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Does FDI Guarantee the Stability of International Capital Flows? Evidence from Malaysia

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The conventional wisdom is that crises are largely due to swings in short-term capital. Economies that finance their current account deficits mainly via foreign direct investment (FDI) are therefore seen as being less susceptible to a crisis. The analysis in this article, backed up by some empirical evidence drawn from Malaysia, challenges the casual presumption that the switch towards FDI alone will automatically imply that extreme capital instability will become a thing of the past.

The early literature on currency crises focused on the question of the precise timing of a speculative attack that was inevitable because of deteriorating macro fundamentals. More recently it has concentrated on the issue of *vulnerability* as opposed to the *inevitability* of a crisis. As such, while the initial focus was on the size and sustainability of the current account deficit (i.e. what and how much is financed), the recent literature emphasises the way in which the current account imbalance is financed.[1]

A key aspect of vulnerability that has been stressed in the literature is the composition of international capital flows. The conventional wisdom is that crises are largely due to swings in short-term capital (mainly bank loans in the case of East Asia). Hence economies that finance their current account deficits mainly via foreign direct investment (FDI) are seen as being less susceptible to a crisis. The spate of financial crises in emerging economies in the 1990s, coinciding as they have done with increased cross-border flows of capital, motivates our interest in examining the nexus between crises and the composition of capital flows. In particular, we examine whether reliance on FDI does in fact guarantee stability.

The layout of the article is as follows. The next section discusses the conventional wisdom more fully and, with this in mind, examines trends in private capital flows to developing countries in the 1990s. The following section examines external financing in East Asia, focusing in particular on Malaysia, where a crisis occurred in spite of the fact that there were low levels of short-term external debt, with FDI accounting for the bulk of capital inflows (on average). The Malaysian case provides some reason to question the conventional wisdom. Accordingly, the fourth section reconsiders it critically, and concludes that the issue of crisis vulnerability is not simply a matter of the composition

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1. More to the point, our focus is on the newer liquidity-based crisis models. While there is also a recent strand of literature devoted to solvency issues (see Rajan, forthcoming) most of these insolvency models draw inspiration from the original (first-generation) Krugman (1979) model.

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of flows; care is needed before recommending policies to seek to bias capital flows towards FDI. The final section offers a few concluding remarks.

Stability and the composition of capital flows: the conventional wisdom

Received wisdom linking the composition of international capital flows to economic instability and financial crisis is quite straightforward. It argues that short-term inflows (or 'hot money') can be easily reversed, while longer-term flows (in the form of long-maturity bonds and loans and especially FDI) cannot. Movements of hot money are seen as being dominated by interest-rate differences and expected exchange-rate changes which can alter rapidly, thus leading to capital volatility, while FDI is determined by long-term fundamental economic characteristics which are more stable. Indeed, FDI is often presented as being relatively irreversible in the short run. Since it enhances the productive capacity of the host country, it produces the revenue stream necessary to cover future capital outflows.[2] But does the evidence confirm the greater stability of FDI over other types of capital flows?

The empirical evidence: an initial look

Table 1 provides World Bank (1997) data on net private capital flows to developing countries over the period 1990-98. Overall private flows increased about six-fold from around US$43 billion in 1990 to about $304 billion in 1997 before declining sharply the

Table 1: Net long-term resource flows to developing countries, 1990-97 ($bn)

	1990	1991	1992	1993	1994	1995	1996	1997	Average
Official development finance	56.4	62.7	53.8	53.6	45.5	54.0	34.7	44.2	50.6
Grants	29.2	35.1	30.5	28.4	32.7	32.6	29.2	25.1	30.4
Loans	27.2	27.6	23.3	25.1	12.6	21.4	5.4	19.2	20.3
Bilateral	11.6	13.3	11.1	10.0	2.5	10.0	-7.2	1.8	6.6
Multilateral	15.6	14.4	12.2	15.2	10.4	11.3	12.6	17.4	13.6
Private flows	41.9	53.6	90.1	54.6	160.6	189.1	246.9	256.0	149.1
Debt	15.0	13.5	33.8	44.0	41.1	55.1	82.2	103.2	48.5
Commercial banks	3.8	3.4	13.1	2.8	8.9	29.3	34.2	4.1	17.1
Bonds	0.1	7.4	8.3	31.8	27.5	23.8	45.7	53.8	24.8
Others	11.1	2.7	12.4	9.4	4.7	2.0	2.3	8.3	6.6
Foreign direct investment	23.7	32.9	45.3	65.6	8.9	101.5	119.0	120.4	74.4
Portfolio Equity	3.2	7.2	11.0	45.0	32.6	32.5	45.8	32.5	26.2
Total	98.3	116.3	143.9	208.1	206.2	243.1	281.6	300.3	199.7

Notes: Developing countries are defined as low- and middle-income countries with 1995 per capita incomes of less than $765 (low) and $9835 (middle).
Source: World Bank (1997).

2. The World Bank (1998, 1999b) has summarised the many benefits of FDI for host country economic growth via technology transfer, crowding in of domestic investment, and the like. It notes that these growth-inducing benefits are maximised when accompanied by sound domestic policies and greater openness. These issues are not presented here as our focus is on capital account reversal (liquidity) as opposed to issues of resource allocation.

next three years, owing to the East Asia-induced turmoil in the global market (World Bank, 2002). In the remainder of this sub-section we concentrate on trends and patterns during 1990-97, returning to the crisis period in the following section.

While the World Bank provides only annual data on capital flows, an indication of the instability of the various forms of private capital flows may be derived by computing coefficients of variation or CVs (Table 2). Interestingly, FDI flows have the highest CVs, while portfolio flows have the lowest, suggesting superficially that FDI flows are the most and portfolio flows the least variable. However, this conclusion is misleading, as CVs do not take the trend into account. Thus, while the CV is larger for FDI than for other types of capital flows, there is also a consistent (and predictable) upward trend for FDI. Strictly speaking, what is needed is a measure of variation around this *trend* rather than around the *average*. With insufficient data points to identify a definite trend, a more useful indicator is perhaps the number of consecutive years over which there are positive or negative changes, without a change in direction.

Table 2: Relative variability of various components of private flows to developing countries, 1990-97

	Private flows	Debt	Commercial bank lending	Bonds	FDI	Portfolio equity
Var[a]	6692.6	972.8	238.5	360.0	1459.0	282.7
CV[b]	44.9	20.1	14.0	14.5	19.6	10.8

Notes: a) Var – variance; b) CV – coefficient of variation.
Source: Calculated from data in Table 1.

For commercial bank loans, there were consecutive annual directional changes in each year between 1990 and 1993 inclusive. Although bank lending then increased persistently between 1993 and 1997 with no further directional changes, the rate of change varied, with rapid expansions in 1993-4 and 1994-5 being followed by much more modest increases in 1995-6 and 1996-7 (in both percentage and absolute terms).

The pattern for bonds is a little different, with directional changes occurring only in 1992-3 and 1995-6. Bond flows increased sharply in 1992-3 when commercial bank lending was declining, and fell in 1993-94 when bank lending increased. 'Other debt flows' show four changes of direction, with these being fairly evenly spread over 1990-97.

Portfolio equity flows exhibit three directional changes over 1990-97, although these all occurred in the period between 1993 and 1997 when bank lending increased persistently. Over 1990-93 portfolio investment persistently increased, although again the rate of increase varied, with a particularly rapid increase occurring between 1992 and 1993. While not shown by the data, it should be noted that portfolio investment comprises some relatively stable elements, such as investments by life insurance companies and pension funds, along with highly unstable investments such as country funds and mutual funds. Only FDI showed no directional change throughout the entire 1990-97 period. Moreover, as noted, the rise in FDI took place at a fairly persistent rate, and on average constituted about half of all private flows. IMF data (IMF, 1998) also show short-term flows exhibiting the greatest degree of variability.

'Hot money' and financial crises: theoretical background

At first sight, the foregoing data appear to be largely consistent with the conventional wisdom; direct investment has been the most resilient form of external financing.[3] Chuhan et al. (1996), Sarno and Taylor (1999) and the World Bank (1999a) reach a similar conclusion. Empirical analysis suggests that emerging economies which are most prone to currency crashes tend to have a relatively smaller share of FDI in total capital inflows and a relatively higher share of short-term external debt. Using probit analysis Frankel and Rose (1996) see the probability of a currency crisis as a function of the stock of FDI and non-FDI liabilities. Based on a set of over 100 emerging economies for the period 1971-92, they find that a low ratio of FDI to debt is linked to a greater likelihood of a currency crisis. More specifically, a decline in FDI inflows by 1% of external debt is associated with an increase in the probability of crisis by 0.3%.[4] While Frankel and Rose do not find overall indebtedness or the share of short-term debt to have any statistical effects on the probability of crisis, other recent studies have suggested that short-term indebtedness is a robust predictor of financial crises (Rodrik and Velasco, 1999; World Bank, 1999a).

There are models that conveniently explain the volatility of short-term capital flows, covering both bank lending and portfolio flows (Chang and Velasco, 1998, 1999; Goldfajn and Valder, 1997; Bikhchandani and Sharma, 2000). However, the essence of these models is that a relatively small initial loss of confidence can translate quickly into panic and a mass exodus of funds, especially when international reserves fall below a threshold where they become insufficient to cover short-term liabilities. The conventional wisdom is that it is these short-term flows that are highly liquid and mobile and therefore make a country vulnerable to crisis.

It is easy to see how the above theory, combined with the empirical evidence for developing countries, has resulted in the conventional wisdom that switching from short-term to long-term capital flows may reduce the probability of currency crises. But is the conventional wisdom unassailable? Is there any empirical evidence that runs counter to it, and if there is, can this be explained? We now turn to examine in more detail what happened to capital flows in East Asia during the 1990s.

Capital flows in East Asia in the 1990s

Boom and bust in East Asia

Data drawn from the IMF's *World Economic Outlook*, for the early 1990s, show that net private capital inflows to the Asia-5 economies were positive and exceeded the corresponding current account deficit, resulting in a sustained accumulation of international reserves. As revealed in Table 3, this accumulation was particularly high in Thailand, which, along with Malaysia and Indonesia, was among the ten largest

3. Use of *net* data almost certainly serves to understate the *de facto* degree of capital volatility.
4. Hausmann and Fernández-Arias (2000) confirm the Frankel-Rose result but show that it is not robust when extended to industrial countries. The authors note that these results may be because industrial countries have a much larger stock of non-FDI liabilities than do developing countries and have a lower frequency of crisis.

emerging market recipients of net private capital flows (Lopez-Mejia, 1999; World Bank, 1997). On average, the 'other net investment', which includes short-term bank flows, constituted a much higher share of overall capital flows in the Asia-5 economies than the other Asian economies – about 75% in the case of Thailand, the 'trigger' country.

Table 3: Asia-5: net capital flows, 1990-97 (% of GDP)

	1991	1992	1993	1994	1995	1996	Simple Average[b]	1997[c]
Indonesia								
Private capital flows	4.6	2.5	3.1	3.9	6.2	6.3	5.1	1.6
Direct investment	1.2	1.2	1.2	1.4	2.3	2.8	1.7	2.0
Portfolio investment	0.0	0.0	1.1	.06	0.7	0.8	0.50	-0.4
Other investment	3.5	1.4	0.7	7.9	3.1	2.7	3.0	0.1
Official flows	1.1	1.1	0.9	0.1	-0.2	-0.7	0.7	1.0
Change in reserves[a]	-2.4	-3.0	-1.3	0.4	-0.7	-2.3	-1.7	1.8
Malaysia								
Private capital flows	11.2	15.1	17.4	1.5	8.8	9.6	10.2	4.7
Direct investment	8.3	8.9	7.8	5.7	4.8	5.1	7.2	5.3
Portfolio investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other investment	2.9	6.2	9.7	-4.2	4.1	4.5	2.9	-0.6
Official flows	0.4	-0.1	-0.6	0.2	-0.1	-0.1	0.0	-0.1
Change in reserves[a]	-2.6	-11.3	-17.7	4.3	2.0	-2.5	-5.1	3.6
Philippines								
Private capital flows	1.6	2.0	2.6	5.0	4.6	9.8	4.1	0.5
Direct investment	2.0	1.3	1.6	2.0	1.8	1.6	1.8	1.4
Portfolio investment	0.3	0.1	-0.1	0.4	0.3	-0.2	0.2	-5.3
Other investment	0.2	0.6	1.1	2.5	2.4	8.5	2.1	4.5
Official flows	3.3	1.9	2.3	0.8	1.4	0.	2.0	0.8
Change in reserves[a]	-2.3	-1.5	-1.1	-1.9	-0.9	-4.8	-1.8	2.1
Thailand								
Private capital flows	10.7	8.7	8.4	8.6	12.7	9.3	11.5	-10.9
Direct investment	1.5	1.4	1.1	0.7	0.7	0.9	1.6	1.3
Portfolio investment	0.0	0.5	3.2	0.9	1.9	0.6	1.4	0.4
Other investment	9.2	6.8	4.1	7.0	10.0	7.7	8.5	-12.6
Official flows	1.1	0.1	0.2	0.1	0.7	0.7	0.1	4.9
Change in reserves[a]	-4.3	-2.8	-3.2	-3.0	-4.4	-1.2	-4.3	9.7
Korea								
Private capital flows	10.7	8.7	8.4	8.6	12.7	9.3	11.5	-10.9
Direct investment	1.5	1.4	1.1	0.7	0.7	0.9	1.6	1.3
Portfolio investment	0.0	0.5	3.2	0.9	1.9	0.6	1.4	0.4
Other investment	9.2	6.8	4.1	7.0	10.0	7.7	8.5	-12.6
Official flows	1.1	0.1	0.2	0.1	0.7	0.7	0.1	4.9
Change in reserves[a]	-4.3	-2.8	-3.2	-3.0	-4.4	-1.2	-4.3	9.7

Notes: a) Minus sign denotes a rise and vice versa; b) 1989 to 1996; c) estimates.
Source: IMF (1997).

There are by now many comprehensive discussions of the East Asian crisis, and we do not intend going over well-travelled terrain.[5] What is important for our present purpose is that the collapse of the baht and other regional currencies was mainly due to reversals of capital flows from the banking sector rather than portfolio equity investments. Indeed, balance-of-payments data from the Institute of International Finance (1999) reveal that the Asia-5 economies most afflicted by the regional crisis saw a sharp reversal in net private capital flows of almost $130 billion between 1996 and 1998. This reversal primarily involved net (short-term) lending by foreign commercial banks, which averaged about $60 billion in inflows between 1995 and 1996, but turned into a net outflow of about $30 billion over the following two years as international banks became unwilling to roll over existing short-term debts to the region. BIS data for 1999 also show that international bank lending to the Asia-5 economies remained buoyant at almost $50 billion in the first half of 1997, but swung to -$40 billion in the third quarter of 1997, and then averaged close to -$100 billion for the three following quarters.

This sudden reversal in bank lending is often portrayed as strong evidence of a bank panic model (Chang and Velasco, 1998; Radelet and Sachs, 1998a, 1998b).[6] A much less highlighted aspect of the sharp contraction in private market financing is the decline in portfolio flows during 1997-8, following the initial bank panic, as investors too tried to scale down their regional financial exposures ('flight to quality'), although this is consistent with the Calvo-Mendoza crisis model (Calvo and Mendoza, 2000; Rajan and Siregar, 2002).

In contrast, FDI flows have remained remarkably stable during the crisis period.[7] The World Bank (1999b) has noted that the resilience in FDI was despite a fall in market size (in foreign currency terms) and reduced immediate growth prospects, and may be attributed to three factors: the sharp currency depreciations that reduced production costs and asset values in foreign currencies; the decline in domestic asset prices; and the greater potential for corporate restructuring in the crisis-hit economies.

Capital outflows from Malaysia, 1997-8

Following the devaluation of the Thai baht on 2 July 1997, Malaysia succumbed to the crisis two weeks later on 14 July. The Malaysian monetary authorities allowed the currency to depreciate despite having reserves of over US$ 20 billion.[8] The ringgit

5. For detailed accounts of the East Asian crisis, see IMF (1997, 1998), Bird and Rajan (2001), Berg (1999), Corsetti et al. (1999), Radelet and Sachs, (1999a,b), Rajan (1999) and the World Bank (1998, 1999a).
6. Of course, these *ex-post* swings in bank flows are only *necessary* and not *sufficient* evidence in support of a bank panic model. Accordingly, at least in the case of Thailand, Rajan (2002) has provided data on the foreign asset and liability positions in order to determine its *ex-ante* vulnerability to an external shock (such as a devaluation), and then discusses the movements in capital withdrawals from the country following the shock. Since the scenario of devaluation followed by collapse is closely intertwined with the important issue of the *illiquidity* versus the *insolvency* of domestic financial institutions, this issue is also examined, as are the consequences of the systemic liquidity crisis post-devaluation. The evidence presented in its entirety strongly supports a bank panic view. Such a systematic exploration of the data remains to be done for the other crisis-hit economies.
7. Indonesia was an important exception, FDI having collapsed because of ongoing socio-political uncertainties (World Bank, 1999b; Rajan and Siregar, 2002). Latin America also shared this experience of stable FDI flows during a boom and bust period (Hausmann and Fernández-Arias, 2000).
8. Athukorala (2001) notes that they lost US$ 1.5 billion trying to defend the currency.

promptly fell from about 2.5 ringgit per US dollar in mid-1997 to almost 5 to the dollar by early 1998 before eventually being fixed at 3.8 per dollar in September 1998 when the governemnt imposed capital controls. Growth of real output, which averaged 8.7% in the first half of the 1990s, contracted by 7.5 percentage points the following year (Athukorala, 2001).[9]

Since much of the discussion of the East Asian crisis has lumped the five crisis-hit economies together, it has often gone unnoticed that Malaysia was an 'outlier' in terms of capital inflows and outflows (Rajan and Siregar, 2002). In contrast to the other crisis-hit East Asian economies, where the boom and bust was primarily related to reversals in bank lending, the bulk of inflows to Malaysia prior to the crisis was in the form of FDI, while outflows were primarily in the form of portfolio flows. Table 4 shows that the current account, which averaged a deficit of about US$7 billion between 1995 and 1997, turned sharply into a surplus of more than US$ 9 billion in 1998. Since only about a half of this turnaround was accounted for by a rise in international reserves, the remainder must have taken the form of capital outflows. Malaysia's capital account, which had been in persistent surplus (of around US$5 billion on average) in the previous three years, recorded a deficit of US$4.7 billion in 1998. While FDI to Malaysia remained more or less stable during this crisis period, short-term flows, which amounted to US$4.1 billion in 1996, registered declines of US$4 billion in 1997 and US$5.5 billion in 1998.

Table 4: Malaysia: balance of payments, 1995-8

	1995	1996	1997	1998
(US$bn)				
Current account deficit	-8.7	-4.9	-5.0	9.2
Capital account balance	7.0	7.4	1.2	-4.7
Medium- and long-term flows, net	6.6	5.4	6.8	3.6
Private sector, net	4.2	5.1	5.1	2.2
Short-term flows, net	1.0	4.1	-4.0	-5.5
Errors and omissions[a]	-0.7	-2.1	-1.6	-2.8
Overall balance	-1.8	2.5	-3.9	4.5
Official reserves (end period)	25.1	27.7	21.7	26.2
(% GDP)				
Current account balance	-10.0	-4.9	-5.1	-12.9
Capital account balance	7.2	5.3	-0.4	-10.5
Net foreign direct investment	3.8	3.6	4.0	3.0
Net short-term flows	1.2	4.1	-4.1	-7.8
Overall balance	-2.0	2.5	-4.0	6.3

Note: a) includes portfolio capital.
Source: IMF, *World Economic Outlook* (various years).

9. For detailed discussions of the causes and consequences of the Thai and Malaysian crises, see Rajan (2002) and Athukorala (2001), respectively. In the case of Malaysia, while Athukorala emphasises growing monetary and financial weaknesses pre-crisis and the system's inherent fragility, Kaminsky and Reinhart (2000) and Dungey and Martin (2000) point to the importance of its extensive trade and financial linkages or spillovers (direct and third-country) with Thailand.

An important detail regarding the dynamics of capital flows to and from Malaysia during the crisis period needs to be noted. Net portfolio inflows, which averaged about US$38 million between 1990 and 1996, turned around dramatically into a net outflow of almost US$325 million in 1997; this was *in excess* of the cumulative inflows over the entire period between 1980 and 1996.

Do we need to reconsider the conventional wisdom relating to FDI in the light of the Malaysian experience?

Reconsidering the conventional view of FDI

Malaysia was affected by the crisis in Thailand despite the fact that the bulk of its current account deficit had been financed through FDI. This suggests that, unless a country's current account deficits are financed *almost entirely* by FDI, the economy remains vulnerable to capital reversals. Is it then wise for emerging economies deliberately to bias capital flows towards FDI while curtailing other forms of capital flow, particularly bank lending and portfolio investments?

This question may be answered in two ways. First, recent empirical investigations into the causes of currency crises in emerging economies have raised doubts about the existence of a direct link between FDI and the probability of currency crisis. For instance, in a recent study involving 26 emerging economies during the crisis periods 1994 and 1997, Nitithanprapas and Willett (2000) find that low FDI is a robust indicator of a country's vulnerability to contagion *only if* combined with the current account deficit and the real exchange rate. Thus they conclude that 'the composite indicator of current account, FDI, and real exchange rate is a useful indicator of external vulnerability to financial contagion' but FDI by itself may not be (Ibid.: 35).

Similarly Bussiere and Mulder (1999) test for the significance of FDI (to GDP ratio) in the crises in emerging economies in 1997 and 1998. They find that the variable was not statistically significant at the 10% level, although it had the correct sign, suggesting to them 'only a limited reduction in vulnerability as a result of FDI financing of the deficit' (Ibid.: 17).

Second, a potential criticism of the conventional view regarding differing degrees of stability of various capital flows is that it fails to take account of the complex interactions between FDI and other flows. Examining each flow individually, particularly during short periods of time (such as year-to-year variations), may at best be an unreliable indicator of the degree of risk of various classes of flow, and at worst could be highly misleading.[10] Capital that flows in as FDI may well flow out under another guise.

Hausmann and Fernández-Arias (2000) have recently found that the standard deviation of FDI is not very different from that of total net flows, especially in the case of Latin America, and that the volatility of FDI itself has been on the rise. Furthermore, while the overall share of FDI in capital flows had been rising in many developing countries during the 1990s, this failed to make the overall capital account more stable.

10. Claessens et al. (1995) computed statistical measures of volatility for a group of 10 developed and developing countries (France, Germany, Japan, Great Britain, and the United States; Argentina, Brazil, Indonesia, Korea, and Mexico) and failed to unearth any systematic pattern in the volatilities of the various types of capital flows.

Even though FDI has become the single largest component of capital flows for developing countries, this has not been discernibly matched by declining volatility in the international capital market or a reduced incidence of financial crises. This is consistent with Dooley et al. (1994) who find that a high level of FDI is associated with *greater* and not lower variability in capital flows.

What could explain this? Contrary to popular belief, FDI is not 'bolted down', although the physical assets it finances are. Foreign investors can use the physical assets as collateral to obtain a loan from banks and can then place the funds abroad. In other words, the foreign investor may hedge the firm's FDI exposure by borrowing domestically and taking short-term capital out of the country. Hence, a firm may be doing one thing with its assets and a completely different thing with the manner in which it finances them. This appears consistent with the Malaysian capital flows reported above, where portfolio outflows in 1997 outweighed the cumulative inflows between 1980 and 1996. Apparently the portfolio outflows must have entered via some other account (such as FDI or bank loans).

The World Bank (1999b: 54) has also recently cautioned against the presumption that FDI necessarily implies greater financial stability by pointing out that:

> (d)uring a crisis, 'direct investors' may contribute…..to capital withdrawals by accelerating profit remittances or reducing the liabilities of affiliates toward their mother companies. While these are non-FDI flows, they result from decisions by foreign investors. It is difficult to determine the extent to which foreigners involved in direct investment took out capital through non-FDI flows during the financial crisis because the data are available only with considerable delay. In addition to long-term determinants, FDI is affected by many short-run factors….., such as movements in host countries' exchange rates and asset prices and growth prospects, as well as the economic environment in FDI source countries.

The IMF (1998) has similarly drawn attention to the fact that the distinction between portfolio and FDI flows in the balance of payments can be somewhat arbitrary and that the proportion of FDI flows in aggregate capital flows may be overstated.[11] Small differences in equity ownership, which may serve to reclassify financial flows, are unlikely to represent substantially different investment horizons.

The preceding analysis suggests that FDI may be negatively correlated with other capital flows, particularly portfolio flows. A negative correlation is also consistent with the famous Modigliani-Miller theorem which argues that various forms of capital flow are just alternative ways of financing a particular activity, and that, with perfect capital markets, the manner in which projects are financed is irrelevant. Thus, if one component of capital flow increases, *ceteris paribus*, another must fall.[12] However, Das Gupta and Ratha (2000) claim that 'FDI adds to liquidity in the short term and improves the medium-term outlook of a particular sector or the economy as a whole'. On these grounds, we should expect FDI and portfolio flows to be positively related.

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11. Conversely FDI may actually be understated in some cases. For instance, some part of the recorded short-term borrowing by Thailand was actually FDI and intra-banking transfers (Ostry, 1997).
12. Needless to say, the 'real world' does not fit the perfect capital markets assumption, with taxation, information asymmetry and other frictions being prevalent, as discussed by Hausmann and Fernández-Arias (2000).

The nature of the relationship between FDI and other capital flows is therefore an empirical issue. In one of the few direct tests of the nexus between the various forms of capital flow, Bosworth and Collins (1999) examine the degree of correlation between FDI, portfolio investment, and loans. They use a data set of 58 emerging economies over the period 1978-95. The correlations (total, cross-country and cross-period) turn out to be all slightly positive but mostly insignificant.[13] When they focus specifically on a subset of 18 emerging economies (eliminating those with no portfolio capital inflows), they find a slight increase in the correlation between portfolio capital and other inflows, including FDI, but none of the coefficients are statistically significant. This may be taken either as evidence that positive and negative effects offset one another, or that portfolio and FDI flows react to different factors (Reinhart, 2000).

As further indicative evidence, a simple correlation test between portfolio and FDI using Malaysian capital flows data from the IMF (annual between 1982 and 1998) reveals a negative correlation between FDI and portfolio investment (-0.47), which is significant at the 10% critical level. While these results are certainly not conclusive (particularly in light of the very limited number of observations), when taken with the above discussion, they suggest caution in terms of accepting the conventional wisdom about FDI.

Concluding remarks

Short-term capital volatility has been seen as lying at the heart of recent financial crises. The policy debate has focused on reducing the instability of short-term capital flows by controls or by taxation and regulation, and on switching the composition of capital flows to the longer-term end, particularly in the form of FDI. That a country can reduce its vulnerability to crisis by increasing the share of FDI in capital inflows has become the conventional wisdom.

Although at a highly aggregated level there appears to be some empirical justification for this view, a more detailed examination of the evidence and of the underlying analytics counsels a degree of caution. Drawing in particular on the case of Malaysia, which did have a high proportion of FDI relative to capital flows, it may be seen that changing the composition of capital inflows to the long end provides no guarantee of financial stability. Indeed, increasing FDI may itself be associated with and causally connected to increased instability in portfolio flows, implying that the apparent stability of FDI may be of spurious importance. A potential danger is then that policy measures designed to encourage FDI may involve not only a distortionary cost but also little gain in terms of enhanced financial stability. Such a shift could increase rather than reduce the need for other measures to stabilise short-term capital movements.[14]

13. The only statistically significant one was that between FDI and loans in the time dimension, which was just 0.09. This is consistent with the fact that FDI tends to be accompanied by an increase in bank loans.
14. However, Jeanne (2000) argues that it is not clear that short-term debt contracts ought to be discouraged as they may play a socially advantageous function in reducing agency problems. The World Bank (1999b) surveys recent literature on short-term debt. Hausmann and Fernández-Arias (2000) find that countries which are riskier and financially under-developed tend to have lower aggregate private capital inflows but a higher share of FDI in overall capital inflows.

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