CAPITAL INFLOWS, INVESTMENT, AND GROWTH

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The currency crises that broke out in East Asia in mid-1997 have been followed by a year of tumult in international financial markets. These crises have seriously impacted the emerging market economies, forcing many to raise domestic interest rates so as to stem an outflow of financial capital and prevent further exchange rate collapse. Interest rate increases have, in turn, depressed domestic economic activity. Not surprisingly, this severe financial instability has intensified ongoing discussions about the benefits and risks to developing economies from allowing capital to flow freely across national borders.

For many developing countries (LDCs), the ability to draw upon an international pool of financial capital offers large potential benefits. Economic output in these countries is believed to be constrained by low levels of capital per worker. Foreign resource inflows—current account deficits—can be used to augment their private saving and to reach higher rates of capital accumulation and growth. Access to international capital markets provides the means to finance those resource flows. It is also argued that some types of foreign capital inflows, principally foreign direct investment, facilitate the transfer of managerial and technological know-how. Portfolio investments and bank lending are seen as adding to the depth and breadth of domestic financial markets. Some proponents have gone on to argue that, by increasing the rewards for good policies and the penalties for bad policies, the free flow of capital across national borders has the salutary effect of promoting more disciplined macroeconomic policies and reducing the frequency of policy errors. By the mid-1990s, support for open financial markets had grown to the extent that some officials suggested amending the IMF charter to place capital account convertibility on the same level of desirability as a convertible current account.[1] In fact for some, the obvious benefits of open trade in goods and services creates a presumption of positive net benefits for open cross-border trade in all financial instruments.

On the other hand, the opening of domestic financial markets to cross-border transactions creates added risks, as evidenced by the frequency of currency crises in both the industrial and developing countries. These crises have most often been blamed on mistaken macroeconomic policies in the affected countries, or what is characterized as bad fundamentals. But, the recent crises in Mexico and East Asia, countries with reasonably successful policy regimes, have led to a greater emphasis on the inherent instability of financial markets, and the risks that cross-border financial transactions can raise for countries with relatively unsophisticated financial systems and weak regulatory oversight. Today's crises are seen as similar to the bank runs or financial panics that plagued the U.S. banking system of the 19th century in the sense that they are triggered by liquidity problems as countries get caught in a maturity mismatch of their foreign assets and liabilities. In addition, because either the lender or the borrower must assume the risk of exchange rate changes, international financial transactions involve a hazard that is not present within domestic markets. And governments are inevitably drawn in by their commitment to an explicit exchange rate or by the societal consequences of large swings in currency values.

Most of the current policy discussion implicitly accepts the notion that open capital markets are

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[1] A useful discussion of this issue is provided in Fischer et al (1998).

highly beneficial, and proposals for reform have been directed toward reducing the risks of financial instability and crises. A large body of empirical research has focused on understanding the causes of currency crises and developing a set of identifying indicators. Among policy makers, there is a strong belief that crises can be prevented by a freer flow of information and by improved surveillance of financial markets. Thus, there have been calls for greater transparency with respect to the actions of central banks and the short-term debt and foreign exchange exposure of private banks and corporations. Steps have also been taken to improve the response to crises. There are discussions of methods for apportioning the costs of insolvencies that involve international lenders and borrowers. An expansion of the financial resources of the IMF is underway, and procedures to deal with countries that request IMF assistance have been redesigned to reduce the lags. Opposition to large-scale lending of the magnitude that might be required to weather a liquidity crisis, however, remains strong.

Fewer resources have been devoted to a systematic evaluation of the benefits. On one side, the benefits to investors seem quite evident and stem largely from the higher expected long-term rates of return and opportunities for risk diversification. Available measures of the return on investments in emerging markets show a low correlation with overall global indexes of the return, and returns among emerging markets often exhibit low correlations with one another.[2] Less has been done to determine the extent to which the promise of expanded resources for investment and growth has been realized in those economies with extensive capital inflows. In part, this is due to the inherent difficulties in constructing counter-factual outcomes in the absence of such inflows.

There is also a severe shortage of historical data. The international financial market largely disappeared with the outbreak of World War I; and, in contrast to current arguments about the benefits of capital inflows, reconstruction of the industrial economies was conducted within a regime of tight capital controls. Most countries prohibited all but direct investment until the mid-1970s.[3] The free international flow of financial capital became feasible only as countries moved away from the Bretton Woods system of fixed exchange rates. Previously, countries with fixed exchange rates maintained control over external financial transactions as a means of obtaining some freedom for monetary policy to address domestic concerns. Even as late as 1980, only six industrial countries were judged as having open financial markets - Canada, Germany, the Netherlands, Switzerland, the United Kingdom, and the United States.[4] Most financial flows to developing countries, other than direct investment, took the form of government borrowing from official organizations or from private banks in the industrial economies. Large-scale flows of portfolio capital to developing economies are primarily a phenomena of the 1990s.

In this study we attempt to evaluate the implications of capital inflows for the recipient countries by developing a panel data set covering 85 countries (23 industrial economies of the OECD and 62 developing economies) and annual information on the balance of payments and capital flows over the period of 1978-95. An overview of the growth in international financial markets and the extent of involvement of developing countries is provided in the next section. In the second section, a simple regression model is used to examine the uses that are made of financial capital inflows: do they go to finance additional inflows of real resources (a current account deficit) or are they offset by compensating capital account transactions such as increased reserves or capital outflows? The issue is narrowed even further in the third and fourth sections which examine the relationship between capital inflows and investment and economic growth. Are foreign resource flows used to finance capital formation or added consumption? Can we find evidence that countries with

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[2]World Bank (1997, pp. 89-91). From the investor perspective the puzzle is why there is so little international diversification of portfolios, French and Poterba (1991).

[3]Most countries were concerned not with the potential instability, but with the pressures that capital inflows would create for an appreciation of their currencies.

[4]Frankel (1986). However, in earlier years individual countries did allow capital inflows for specific projects, such as the development of Norway's oil reserves in the mid-1970s.

significant capital inflows achieve higher rates of capital accumulation and efficiency improvements (productivity gains) that translate into higher rates of economic growth? Our basic conclusions are summarized in the final section.

The data are drawn largely from the Balance of Payments (BOP) files of the IMF. The 5th edition of the BOP manual provides for the separate reporting of financial capital inflows (liabilities) and outflows (assets). Both the capital inflows and outflows of the BOP are reported net of repayments. Most countries revised their historical accounts to conform to the new format, and with minor extensions we are able to put together a data set covering 62 developing countries over the period of 1978-95. We wanted to include several years prior to the 1982 debt crisis, and delayed publication of the full balance payments accounts for some countries made it infeasible to extend the period beyond 1995. The sample of countries is drawn from an earlier study that brought together data on GDP and investment for the purpose of analyzing patterns of economic growth. The specific list of countries is given in the appendix table, and it covers nearly all of the countries of Latin America and Asia and a large portion of the countries in Africa.[5] We excluded Singapore, Hong Kong and Panama from the analysis because of their roles as financial centers with large capital outflows as well as inflows.

While we do not use them in this study, we note that the World Bank has developed a second source of data in its Global Development Finance Report (GDF). That report provides detailed information on debt stocks of developing countries, but it excludes asset transactions of the BOP, and it includes only those financial liabilities that are denominated in a foreign currency. Thus, it includes borrowing in Euro-currency markets, but excludes bond purchases of foreign investors in the domestic market. The GDF data are very similar to those of the BOP in the aggregate, but there are substantial differences at the level of individual countries.

I. Capital Flows to Developing Economies

While the popular image is one of a large expansion of financial capital flows to emerging markets, the data imply a much more restrained growth. The total international market expanded by five-fold between 1978 and 1995: but, as shown in figure 1, it is completely dominated by the high-income OECD countries who account for about 85 percent of annual capital inflows. Even more surprising, capital inflows are largely unchanged over the past two decades when expressed as a share of GDP. What appears to be very rapid growth of the flow to developing countries since 1988 is to a large extent a recovery from the highly depressed flows that followed the 1982 debt crisis. At 5 percent of GDP, capital inflows to the developing economies were about the same in 1995 as in the 1978-81 period. Expressed as a share of GDP, however, capital inflows to the developing economies are as large as the flows among the industrial countries despite a far less sophisticated infrastructure of financial markets and institutions.

Furthermore, the flows to developing economies are dominated by transactions with Latin America and East Asia (Table 1). Those two regions accounted for 90 percent of the capital flows in the 1990-95 period, compared to about two-thirds of the GDP. Foreign direct investment (FDI) plays a larger role in the developing economies than in financial transactions among the industrial economies. The most explosive growth is in portfolio capital (equities and bonds) which was practically nonexistent prior to 1990. There is a correspondingly reduced role for other finance, which consists largely of bank lending.

The pattern of inflows also differs markedly between Latin America and Asia. Prior to 1982, bank lending either to governments or to other banks was the dominant financial transaction. After the 1982 crisis, Latin America largely avoided or could not obtain bank loans, and the focus was on

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[5] In 1990 it represented about 95 percent of the GDP estimate of the World Bank for the total world less the high income OECD and Eastern Europe and Central Asia.

repayment and conversion of the old loans to marketable equities. Hence net loan activity has been consistently negative and the growth in capital inflows is concentrated in FDI and portfolio capital. East Asia has experienced an even larger growth in FDI, but lending is more important than portfolio capital. Asia accounts for nearly all of the growth of bank loans to developing countries.

Table 1: Capital Inflows by Region and Type, 1978-95

			billions of dollars
	1978-81	1982-89	1990-95
Total Financial Liabilities			
Total	450	579	1063
Industrial Countries	374	554	915
Developing Countries	75	25	148
Latin America	43	-9	49
East Asia	18	22	80
South Asia	3	6	10
Sub-Sahara Africa	5	1	3
Middle East	6	5	6
Foreign Direct Investment			
Total	48	94	211
Industrial Countries	38	79	151
Developing Countries	10	15	60
Latin America	6	6	18
East Asia	3	7	36
South Asia	0	0	1
Sub-Sahara Africa	0	1	2
Portfolio Investments			
Total	40	168	471
Industrial Countries	38	166	418
Developing Countries	2	2	53
Latin America	2	-1	36
East Asia	1	2	13
South Asia	0	0	2
Sub-Sahara Africa	0	0	1
Middle East	0	1	2
Other Financial Liabilities			
Total	362	316	381
Industrial Countries	299	309	345
Developing Countries	63	7	36
Latin America	35	-15	-5
East Asia	15	13	31
South Asia	2	6	7
Sub-Sahara Africa	5	1	0
Middle East	5	2	3

Source: International Monetary Fund, International Financial Statistics, CD-ROM, August 1998.

Capital flows to developing economies are also very concentrated among a few countries. Six countries (China, Mexico, Korea, Thailand, Singapore, and Brazil) accounted for nearly two-thirds of total financial flows in the 1990-95 period, and the top ten represented 80 percent. Nineteen countries identified as 'emerging markets' by JP Morgan, accounted for 90 percent of total capital inflows, and this share has been rising over time (Appendix Table 2). Note that Singapore is excluded in the remainder of our analysis, reducing the emerging market group to eighteen countries.[6]

The three types of capital inflow (FDI, portfolio, and other finance) are not, however, significantly correlated with one another over time or across countries. That is, there is very little tendency for countries with large amounts of FDI to receive correspondingly large amounts of portfolio capital or loans. China, the largest recipient of FDI in the 1990s, received very little portfolio capital or other

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[6]The specific countries are noted in appendix table 1.

loans, while Brazil, the largest recipient of portfolio capital, actually reduced its reliance on loans, and maintained a very restrictive policy toward FDI. The lack of correlation is shown more formally in Table 2, which reports the correlation coefficients for the full set of 62 countries and 18 years. The first panel treats all observations as equivalent, the second panel averages the data over time and examines the correlations across the 62 countries, and the third subtracts the country-related effects to focus on the time dimension. The correlations are all low and approach statistical significance in only a few cases. The most significant correlation is between portfolio capital and other loans—not between direct investment and either of the two other types of flows.

Table 2: Correlations among Capital Inflows for Developing Countries, 1978-9

						percent of GDP
	Sample: 62 countries; 1101 observations			Sub-Sample: 18 countries; 324 observations		
	Foreign Direct Investment	Portfolio Investment	Other Loans	Foreign Direct Investment	Portfolio Investment	Other Loans
Total						
Foreign Direct Investment	1.00			1.00		
Portfolio Investment	0.04	1.00		0.02	1.00	
Other Loans	0.07*	.15*	1.00	0.01	.30*	1.00
Cross-Country Dimension						
Foreign Direct Investment	1.00			1.00		
Portfolio Investment	0.09	1.00		0.06	1.00	
Other Loans	0.21	0.04	1.00	0.01	0.12	1.00
Time Dimension						
Foreign Direct Investment	1.00			1.00		
Portfolio Investment	0.03	1.00		0.02	1.00	
Other Loans	0.03	.19*	1.00	0.02	.37*	1.00

Note: * indicates the coefficient was significant at the 5% level.
Source: Authors' calculations

The right-hand side of the table reports the results of conducting the same tests on the subset of 18 emerging market countries. By eliminating most of the countries with no portfolio capital inflows, this sub-sample may be more reflective of activities in those countries with active linkages to external financial markets. There is some modest increase in the correlation between portfolio capital and other loans in the time dimension, but overall there remains little evidence of complementarity.

It is also interesting to ask whether capital flows are related to available measures of capital account liberalization. The most widely used liberalization measure is an annual indicator of capital account openness that the IMF has long published for member countries.[7] While this indicator is useful for some purposes (such as studying policy changes), it turns out to be a very poor proxy for actual capital movements. As late as 1995, only 11 of the 62 LDCs in our sample (and 6 of the 18 emerging market economies) are classified as having removed their capital controls. Many of those countries with capital controls received larger capital inflows than the average inflow received by countries without controls. For example, China maintains capital controls but is a major recent recipient of FDI inflows. There are at least two reasons for the low correlation. First, a country may liberalize without actually attracting additional inflows. Second, the (pre-1996) IMF indicator measures controls on "resident owned accounts"—*not* on the ability of foreigners to acquire domestic assets.[8]

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[7] For an excellent overview of theoretical and empirical work on capital controls, see Dooley (1995).

[8] The IMF has recently extended it measures of capital account openness.

II. The Uses of Capital Inflows

When countries receive inflows of financial capital, do they use those funds to purchase real resources, to hold additional reserves, or to finance financial capital outflows? Data from the balance of payments can be used to explore this issue. The following identity provides a simplified overview of the many different types of transactions in the BOP accounts

(1) $0 = (CA + KA) + FINI + FINO + ERR + RES,$ where

CA = Current account balance,

KA = Capital account balance,

FINI = Financial inflows,

FINO = Financial outflows,

ERR = Errors and omissions, and

RES = Reserve accumulation.

As usual, sources of foreign exchange, such as financial inflows and exports, are denoted as positive (credits) while uses of foreign exchange, such as financial outflows and imports, are negative (debits).   This identity is based on the redesign in the 5th edition of the IMF's BOP Accounts, which unfortunately uses somewhat confusing terminology. What used to be called the capital account now corresponds most closely to the financial account (FINI + FINO). What is now called the capital account (KA) is a newly created category that primarily includes capital transfers and transactions related to used equipment. This new capital account is zero or small for the countries in our sample, and for simplicity we have combined it with the current account. Errors and omissions (ERR) are often identified with capital flight. As shown in Table 3, the aggregate measure is consistent with this view. This measure is nearly always negative and is dominated by large negative entries for China in the 1990s and for Latin America around the time of the 1982 debt crisis. While it may be reasonable to group the errors and omissions with financial capital outflows (FINO) in some situations, we have chosen to leave treat them separately in the analysis below. Exceptional finance transactions and IMF credits are included with reserve accumulation (RES).

Table 3: Errors and Omissions in the Balance of Payments, 1978-95

	Entire Sample	Latin America	China	Other Countries
1978	-1.5	2.2	-1.8	-1.9
1979	-2.5	1.4	-1.4	-2.5
1980	-9.0	-1.3	-2.2	-5.5
1981	-15.6	-11.4	-1.8	-2.4
1982	-16.7	-13.0	0.3	-3.9
1983	-5.3	-4.8	0.1	-0.6
1984	-9.2	-2.9	-0.9	-5.4
1985	-6.6	-6.4	0.0	-0.2
1986	-2.9	-1.7	-1.0	-0.2
1987	-1.7	0.7	-1.5	-0.9
1988	-3.1	-2.0	-1.0	-0.1
1989	3.3	4.8	0.1	-1.6
1990	-2.4	0.0	-3.2	0.8
1991	-3.4	1.2	-6.8	2.2
1992	-6.9	0.5	-8.2	0.8
1993	-18.2	-1.6	-10.1	-6.5
1994	-15.6	-3.6	-9.1	-3.0
1995	-28.0	-4.1	-17.8	-6.1

billions of U.S. dollars

Source: IMF (1998) and authors' calculations

Within this simplified framework, inflows of financial capital can be set aside in reserves, used to finance current account deficits, or offset by financial capital outflows. For example, over the period of 1990-95, the 62 countries in our analysis had inflows of financial capital totaling $814 billion. Over the six-year period, twenty percent of those funds appear to have been absorbed in reserves and related items, forty percent were offset by capital outflows, and the remaining 40 percent were available to finance current account deficits.

The panel feature of our data set enables us to explore the allocations of capital inflows in more detail. While we do not have a full model of the determinants of elements of the balance of payments, we can explore some of the associations with the following simple formulation:

(2) $Y_{ijt} = \alpha_{ij} + \beta_j \, \text{FINI} + \varepsilon_{ijt}$

where: i represents an individual country in the sample, j varies over the four (non-FINI) components of the BOP identity, and t refers to the time dimension. Thus, equation (2) specifies four separate equations relating each of the Y_j 's (current account, change in reserves, capital outflows and errors & omissions) to capital inflows. With 62 countries and a maximum of 18 years of observation, there are 1101 observations for each regression. These four relationships can be estimated with a simple OLS. But OLS implies that α is constant across all of the 62 counties—or that there are no country-specific effects. Even though we have scaled the data to comparable units by expressing all of the variables as a share of GDP, the assumption of homogeneity across countries seems implausible. Thus, we rely primarily on a fixed-effects model that allows the α_is to differ across countries in each of the four equations. While we do not impose cross-equation restrictions on the four sets of β_j's, the BOP identity implies that they should sum to one.

The results of estimating equation (2) are reported in Table 4. The OLS estimates imply that over three-fourths of the inflow is reflected in higher reserve holdings and only 10 percent is used to finance a larger transfer of real resources from abroad. The next two columns report the results of using a fixed-effects estimation. Column (2) shows the coefficients from a regression that uses only the 62 country means, suppressing the time dimension. In this case, the relationship between capital inflows and reserves is even more extreme, a coefficient of -1.2; and the relationship with the

current account is the reverse of that expected. This suggests that the unobserved country characteristics are simply too dominant to enable us to find a meaningful relationship among the country means. The fixed-effects estimates in column (3) differ from the OLS estimates in the expected direction: a larger coefficient for the current account and a smaller impact on reserves. The equations for capital outflows and errors and omissions have coefficients of the expected sign, but are quite small. Even with fixed-effects estimation, the proportion of capital inflows reflected in the current account seems surprisingly small.

Table 4. Total Capital Inflows and the Balance of Payments, 1978-95

percentage of GDP

	Independent Variable: Total Capital Inflows					
	Full Sample: 1101 observations			Sub-Sample: 324 observations		
	OLS	Means	Fixed Effects	OLS	Means	Fixed Effects
Dependent Variables:						
Current Account	-0.10	0.26	-0.20	-0.30	-0.20	-0.34
	(2.8)	(1.1)	(7.3)	(6.1)	(0.7)	(10.3)
adj. R^2	0.01	0.00	0.52	0.10	-0.03	0.55
Change in Reserves	-0.77	-1.22	-0.64	-0.62	-0.82	-0.56
	(22.0)	(5.6)	(22.1)	(13.7)	(3.8)	(12.4)
adj. R^2	0.30	0.33	0.62	0.37	0.45	0.51
Total Capital Outflows	-0.05	-0.06	-0.05	-0.04	-0.77	-0.05
	(4.4)	(1.1)	(4.2)	(2.0)	(0.1)	(2.6)
adj. R^2	0.02	0.00	0.22	0.01	-0.06	0.32
Errors and Omissions	-0.08	0.02	-0.11	-0.04	0.02	-0.06
	(4.9)	(0.4)	(6.2)	(2.5)	(0.6)	(3.2)
adj. R^2	0.02	-0.01	0.10	0.02	-0.04	0.04

Notes: Change in Reserves includes Exceptional Finance. Current Account includes Capital Account. Full sample contains data from 62 developing countries. The sub-sample is taken from the 19 countries listed by Morgan Guaranty as emerging markets. Singapore was excluded as an outlier from this subset. Source: Authors' calculations.

Columns (4) through (6) report the same results for a smaller sample of 18 countries identified by Morgan Guaranty as emerging markets. The results are similar to those for the large sample, but they suggest that, for these countries, about one-third of capital inflows are used to finance purchases of goods and services from the rest of the world.

Finally, the capital inflows can be disaggregated into the three main types, FDI, portfolio capital, and other finance, to determine if each type is used to finance different activities. The results of that exercise are reported in Table 5A. We have reported only the fixed effects regressions because of strong evidence of important country-specific effects. The results for the current account, reported in the first column, show sharp differences by type of capital inflows. As we might expect, 60 percent of FDI is reflected in increased net imports, but there is no discernible correlation between portfolio capital and the current account. Portfolio capital flows are more closely associated with changes in countries' reserve positions, which is consistent with their high volatility. About a third of a change in FDI and about two-thirds of a change in other loans are reflected in changes in reserves. The latter result may reflect the frequency with which the loans are the result of governments' efforts to shore up their reserve position. Portfolio flows have a large coefficient in the equation for capital outflows, most likely because portfolio capital flows are reflective of a larger degree of openness to financial transactions. The coefficients on each of the three types of capital inflows do sum to one across the four regressions, but their distribution is quite different.

Table 5B shows the same regression results for the sub-sample of 18 emerging markets. There are some inconsistencies with the earlier results in that FDI plays a smaller role in the regression for the current account, and the coefficient on other loans is increased. Otherwise, the results from the two

regression sets are very similar.

Table 5   Balance of Payments Decomposition Fixed Effects, 1978-95

A. Full Sample

percentage of GDP

	Full Sample: 62 countries, 1101 observations			
	Dependent Variable:			
	Current Account	Change in Reserves	Total Capital Outflows	Errors and Omissions
Independent Variables:				
Foreign Direct Investment	-0.60	-0.31	-0.10	0.01
	(7.2)	(3.4)	(2.8)	(0.9)
Portfolio Investment	0.10	-0.64	-0.28	-0.17
	(0.8)	(5.0)	(5.4)	(2.2)
Other Loans	-0.16	-0.68	-0.04	-0.12
	(5.6)	(22.4)	(3.2)	(6.6)
adj. R^2	0.53	0.63	0.24	0.10

B. Emerging Market Sub-sample

percentage of GDP

	Sub-Sample: 18 countries, 324 observations			
	Dependent Variable			
	Current Account	Change in Reserves	Total Capital Outflows	Errors and Omissions
Independent Variables:				
Foreign Direct Investment	-0.25	-0.77	-0.01	0.02
	(1.3)	(3.9)	(0.1)	(0.2)
Portfolio Investment	-0.03	-0.59	-0.23	-0.15
	(0.3)	(5.7)	(6.0)	(3.6)
Other Loans	-0.36	-0.55	-0.04	-0.06
	(7.9)	(11.5)	(2.1)	-3.034
adj. R^2	0.46	0.51	0.37	0.06

Source: IMF (1998) and authors' calculations

III. Capital Inflows and Investment

Of the many potential benefits offered by capital inflows, arguably the most important is that such inflows may enable a country to grow more rapidly.[9] Capital inflows could increase growth through a variety of channels. The resources could be used to finance investments that would not have been undertaken in any case. The inflows could "crowd in" other investments in related activities, or adjacent locations. In addition, inflows from abroad could increase economic growth by raising factor productivity. Discussion of the potential growth benefits from capital inflows often focuses on the role for FDI. In particular, recent models of endogenous growth frequently emphasize that inflows of FDI provide a means for the diffusion of technology, and "know-how" more generally, from more advanced to less developed economies.[10]

The previous section studied the linkage between capital inflows and investment by exploring the extent to which capital inflows of different types are "used" to finance current account imbalances. We now explore the linkages more directly. This section looks for evidence that capital inflows—especially FDI inflows—are positively associated with rates of investment. The next section turns

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[9] Other frequently cited "potential benefits" from open international financial markets include improved allocation of global saving, improved ability to insure against (domestic) risks, and added discipline for domestic policy makers. For example, see Eatwell (1996, UNDP) and Obstfeld (May 1998, NBER 6559).

[10] Recent literature emphasizing the potential role for FDI to raise growth through technological diffusion includes Borensztein et. al. (1998) and Grossman and Helpman (1991, chapters 11 &12).

to an analysis of capital inflows and growth.

There is a relatively small empirical literature on whether the potential benefits to recipients of capital inflows are realized. Many of these studies are either inconclusive or fail to find strong evidence of benefits from capital inflows. One approach has been to focus on plant level data in specific countries, such as the work by Harrison (1996). However, she finds little evidence that FDI itself increased productivity. Another approach has been to simply compare investment and/or growth rates during periods identified as having limited international capital mobility with investment and/or growth rates during periods identified as having relatively high capital mobility.[11] This work tends to conclude that increased capital mobility has been associated with declines in rates of investment and growth, but the results are not very persuasive. Grouping by periods does not adequately distinguish experiences of large versus small capital inflows. Further, it is not at all clear that differences in economic performance across periods should be attributed to differences in capital flows.

A third approach compares economic performance of countries with capital account restrictions versus countries with open capital accounts. This approach can provide information about the effects of policy changes—and indeed, recent work along these lines such as by Rodrik (1998) was motivated by a somewhat different set of questions than those studied here. However, this work sheds little light on the implications of actually receiving capital inflows because, as we have already seen, the standard IMF indicator of capital account liberalization is a poor proxy for the extent to which countries actually receive capital inflows.

Our approach is most closely related to studies that examine experiences of a large sample of countries using regression analysis and actual inflows of capital. The interesting recent paper by Borensztein, De Gregorio and Lee (1998) is of particular note in this context. Part of their paper explores the relationship between investment and FDI capital flows and uncovers some (weak) evidence of benefits from inflows. They find coefficient estimates on FDI inflows that are greater than one in many of their specifications, suggesting that FDI may "crowd in" other investments. However, the estimates lose statistical significance as explanatory variables are added to the investment equation. Their data set includes 69 LDCs, pooled over two time periods: 1970-79 and 1980-89, while their measure of capital inflows is limited to inflows from OECD countries.[12] It should also be noted that the authors have chosen a somewhat unusual specification for their investment equation—with right-hand-side variables such as initial GDP, schooling, and the black market exchange rate premium, that are more familiar from standard growth regressions. As discussed in the next section, this paper also asks whether capital inflows are positively associated with economic growth.

As in the analysis of how countries use resource inflows in Section II, our approach exploits the panel nature of the data, and in some cases we report three types of regression results. OLS results are based on the entire (pooled) sample. However, as discussed above, OLS estimates will be inconsistent if there are country specific "fixed-effects." Thus, two additional sets of estimates are often relevant. The "means" regression uses averages across all available time periods for each country. It analyzes relationships across countries, without using the time dimension in the panel data.[13] The "fixed-effect" regression estimates country-specific constant terms, but constrains

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[11] For example, see Eatwell (1996).

[12] They argue that inflows from the OECD are most likely to involve diffusion of more advanced technology. Their paper reports a correlation of just 0.2 between total FDI inflows and FDI inflows from OECD countries to the 69 LDCs in their sample. However, many investments from LDCs should also have the potential for such diffusion. See Wells (1993) for a discussion of FDI flows between developing countries in East Asia.

[13] In Table 6, the "means" regressions are based on 62 observations for panel A, and 18 observations for panel B.

slope coefficients to be the same across countries. These results, therefore, highlight relationships within countries, over time and are arguably the most relevant for an individual country interested in the likely implications of a change in capital inflows.

Are capital inflows associated with higher investment rates for our sample of developing countries during 1978-95? Recall that a coefficient equal to one on a particular type of inflow would suggest that each dollar of that inflow raised investment one-for-one. A coefficient greater than one would suggest that inflows "crowd in" additional investments, while a coefficient less than one would suggest that inflows simply substitute (at least in part) for investments that would have been undertaken in any case.

We begin by regressing fixed investment on inflows of FDI, portfolio investment and other loans (all measured as a percentages of GDP), using the entire sample of 62 LDCs. Of course, this procedure simply uncovers correlations, and does not enable us to say anything about causality. The results are reported in the first three columns of Table 6. Two points emerge strongly from the estimates. The first is that FDI inflows are consistently more closely related to investment than either portfolio inflows or other loans. This finding is robust to a variety of alternative specifications, as discussed below.

Table 6. Investment and Capital Inflows, 1978-95

						percentage of GDP
	Dependent Variable: Investment					
	Full Sample: 62 countries; 1092 observations			Sub-sample: 18 countries; 323 observations		
	OLS	Means	Fixed Effects	OLS	Means	Fixed Effects
Independent Variables						
Foreign Direct Investment	0.85	2.34	0.33	1.26	1.58	0.98
	(7.5)	(3.0)	(4.1)	(4.7)	(1.1)	(4.6)
Portfolio Investment	0.25	1.31	0.08	0.30	-0.21	0.20
	(1.4)	(0.7)	(0.7)	(1.6)	(0.1)	(1.8)
Other Loans	0.19	0.35	0.16	0.58	1.36	0.38
	(4.9)	(1.2)	(6.0)	(7.3)	(2.1)	(7.3)
adj. R^2	0.06	0.11	0.66	0.19	0.15	0.73

Source: Authors' regressions.

Second, the simple OLS results appear to provide a very misleading picture of the underlying relationships. In particular, consider the link between FDI and investment. The OLS regression suggests that each dollar inflow is associated with close to a dollar[14] of additional investment. However, most of this correlation comes from the *cross-country* relationships in the data. The means regression (column 2) shows that, on average, countries with greater FDI inflows tend to have substantially higher investment rates. But *within countries, over time*, the relationship is much less impressive: an additional dollar of FDI tends to be associated with only $0.33 in additional investment, suggesting that some two-thirds of the FDI simply crowds out other investments. Large coefficient estimates in the literature (such as estimates above 1.5 in some of the regressions reported by Borensztein et. al.[15]) may primarily reflect the cross-country relationships.

We next ask whether the emerging market economies have had a different experience with capital inflows than other developing economies. Regression results for the 18-country sub-sample are reported in the second panel of Table 6. Because the means regression is based on a very small sample, we focus on the OLS and fixed-effect results. All three types of capital inflows are more

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[14] The coefficient estimate 0.85 is not significantly different from one.

[15] Recall that their results are based on pooling two time periods across 69 countries.

highly correlated with investment among the emerging markets. Like for the bigger sample, FDI inflows are more correlated with investment than are other types of inflows. In contrast to the bigger sample, however, the fixed-effect regression suggests that a one-for-one relationship exists within countries, over time.

The simple regressions reported in Table 6 do not incorporate any of the other factors that may influence investment rates. Because some of these omitted country characteristics are likely to be positively correlated with both investment and capital inflows, the coefficient estimates reported in Table 6 likely to be biased upward. To address this problem, we re-estimate the investment equations using a standard accelerator specification. In particular, we include current and lagged GDP growth rates as explanatory variables.[16] Results for both the entire LDC sample, and the emerging market sub-sample are reported in Table 7. While OLS, means, and fixed-effects estimates are all reported, the discussion below focuses on the fixed-effects results.

Table 7. Investment and Capital Inflows, Accelerator Model, 1978-95

						percentage of GDP
	Dependent Variable: Investment					
	Full Sample: 62 countries, 1092 observations			Sub-Sample: 18 countries, 323 observations		
	OLS	Means	Fixed Effects	OLS	Means	Fixed Effects
Independent Variables:						
Foreign Direct Investment	0.42	1.50	0.04	0.54	0.31	0.65
	(4.1)	(2.3)	(0.5)	(2.2)	(0.3)	(3.0)
Portfolio Investment	0.01	-0.01	-0.02	0.11	1.55	0.11
	(0.0)	(0.0)	(0.2)	(0.6)	(0.7)	(1.0)
Other Loans	0.04	-0.18	0.09	0.32	0.84	0.28
	(1.0)	(0.7)	(3.6)	(4.3)	(1.6)	(5.3)
Change in GDP	0.28	-1.06	0.18	0.29	11.51	0.07
	(7.2)	(0.6)	(7.0)	(3.7)	(2.9)	(1.2)
Change in GDP (-1)	0.29	1.49	0.20	0.28	-13.95	0.17
	(6.9)	(0.7)	(7.5)	(3.2)	(2.7)	(2.9)
Change in GDP (-2)	0.37	1.16	0.25	0.46	3.67	0.26
	(9.0)	(1.0)	(9.2)	(5.8)	(1.3)	(4.8)
adj. R^2	0.27	0.39	0.72	0.38	0.60	0.76

Source: Authors' regressions.

The key finding is that inclusion of the accelerator terms significantly reduces the estimated linkage between FDI inflows and investment. The coefficient estimates on capital inflows in the simple regressions (Table 6) appear to have reflected—at least in part—the fact that more rapidly growing economies tend to receive greater inflows, and to have higher investment rates. For LDCs overall, we find **no** effect of additional FDI inflows on investment. For the emerging market sub-sample, the finding is somewhat less pessimistic. The coefficient on FDI drops to 0.65 but is within two standard deviations of unity.

Before examining the links between capital inflows and growth, we note two issues in the investment analysis to be explored in future work. First, capital inflows may be endogenous. However, lack of appropriate instruments makes it very difficult to address this problem. Second, our specifications assume that current capital inflows affect only current investment, and do not allow for any more dynamic relationship between these flows. Preliminary estimates using three-year averages of each

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[16] Note that we maintain the same number of observations, since earlier GDP data are available, although earlier capital inflow data are not. Our results are qualitatively similar whether we include one, two or three lags of GDP growth.

variable are quite similar to the estimates using annual data that are discussed above.

IV. Capital Inflows and Growth

Do countries that receive greater capital inflows grow more rapidly? If so, are some types of capital more beneficial than others? And if so, is the faster growth associated with higher rates of capital accumulation, or with faster total factor productivity (TFP) growth—as one would expect if capital inflows are a means for the diffusion of advanced technology?

A straightforward way to explore the links between capital inflows and growth is simply to add measures of these inflows to the now standard growth regression. This approach regresses average growth rates over a multi-year period on measures of each country's initial conditions, external environment, domestic policy and other characteristics. For example, Borensztein et al. (1998) add a measure of FDI inflows (from OECD countries) to such a growth regression. They find a significant positive correlation with growth—but only for countries with moderate to high levels of human capital. Because of their inability to find a robust relationship between investment rates and FDI inflows, they conclude that the positive correlation with growth comes primarily through beneficial effects of FDI on productivity. However, their methodology provides them with no means to look at capital flows and productivity directly.

This section builds on our previous work in an attempt to answer the questions posed above. We begin by outlining a methodology that enables us to assess whether or not productivity increases are the channel through which capital inflows affect growth. (Readers are referred to Collins and Bosworth (1996) for further discussion and references.) We then turn to the empirical results.

Suppose that a country's aggregate production function can be described as follows:

(3) $Q = A \, K^{\alpha} \, (HL)^{(1-\alpha)}$

where Q is output, K is physical capital, L is labor inputs, H is an index of labor quality, A denotes technology and α is the share of income paid to capital. Then the growth in output per worker (q/l) can be decomposed into the contribution from increases in physical and human capital per worker (k/l and h respectively), and a residual (a) typically identified as TFP growth.[17]

(4) $q/l = [\alpha \, (k/l) + (1-\alpha) \, h] + a$

While equation (4) provides a means to decompose a country's growth into contributions from capital accumulation and from increases in productivity, it is important to note that these are simply proximate sources of growth. This decomposition can not uncover the underlying causes of a country's growth. For instance, it can not reveal whether capital accumulation was induced by technological advances that raised the returns to investment.

To deconstruct growth, we assembled annual data as follows. GDP in national prices is used as the basic measure of real output. We use a perpetual inventory method to construct measures of the capital stock. Estimates of the economically active population (from the International Labor Organization) are used as indicators of labor inputs. Finally, we construct an education-based indicator of human capital that aggregates the proportion of each country's population with different schooling levels. Weights for this aggregation are based on an estimate of the relative wage structure for workers with different amounts of education. In particular, we assume a 7% return to each additional year of schooling. Finally, we assume a uniform capital share of 0.35.

The above assumptions enable us to decompose the growth of 61 developing countries[18] during two

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[17] Any deviation from constant returns to scale in the true production function will be allocated to the residual, which is identified here with TFP.

[18] National accounts data for 1978-95 were unavailable for Sudan, reducing our sample from 62 to 61

sub periods: 1978-1988 and 1989-1995. Table 8 reports summary results of this decomposition. As shown, average annual growth per worker was considerably slower during the earlier time period - even though growth in capital per worker contributed somewhat *more* to output growth. The sluggish output performance, on average, appears to reflect extremely poor factor productivity. Indeed, the residual measure of TFP growth actually detracted from average growth per worker in the "lost decade" of the 1980s. The last two rows of the table show that total capital inflows were slightly lower (as a percent of GDP) in the recent period. However, these totals mask a significant shift in the composition of inflows towards FDI.

Table 8. Means and Standard Deviations of Output Decomposition and Capital Inflows

| | 61 Developing Countries | | | |
| | 1978-88 | | 1989-95 | |
	Mean	Std. Dev.	Mean	Std. Dev.
Growth of output/worker	0.15	(2.60)	0.98	(2.99)
Contribution of:				
Capital/worker	0.94	(1.10)	0.65	(1.21)
Total factor productivity	-0.79	(1.99)	0.21	(1.43)
FDI as % GDP	0.13	(0.32)	0.63	(3.42)
Total Capital Inflows as % GDP	0.68	(1.57)	0.64	(3.76)

Source: Authors' calculations.

Our next step is to regress economic growth on some basic indicators plus measures of capital inflows. We run similar regressions using the contributions of capital per worker, and of TFP as dependent variables. Because these two components sum to total output growth (per worker), we are able to assess whether any explanatory variable effects growth through the capital accumulation channel, the productivity channel, or some combination of the two. Following our earlier work, we use the following right-hand side variables. Initial GDP per capita, average education level, and life expectancy measure initial conditions. The external environment is proxied by the change in and standard deviation of the terms of trade. The budget surplus and standard deviation of the real exchange rate capture domestic policy. Our sample pools the two sub-periods, providing a total of 122 observations.

Results for the growth regressions are reported in Table 9. For the basic equation (with overall growth per worker as the dependent variable), our findings are consistent with the literature. Further, the implications from our decomposition between capital accumulation and TFP seem quite sensible. The negative coefficient associated with initial income per capita reflects the tendency of poorer countries to "catch up" to richer ones. Interestingly, this appears to result from faster productivity growth among poorer countries, as one would expect, given the greater potential for diffusion of more advanced technologies. Our results suggest that healthier countries (those with greater life expectancy) tend to accumulate capital more rapidly, while those with higher average education levels tend to assimilate knowledge more rapidly. Countries with more variable terms of trade and more variable real exchange rates tend to grow more slowly, with both types of instability hindering capital accumulation as well as productivity growth. Finally, larger budget surpluses tend to enhance growth, also working through both channels.

LDCs.

Table 9. Economic Growth and Capital Inflows, OLS Regressions, 61 Non-industrial Countries[a]

| | Dependent variable | | | | | |
| | Growth of output per worker | | Contribution of capital per worker[b] | | Contribution of total factor productivity[c] | |
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variables:						
Initial income per capita[d]	-0.05	-0.04	0.00	0.00	-0.04	-0.04
	(1.9)	(1.8)	(0.0)	(0.0)	(2.8)	(2.6)
Life expectancy[e]	0.05	0.05	0.05	0.05	0.01	0.00
	(1.2)	(1.1)	(2.4)	(2.4)	(0.2)	(0.0)
Years of schooling[f]	0.21	0.20	-0.10	-0.10	0.24	0.23
	(1.0)	(1.0)	(1.1)	(1.1)	(1.8)	(1.8)
Change in terms of trade[g]	0.06	0.05	-0.03	-0.02	0.07	0.06
	(0.6)	(0.5)	(0.7)	(0.5)	(1.2)	(1.0)
Standard deviation of terms of trade[h]	-0.11	-0.11	-0.05	-0.05	-0.06	-0.06
	(2.2)	(2.2)	(2.2)	(2.2)	(2.0)	(2.0)
Budget balance[i]	0.14	0.15	0.04	0.04	0.09	0.10
	(3.1)	(3.2)	(2.2)	(2.1)	(3.2)	(3.4)
Standard deviation of real exchange rate[j]	-0.04	-0.05	-0.02	-0.02	-0.02	-0.03
	(2.3)	(2.6)	(2.2)	(2.0)	(1.9)	(2.4)
Total capital inflows	0.07	…	-0.02	…	0.1	…
	(0.8)		(0.7)		(1.3)	
FDI Inflows	…	0.1	…	-0.03	…	0.1
		(1.4)		(0.7)		(2.0)
adj. R^2	0.33	0.30	0.19	0.19	0.28	0.30

Notes: a. Pooled sample of 61 countries for two time periods, 1978-88 and 1989-95, 122 observations. b. Sum of physical capital per workers and education per worker. c. Growth rate of output per worker less the contribution of capital per worker. d. Percent of U.S. level, 1980. e. Years, 1980, 1990. f. Average for adult population, 1980, 1990. g. Mean of annual log changes (x 100), 1965-92. h. Standard deviation of annual log changes (x 100), 1965-92. i. Average percent of GDP, 1960-92 (period covered begins after 1960 for many countries). j. Standard deviation of annual log changes (x 100), 1960-92.

Source: Authors' regressions. For sources of dependent variables, see text.

The effects of capital inflows are reported in the last rows of the table. While there does not appear to be a significant relationship between *total* capital inflows and growth, or either of its components, inflows of FDI *do* appear to be positively associated with economic growth. In particular, FDI inflows seem to enhance a country's TFP growth, suggesting that such inflows do indeed help to transfer more advanced technologies and other types of "know-how" to developing countries. The coefficient estimate suggests that an additional 1% of GDP in FDI inflows per annum tend to raise TFP enough to add 0.1% to average annual growth. Note that the magnitude of this effect is comparable to the estimated effect of a 1% increase in a country's average annual budget surplus.

V. Concluding Remarks

This paper examines capital inflows to developing countries over the past two decades. Its primary objective is to extend the relatively small empirical literature that assesses whether potential benefits from such inflows are in fact realized. In this final section, we pull together the main conclusions that emerge.

It is useful to highlight two features of data used in the analysis. First, we have chosen to rely on balance of payments data, for our measures of capital inflows. These data now provide information about capital inflows (as well as outflows), disaggregated among FDI, portfolio and other loans. In addition to this decomposition, these data enable us to take advantage of the "adding up" constraints

among different types of international transactions.

Second, our empirical analysis is based on a data set that contains annual information about 62 LDCs during 1978-1995. The panel nature of these data enables us to examine both differences among countries and experiences within countries over time. We show that for some issues of interest, the two perspectives suggest very different conclusions about the role of international capital flows. This implies that studies based on cross-country averages alone may give inappropriate guides to the likely effects of an increase (or decrease) in capital inflows for an individual country. Because we are primarily interested in the implications of capital inflows from an individual country's perspective, our work has emphasized this second dimension.

We begin with an overview of recent trends in capital inflows. This reveals that the widely discussed surge in international capital movements has been less dramatic than often suggested. First, the lion's share of the increase has gone to industrial, not developing, countries. In real terms, the increase in capital flows to LDCs since the late 1980s primarily reflects a return to earlier levels. Flows to these countries as a group amount to roughly the same percentage of GDP in the mid 1990s as they had in the late 1970s. Further, capital inflows are highly concentrated among a small number of countries, frequently labeled the "emerging markets" of Latin America and Asia. These aggregate figures mask a significant shift in the composition of capital inflows, from bank lending towards FDI and portfolio capital. Perhaps surprisingly, we find very little correlation among types of capital inflows, either across countries, or within countries over time. In particular, increased receipts of portfolio capital or bank loans are not associated with increased inflows of FDI.

Our analysis of the benefits from these inflows proceeds in three steps. We first examine the uses of capital inflows, focusing on the extent to which they tend to finance saving investment gaps. We then look directly at the whether inflows are associated with higher investment, and with faster growth.

We find that a relatively small share of capital inflows are "used" to finance the current account. For developing countries overall, this share appears to be only about 20% with nearly two-thirds of the inflow being used to increase foreign reserves, and the remainder going back out through capital outflows (and errors and omissions). Among emerging markets, the percentage of a capital inflow allocated to financing the current account is somewhat higher—but still only around a third. Our analysis does find differences in how various types of capital inflows tend to be used. In particular, a significantly greater share of FDI is used to finance the current account (a full 60% for the sample overall). It is notable that there is no significant relationship between portfolio capital inflows, and the current account. Most of these are either offset through capital outflows or associated with reserve accumulation. Our analysis suggests important differences among countries, however, that warrant further study. It would also be useful to consider the dynamics of these relationships.

Our results also do not suggest that capital inflows provide substantial real benefits by "crowding in" additional investments. Instead, we find a correlation between capital inflows and fixed investment that is significantly less than one. Thus, it appears that, for many countries, a large proportion of investments financed by capital inflows substitute for investments that would have been undertaken in any case. Again, there are significant differences among types of capital inflows. As expected, FDI does have a much larger (and more statistically significant) relationship with investment than either portfolio capital or other loans. Indeed, a simple regression suggests that FDI inflows may raise investment more than one-for-one. We argue that these results are misleading for two reasons. First, they reflect the cross-country correlation between FDI inflows and investment, which is much greater than the correlation within countries over time. In other words, countries that, on average, receive lots of FDI inflows also, on average, have high rates of investment. But an additional dollar of FDI inflow to a particular country seems to generate much less than a dollar in additional investments. Again, emerging markets appear somewhat different from many other LDCs, and for this group, our results suggest much less, if any such substitution—FDI inflows seem to raise investment one-for-one. Second, the estimated effect of FDI inflows on investment

falls significantly when other country characteristics are taken into account. For example, inclusion of current and lagged growth rates, the standard 'accelerator'' terms, eliminates any link between FDI inflows and investment for our total LDC sample, and reduces the correlation to roughly two-thirds for the emerging market sub-sample.

Finally, we explore the links between capital inflows and medium term growth, using cross-country growth regressions. This analysis builds on our previous work, which decomposes growth in output per worker into the contributions from capital accumulation and productivity improvements. Thus, a special feature of our methodology is that we are able to study the channel through which explanatory variables influence growth performance. We view our results from this section as provocative, but preliminary. Essentially, we find no significant evidence that portfolio inflows, bank loans, or capital inflows as a whole raise growth rates—either through their effects on capital accumulation or on productivity. Interestingly, however, our results suggest that FDI inflows do tend to raise a country's rate of output growth, working through their effects on growth in total factor productivity.

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APPENDIX

A1. Country Sample by Regional Grouping

East Asia	Middle East and North Africa	Latin America	Sub-Sahara Africa
China*	Algeria	Argentina*	Cameroon
Indonesia*	Cyprus	Bolivia	Cote d' Ivoire
Korea*	Egypt	Brazil*	Ethiopia
Malaysia*	Iran	Chile*	Ghana
Philippines*	Israel	Columbia*	Kenya
Taiwan*	Jordan	Costa Rica	Madagascar
Thailand*	Malta	Dominican Rep.	Malawi
	Morocco*	Ecuador*	Mali
	Tunisia	El Salvador	Mauritius
South Asia		Guatemala	Mozambique
Bangladesh		Guyana	Nigeria
India*		Haiti	Rwanda
Myanmar		Honduras	Senegal
Pakistan		Jamaica	Sierra Leone
Sri Lanka		Mexico*	South Africa*
		Nicaragua	Sudan
		Paraguay	Tanzania
		Peru*	Uganda
		Trinidad & Tobago	Zambia
		Uruguay	Zimbabwe
		Venezuela*	

Note: * indicates countries contained in the sub-sample of emerging markets.

A2. Concentration of Gross Capital Inflows to Emerging Markets

Billions of US Dollars

	FDI			Portfolio Investment			Other			Total		
	1978-1981	1982-1989	1990-1995	1978-1981	1982-1989	1990-1995	1978-1981	1982-1989	1990-1995	1978-1981	1982-1989	1990-1995
Total	47.8	94.5	210.9	40.1	167.9	470.8	361.6	316.4	381.0	449.6	578.7	1,062.7
Total Non-OECD	10.1	15.1	59.6	2.3	2.4	52.8	63.1	7.4	35.8	75.5	24.9	148.2
Emerging Markets	7.6	13.2	53.9	2.0	1.5	50.6	47.0	6.6	29.4	56.7	21.3	133.9
Emerging Markets /Non-OECD, %	75.3	87.4	90.4	87.0	62.5	95.8	74.5	89.2	82.1	75.1	85.4	90.4
Latin America												
Argentina	0.5	0.5	3.2	0.4	-0.3	8.0	1.4	-1.5	-4.2	2.3	-1.2	7.1
Brazil	2.2	1.6	2.2	0.3	-0.3	13.8	8.4	-6.4	-5.2	10.9	-5.1	10.8
Chile	0.3	0.5	1.5	0.0	0.0	0.5	2.8	-1.5	1.2	3.1	-1.0	3.2
Colombia	0.2	0.5	1.1	0.0	0.0	0.2	1.0	0.9	0.9	1.2	1.5	2.2
Ecuador	0.1	0.1	0.3	0.0	0.0	0.0	0.9	-1.0	-0.4	1.0	-0.9	0.0
Mexico	1.8	2.0	6.1	0.4	-0.1	10.3	11.4	-0.6	3.7	13.6	1.2	20.1
Peru	0.1	0.0	1.0	0.0	0.0	0.2	-0.1	-0.5	-0.4	0.0	-0.5	0.7
Venezuela	0.1	0.1	0.9	0.5	0.2	2.7	2.4	-0.6	-2.3	3.0	-0.3	1.2
Total	5.2	5.4	16.3	1.5	-0.5	35.6	28.3	-11.2	-6.6	35.0	-6.3	45.3
Asia												
China	0.1	1.8	19.4	0.0	0.6	1.5	1.2	2.5	0.8	1.3	5.0	21.7
India	0.0	0.0	0.7	0.0	0.0	1.5	0.7	4.1	3.4	0.7	4.1	5.6
Indonesia	0.2	0.4	2.1	0.1	0.1	1.6	1.2	3.3	2.5	1.4	3.7	6.3
Korea	0.1	0.5	1.0	0.1	0.2	6.0	4.8	-0.5	8.6	5.0	0.2	15.6
Malaysia	0.8	0.9	4.2	0.3	0.5	-0.7	0.4	0.4	2.1	1.5	1.8	5.6
Philipines	0.0	0.3	0.9	0.0	0.1	0.8	2.5	0.5	2.6	2.6	0.8	4.4
Singapore	1.0	2.0	5.7	0.1	0.1	0.8	1.8	2.3	4.6	2.9	4.4	11.1
Taiwan	0.1	0.6	1.2	0.0	0.0	0.5	2.0	3.0	-0.1	2.2	3.6	1.6
Thailand	0.1	0.6	2.0	0.1	0.4	2.1	1.8	1.4	9.8	2.0	2.4	14.0
Total	2.5	7.0	37.1	0.7	2.1	14.1	16.5	16.9	34.5	19.7	26.0	85.7
Africa												
Morocco	0.0	0.6	0.4	0.0	0.0	0.0	1.6	0.7	0.7	1.6	1.3	1.1
South Africa	-0.1	0.1	0.1	-0.2	-0.1	0.8	0.7	0.2	0.9	0.4	0.2	1.8

Source: Morgan Guaranty's list of emerging market economies.