates characteristic of emerging markets can induce foreign investors to pour substantial short-term capital flows into the markets.

Countries with substantial short-term external debts are vulnerable to a self-fulfilling crisis. If foreign investors suddenly lose confidence in the creditworthiness of a country, they may refuse to roll over its stock of short-term debt, and the country will be forced to finance its debt service from its foreign currency reserves. If the reserves prove inadequate, a sharp reversal of capital flows follows. Mexico in December 1994, with extensive short-term dollar-denominated government debts and few dollar reserves, found itself in a crisis when previous lenders simultaneously demanded repayment and no new lenders of dollars could be found.

In the 1992 ERM crisis, the bond market turbulence of 1994, and the recent Asian crisis, it has been suggested that hedge funds precipitated major movements in asset

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32 “Thus, crises may contain a self-fulfilling element, just as bank runs do, which can generate multiple equilibria in international asset markets, and render the timing of crises somewhat indeterminate. What we see in these cases is a sharp break from an essentially tranquil equilibrium to a crisis state, rather than a gradual deterioration in domestic interest rates and other market-based indicators.” (Obstfeld, 1998, p. 24)
prices. The popular view is that hedge funds take large, highly leveraged, positions against unsustainable currency pegs and other misaligned asset prices and can quickly reverse these positions so that major market moves result.

Eichengreen, Mathieson, et al. (1998), however, suggest that hedge fund capital is small relative to the resources at the command of other institutional investors.\(^{33}\) News of hedge fund positions, however, may induce other investors to follow. Hedge funds would thus play an important role in herd behavior.\(^{34}\) Nonetheless, according to the limited econometric evidence provided by Eichengreen, Mathieson, et al. (1998), there is some indication that hedge funds herd together, but no indication that other investors regularly follow the lead of hedge funds. While some of the case-study evidence points to the role of hedge funds as a leader (with the 1992 ERM crisis most frequently cited), it is equally possible to cite episodes where hedge funds were a follower of the market rather than a leader.

4. The Asian Financial Crisis

4.1. Prelude

\(^{33}\) One conservative estimate of hedge fund capital is $90 billion (excluding funds of funds), of which $30 billion belongs to macro funds that take large directional positions in currency markets. These figures pale beside those for other institutional investors. The assets of institutional investors in mature markets exceed $20 trillion. Although hedge fund capital can be substantial relative to smaller emerging markets, macro funds concentrate a substantial share of their resources in the particular emerging markets only under exceptional cases. (Eichengreen, Mathieson, et al., 1998)

\(^{34}\) The notion that other investors regard hedge fund managers as relatively well informed and hence follow their lead can be interpreted in terms of an information cascade effect.
4.1.1. Private Capital Inflows

Morris Goldstein in the Institute for International Economics calls the 1990s “a period of bountiful global liquidity conditions.” The decade started with net private capital inflows to emerging market economies of $31 billion in 1990, but saw the sharp rise of these flows, surpassing $240 billion in 1996, one year before the Asian financial crisis. Private capital flows to emerging market economies slowed briefly in 1994 due to the Mexican peso crisis, but rebounded quickly during 1995-96. At the same time, spreads declined and loan covenants weakened in emerging market lending. But, this was not always in line with economic fundamentals. For example, Cline and Barnes (1997) found that the sharp decline in average spreads on emerging market Eurobonds between the second quarter of 1995 and the third quarter of 1997 was considerably greater than could be warranted by improved economic fundamentals in the borrowing countries.

Among emerging market economies, four of the Asian crisis countries (Korea, Malaysia, Thailand, and Indonesia) in particular were viewed by lenders to be the most attractive sovereign borrowers. They had integrated themselves into the world economy and had recorded unusually rapid rates of economic growth, high savings and investment rates, and disciplined fiscal positions. Their sound fiscal positions may also have created lender expectations that, should local financial institutions run into difficulties, the governments would come to the rescue with public resources.35

35 See Claessens and Glaessner (1997)
Starting with Malaysia in 1991-92, international investors were also heavily involved in what was known as the Asian carry trade. That is, they funded themselves at low costs in Japan and the United States and invested in high-yielding East Asian fixed-income assets. It was attractive so long as East Asian exchange rates did not move. In the case of Thailand, in 18 out of the 20 quarters through the second quarter of 1997 this carry trade was profitable. In carrying out the carry trade, international investors often rolled over both the borrowing and lending legs into the next period without unwinding them, as long as they continued to make profits by doing so. Domestic entities often played the same game, as well, by issuing short-term debt on international markets and on-lending locally at higher spreads.

Large net private capital inflows, the ones directed to real estate and equities in particular, tended to fuel a domestic credit boom in the crisis-hit countries. As a result, the governments often tried to sterilize the capital inflows. However, Montiel and Reinhart (1997) argue that the sterilization policies followed by the host countries played an important part in setting the stage for the subsequent crisis. That is, the sterilization operations kept domestic interest rates in the host countries higher than would otherwise have been the case, inducing both larger net inflows and a higher share of interest-sensitive short-term flows.

4.1.2. Liquidity and Currency Mismatches

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36 Eichengreen, Mathiesson, et al. (1998)
The liquidity and currency mismatches were prevalent in the foreign borrowing of banks and/or corporations in Korea, Thailand, and Indonesia prior to the crisis. Those banks and corporations were seeking to minimize the cost of foreign borrowing by relying heavily on debt of short maturities and/or foreign currency denominations.

Table 1 presents several indicators of liquidity/currency mismatches as of June 1997 for the Asian emerging market economies. These indicators suggest the greater extent of mismatches in Korea, Thailand, and Indonesia than their neighbors in the run-up to the crisis. The mismatches of Korea particularly stand out. The sequencing of capital account liberalization in fact led to a concentration of short-term foreign debt among financial institutions in the country. Commercial credit and short-term flows were liberalized first, while significant restrictions were retained on such long-term capital inflows as foreign direct investment and portfolio investments in domestic equities.

In all three countries, the rollover of short-term foreign-currency-denominated debt eventually became problematic, resulting in depletion of international reserves and destabilization of exchange rates. The liquidity and currency mismatches also amplified the consequences of subsequent exchange rate changes and left the authorities with very

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37 The use of net rather than gross international reserves in such ratios would make the contrast more pronounced because the gross reserves figures of Korea and Thailand tend to overestimate the actual size of the authority’s usable liquid assets in the run-up to the crisis. For example, according to one World Bank estimate, Thailand’s commitments in the forward exchange market raised the country’s ratio of short-term gross external liabilities to net international reserves to around six just prior to the crisis. Korea’s figures on gross international reserves include deposits with foreign branches of domestic commercial banks that became illiquid.

38 See Park and Song (1996), and Johnston, Darbar, and Echeverria (1997).
limited options in crisis management. Similar liquidity and currency mismatches are believed to have made Mexico more vulnerable than its neighbors in 1994.\textsuperscript{39}

4.2. The Thai Crisis

Once a growing number of investors began to question the financial stability of Thailand, the stability of the Thai baht started crumbling as well, throwing the profitability of carry trades in the Thai baht into doubt. The first wave of pressures on the currency came in July 1996, following the collapse of the Bangkok Bank of Commerce and the central bank’s injection of liquidity to support the financial system. The second wave was in early 1997, following the January release of disappointing fiscal and export performance data. Foreign investors began closing out their positions in the carry trade.

At the beginning, the liquidation of long positions in Thai securities by foreign institutional investors as well as domestic investors probably contributed more to weakening the baht than short sales by speculators such as macro hedge funds. However, with ensuing developments in global financial conditions such as increases in interest rates in the United Kingdom and Germany in the spring of 1997 and the appreciation of the dollar against the yen, foreign portfolio investors were convinced that the probability of baht appreciation was negligible and perceived the existence of a one-way bet, which encouraged them to sell the baht forward.

\textsuperscript{39} Calvo and Godstein (1996)
Hedge funds are frequently assigned a major role in precipitating the baht devaluation of July 1997. It has been suggested that they were able to do so, either through the sheer volume of their own transactions or via the tendency of other investors to follow their lead. However, the evidence seems to indicate that their role was nowhere near dominant given the relatively limited forward positions they collectively took. At the end of July 1997, transactions taken directly with hedge funds are estimated to represent only one quarter of the Bank of Thailand’s $28 billion forward book. At the same time, hedge funds do not appear to have led the herd behavior as well. Although they sold some long-dated forward contracts on the baht in February 1997, the bulk of hedge funds’ sales to the Bank of Thailand appear to have occurred only in May.

After the initial depreciation of the baht, domestic corporations with unhedged foreign currency exposure scrambled to cover their exposure. These domestic entities along with international banks closing out their existing credit lines appear to have played a larger role than foreign portfolio investors in the baht’s continued decline. In fact, hedge funds appear to have closed out their short positions on the baht soon after its initial depreciation. The leading role of domestic residents rather than international investors was also evident in the Mexican crisis of 1994-95.

4.3. Contagion

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40 Hedge funds may also have sold the baht forward through third parties, which then off-loaded their positions to the central bank; it is impossible to figure out the magnitude of these transactions. See Eichengreen, Mathieson, et al. (1998).
41 See Frankel and Schmukler (1996).
The currency crisis that originated in Thailand quickly spread to neighboring countries. In this contagion, the traditionally cited channel of bilateral trade and investment linkages appears to have played a quite limited role. Given the relatively small size of the Thai economy, its bilateral linkages with other crisis-hit countries were too tenuous to generate such widespread contagion.

A more plausible channel of contagion appears to have been the “demonstration effects” discussed in section 3.2. They are sometimes referred to as the “wake-up call” hypothesis. \(^{42}\) Effectively, the Thai crisis acted as a wake-up call for international investors to reassess the creditworthiness of other Asian countries exhibiting similar weaknesses. An alternative explanation is that although investors were awake, they expected that governments would rescue local institutions once in trouble. The Thai case highlighted the limited room for maneuver of the government authorities during systemic crisis. Domestic developments also contributed to this process as witnessed in Korea when Hanbo’s collapse in January 1997 raised investor suspicions about the financial health of other highly leveraged chaebols and banks with great exposure to them.

In the wake of the Thai crisis, observers have often suggested that foreign investors, especially hedge funds, were gambling vast sums of money against the currencies of neighboring countries, thereby leading the herd and fueling the contagion. However, the available evidence points to the contrary. Instead of leading the contagion, foreign investors appear to have been surprised by the extent of contagion. Even many hedge

\(^{42}\) Goldstein (1998)
funds, which were considered the most astute investors, failed to anticipate the sharp movement of other Asian currencies. In fact, systematic evidence seems to indicate that the baht was the only Asian currency for which hedge funds as a group took significant short positions.\(^{43}\)

Although hedge funds built up significant positions on the Indonesian rupiah as well, most of these were in fact long positions taken after the initial depreciation. Most hedge funds shared the view that the rupiah had overshot and expected that it would soon recover. On the Malaysian ringgit, only a few hedge funds appear to have taken modest positions. There were few avenues available for taking short positions on the Korean won, either on- or off-balance sheet. In the Philippines, where limited “on-balance sheet” channels were available for shorting the Philippine peso by domestic and international banks, there are also no indications that hedge funds took large short positions on the currency.

4.4. Hot Money: Short-Term Bank Lending vs. Portfolio Investment

Immediately following the outburst of the financial crisis in Asia, volatile “hot money” was quickly blamed for the woes of crisis countries. In particular, hedge funds were often painted as a major culprit, destabilizing economies by moving large sums in and out of countries very quickly. Malaysian Prime Minister Mahathir Mohamad expressed such views in the most flamboyant way by publicly criticizing George Soros.

\(^{43}\) Eichengreen, Mathieson, et al. (1998), Section III
However, portfolio investments apparently were not the prime cause of the volatility of foreign capital flows to the Asian crisis countries. The “hot money” in fact came mostly from bank lending. More than half of private capital flows to the crisis countries took the form of bank loans in 1995-96, and a vast majority of these loans were short-term loans (see Table 2). Furthermore, most of them were denominated in foreign currency, mostly U.S. dollars. The fact is that these bank loans were the major source of the afore-mentioned liquidity and currency mismatches prevalent in the crisis countries.

Under normal circumstances, foreign banks would roll over most short-term loans as soon as they matured. But, when trouble loomed, foreign banks cut off the existing credit lines by refusing to roll over their loans, thereby forcing capital to flee. The five Asian crisis countries (Korea, Malaysia, Thailand, Indonesia, and the Philippines) received net inflows of more than $40 billion in foreign bank loans in 1996, but these net capital inflows turned into net outflows of more than $32 billion in 1997. The widespread adoption of similar risk-management models by international banks also amplified the magnitude of banks’ actions as they scrambled to close out their exposure to those countries. In addition, the poor financial health of Japanese banks added to the region’s woes. After having been the largest lender to Southeast Asia, Japanese banks led the massive withdrawal of credit to the region at the start of the crisis.  

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44 Faced with mounting bad loans and dwindling profit margins at home, they had become the largest lenders to Thailand and Southeast Asia before the crisis. By June 1997, they had extended $97.2 billion in loans to the region, whereas U.S. banks had extended only $23.8 billion. However, of the $17.5 billion decline in lending to Southeast Asia between June and December 1997, $10.5 billion was accounted for by Japanese banks. See Baily, Farrell, and Lund (2000).
The experience of Korea is particularly telling in relation to the impact of bank lending on massive capital flow reversals. As Korea encountered increasing difficulties in rolling over a large stock of foreign debt, the mounting repayment of foreign bank loans quickly depleted international reserves. Although IMF-led financial support was extended to the country and money market interest rates rose to 25 percent in line with the IMF program, the hemorrhaging continued. The amount of usable reserves fell from $29.4 billion at the end of 1996 to $4.2 billion on 18 December 1997.45 The rapid capital outflows were arrested only after major international banks agreed to temporarily maintain their lines of credit to Korea on 29 December 1997.46

What role did foreign portfolio investors play in all this? In contrast to many banks, they remained calm throughout the initial crisis. Foreign portfolio inflows to the five Asian crisis countries fell by half but remained positive. In Thailand, portfolio inflows increased by more than 70 percent between the second and third quarters of 1997 and remained positive throughout the rest of the year and the first half of 1998. The similar pattern of shriveled but still positive inflows in 1997 held for portfolio investments in Korea and Malaysia. Indonesia experienced a large outflow of portfolio investments in the fourth quarter of 1997 that became a positive inflow again by mid-1998. In most cases, it was money from foreign banks that dried up and fled the countries, not money from portfolio investors.47

45 Net of forward commitments, they were in fact negative.
46 The rollover of loans falling due at year-end was agreed among major U.S., U.K., and German banks in the meeting on December 29, allowing time for a more comprehensive rescheduling. See Lee (1998) for a detailed account of the negotiations.
47 Only in the Philippines, the country least affected by the crisis, did portfolio investors bail out more quickly than foreign banks.
5. Conclusions

To take full advantage of foreign portfolio investors, host economies face the challenge of reaping the potential benefits that foreign investors can offer while minimizing the associated risks. The Asian crisis clearly shows that major problems in the domestic financial system can magnify these risks to the extent that host economies eventually incur a financial crisis. Possible problems of this sort are: (i) inconsistent and shaky macroeconomic management; (ii) severe asymmetric information problems (e.g. inadequate accounting, auditing, and disclosure practices) in the financial and corporate sectors; and (iii) inadequate prudential supervision and regulation of domestic financial institutions and markets. The Asian experience also suggests that short-term foreign debt poses special problems for the maintenance of financial sector stability.

5.1. Consistent and Stable Macroeconomic/Financial Environment

In their efforts to minimize risks associated with foreign investors, policymakers need to avoid, *inter alia*, offering one-way bets in the form of inconsistent policies or indefensible currency pegs. They need to adopt policies that keep their economies away from the zone of vulnerability where multiple equilibria and self-fulfilling speculative attacks can arise.
Eichengreen, Rose, and Wyplosz (1996) studied the behavior of macroeconomic variables in the period leading up to attacks in 22 countries from 1967 to 1992. For non-ERM countries they found evidence that inconsistent fundamentals preceded the attack. The Asian crisis countries were no exception and shared a large set of conditions indicating vulnerability to currency and banking crises. These include rapid growth of domestic credit, rapid growth of domestic consumption, widening of the current account deficit, rising domestic inflation, real exchange rate appreciation, asset price booms, increases in overseas deposits placed with the banking system, rapid growth in the ratio of short-term to total capital inflows, inadequate international reserves, mismatched currency and maturity structures of financial and corporate debt, and deteriorating terms of trade.

The public debt must be kept within reasonable bounds, and its maturity and currency structure must be prudently managed. Beyond the sovereign, as the Asian crisis clearly indicates, excessive leverage, especially in the financial system, but also in the business or household sectors, can be a cause for concern. Foreign currency debt may be a particular problem. The development of well-functioning domestic fixed-income markets will help reduce the dependence on foreign currency debt\footnote{See Lee (2000) for discussions on the role of foreign investors in the development of domestic fixed-income markets.}.

5.2. Mitigation of the Asymmetric Information Problem
Policymakers in all developing countries need to provide better information about government policy and the financial conditions of the private sector in order to weaken the tendency for incompletely informed investors to follow the herd and thereby magnify the repercussions of positions taken by large institutional investors.

Some problems of asymmetric information, which weaken market discipline, can be addressed reasonably directly through public policy. Examples of such policy include: policies that encourage adherence to world-class standards for accounting, auditing, and information disclosure; policies that facilitate enforcement of sound rules of corporate governance; and policies that protect investors and lenders from fraud and unfair practices (including through a credible judicial system and efficient bankruptcy procedures).

5.3. Adequate Prudential Regulation

The buildup of liquidity and currency mismatches leading up to the financial crisis in Asia would not have progressed so far had it not occurred against a backdrop of long-standing weakness in prudential supervision and regulation in the region. Inadequate prudential regulation failed to effectively control the risks from short-term foreign currency loans from abroad.
Given the magnitude of threat from liquidity and currency mismatches as clearly seen in the Asian crisis, Fischer (1998) and Mussa (1998) suggest that prudential regulation should address threats not only to the stability of the banking system but also to general financial stability created by the assumption of large volumes of short-term foreign currency debt by financial institutions and corporations. This could be justification for extending the standard arguments for prudential supervision and regulation beyond the short-term foreign currency exposure of the banking system to at least the monitoring of other short-term flows, and perhaps to additional policy measures specifically aimed at curbing excessive reliance on short-term debt. A number of studies conclude that measures adopted by countries like Chile, Colombia, and Israel to influence the level and composition of portfolio capital inflows have yielded some benefits.

5.4. Proper Capital Market Infrastructure

To withstand asset price volatility, policymakers need to establish proper market infrastructure with respect to clearance, settlement, and payment systems. The necessary functions comprise matching buyers and sellers, determining price, exchanging securities for good funds, registering securities to the new owners, and collecting dividends and other custody functions.\(^49\)

The Group of 30 (G-30) initiative in 1989 and the 1995 workshops organized by the International Society of Securities Administrators (ISSA) were two major efforts in the

\(^{49}\) World Bank (1997)
area of best practice in market infrastructure. According to the G-30 recommendations and ISSA revisions, settlement should be accomplished by a delivery versus payment system of good quality with same-day funds, and the matching system should be integrated with the clearance and settlement system. They also suggest that there should be one independent central depository managed for the benefit of the industry, broadly defined, and an independent registry or registries. Immobilization and dematerialization should be encouraged as well, and the legal framework revised, if necessary, to permit this.

5.5. Diversity of Portfolio Investors

Too sharp a distinction should not be drawn between investors who are covering their unhedged long positions and speculators who are taking short positions at a hint of currency weakness because both actions are logical responses to perceived rise in currency risk. Thus, it is meaningless to distinguish between them, and label the speculators as a “bad” class of foreign investors. In fact, speculators can be the first to take long positions in depressed markets with the goal of buying securities on the rebound, providing much needed liquidity to illiquid markets and helping the markets to establish a bottom. It is because, in searching for above-normal returns, speculators often need to be contrarian rather than matching an industry benchmark. In this sense they can function as “stabilizing speculators.”

50 If more than one depository exists, they should be interlinked. See World Bank (1997), Box 1.3
Kodres and Pritsker (1997) find that hedge funds, and large hedge funds in particular, tend to negative feedback trade. There are two reasons to think that hedge funds may be less inclined than other institutional investors toward positive feedback trading that amplify market moves. First, they have enormous flexibility in choosing investment strategies such as short positions. Second, they are better able to ride out market fluctuations because their investors are locked in for substantial periods.

In addition, hedge funds can play an important role in promoting price efficiency by helping to correct misaligned price levels, whether they are anomalies in relative prices of securities in the case of relative value funds or the disequilibrium price levels in national markets in the case of macro funds. Therefore, instead of limiting the activities of certain types of foreign investors, policymakers should promote diversity among investors, which tends to enhance liquidity and efficiency in financial markets.

Although hedge funds, and proprietary traders as well, generally play a positive role in well-functioning capital markets by enhancing market liquidity, there still exists some concern that hedge funds can dominate or manipulate markets especially in smaller economies. Although the available evidence does not suggest a strong case for measures targeted specifically at hedge funds, some limited measures to strengthen supervision, regulation, and market transparency might be considered to deal with existing concerns. For example, it would be possible to strengthen the larger trader and position reporting requirements. Faced with evidence of speculative attacks, authorities could limit the
ability of hedge funds and other foreign investors to take positions in domestic financial markets by requiring banks and brokers to raise margin and collateral requirements.
References


World Bank, 1997, Private Capital Flows to Developing Countries: The Road to Financial Integration, Washington, D.C.
Table 1

<table>
<thead>
<tr>
<th>Country</th>
<th>Ratio of short-term debt to international reserves</th>
<th>Short-term debt as a percentage of total debt</th>
<th>Ratio of broad money to international reserves</th>
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NA: Not available
Source: Goldstein (1998)
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<td>120.9</td>
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**Notes:**
Total net private capital inflows = Net foreign direct investment + Net portfolio investment + Net other investment
Crisis countries: Korea, Thailand, Indonesia, Malaysia, and the Philippines
"Other" flows largely consist of bank lending.
Source: International Monetary Fund (1995b)