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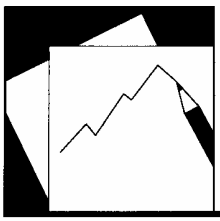

IMF Working Paper

A Global Perspective on External Positions

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A Global Perspective on External Positions

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Abstract

This paper highlights the increased dispersion in net external positions in recent years, particularly among industrial countries. It provides a simple accounting framework that disentangles the factors driving the accumulation of external assets and liabilities (such as trade imbalances, investment income flows, and capital gains) for major external creditors and debtors. It also examines the factors driving the foreign asset portfolio of international investors, with a special focus on the weight of U.S. liabilities in the rest of the world's stock of external assets. Finally, it relates the empirical evidence to the current debate about the roles of portfolio balance effects and exchange rate adjustment in shaping the external adjustment process.

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I. INTRODUCTION

It is a basic accounting identity in international economics that the sum of external balances (whether for stock or flow positions) must add to zero: for every debtor, there must be a creditor counter-party in the system.[2] Although much can be learned by examining the external positions of individual countries in isolation, this fundamental insight suggests that a comprehensive understanding of external imbalances can only be achieved by taking a global perspective that recognizes the asymmetric interdependence between creditor and debtor nations.[3]

A global perspective is also warranted by a second consideration—the growing level of cross-border integration in financial markets.[4] An important consequence of financial globalization is that countries are exposed to asset price movements in other countries even if net balances are zero, with the degree of exposure an increasing function of the scale of gross cross-border asset trade. However, the structure of international balance sheets radically differs across countries along dimensions such as the mix of equity and debt, currency composition, maturity structures, and liquidity. This means that shifts in the relative prices of different assets have implications for the dynamics of external balances, since individual countries have variable exposures to specific assets and hence experience asymmetric "valuation effects" from fluctuations in the financial terms of trade. Moreover, imperfect integration in goods markets means that the macroeconomic implications of even common asset price movements may be asymmetric across countries, since real exchange rate movements drive a wedge between domestic and foreign real returns.

Accordingly, our goal in this paper is to develop an empirical analysis of the dynamics of external positions that takes into account the global interdependencies generated by net imbalances and the asymmetries in external capital structures. We are able to make progress on this issue by exploiting a revised and extended database on the foreign assets and liabilities held by a large number of countries over 1970–2003 (see Lane and Milesi-Ferretti 2005b for a description), with an update to 2004 for most G-7 countries. This database allows us to trace out the dynamics of external positions for major creditor and debtor nations and identify the relative contributions of trade balances and valuation effects in generating and correcting external imbalances.

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[2] It is well known that this adding-up condition is wildly violated in the data, mainly due to endemic under-reporting of foreign assets by many countries.

[3] The global nature of external imbalances is a mainstay of academic research in this field but not always fully recognized in the policy debate. Bernanke (2005) represents an influential recent exception.

[4] See Lane and Milesi-Ferretti (2001, 2003, 2005a) for our contributions in documenting and analyzing the financial globalization process.

Moreover, our measures of the external stocks of assets and liabilities can be combined with balance of payments data on capital flows to explore the nature of global portfolio adjustment. For instance, we can address such questions as to the determinants of relative rates of return between the United States and other destinations and how international investors re-allocate capital between the United States and other destinations in their foreign asset portfolios in response to shifts in relative rates of returns and their net exposure to the United States.

Last but not least, the stylized facts and evidence provided in the paper can be useful in assessing the relative merits of different views that have been put forward on the causes and consequences of widening global imbalances, which have emphasized factors such as productivity developments, shocks to portfolio preferences, bubbles in asset prices, shifts in fiscal policy, and increased desired saving in emerging markets.

The structure of the rest of the paper is as follows. In Section II, we provide a brief overview of trends in global imbalances over the last decade. Section III lays out an accounting framework that permits a decomposition of the dynamics of net external positions into the underlying contributions of trade balances, rate of return effects and other factors. This section then provides a detailed and up-to-date empirical analysis of the dynamics of external positions for major creditor and debtor nations, with a particular focus on the factors influencing rate of return differentials across countries. Another contribution of this section is to provide a detailed narrative of the role of valuation effects in driving the net external positions of the United States and Japan over the longer span of 1980–2004.

We take a first step in Section IV in analyzing some features of the portfolio of cross-border assets held by foreign investors, with a particular emphasis on understanding fluctuations in the U.S. share in the foreign asset portfolio held by the rest of the world. This section also considers what recent portfolio trends can tell us about the likely future path of capital flows to the United States. Finally, we offer some concluding remarks in section V.

II. TRENDS IN GLOBAL IMBALANCES, 1994–2004

In this section we document the main trends in global imbalances during the last decade. Figure 1 shows the current account balances (scaled by world GDP) for major countries and regions for the period 1994–2004. The picture highlights the substantial deterioration in the U.S. current account balance starting around 1997. This deterioration is mirrored by an improvement in the current account balance of emerging Asia, oil-producing Middle Eastern countries (especially in recent years) and, to a lesser extent, small industrial countries such as Switzerland and Scandinavian countries.[5]

[5] A closer look at the factors underlying current account developments in emerging Asia suggests an interesting dichotomy between China and other East Asian emerging markets. While in China both national saving and domestic investment rose sharply as a ratio of GDP throughout the period, in other emerging Asian economies investment rates fell sharply in the aftermath of the Asian crisis, and explain entirely the current account reversal.

(continued…)

Figure 2 shows the dynamics of the net foreign asset position.[6] The deterioration in the U.S. net foreign asset position until 2002, in line with widening current account deficits, is remarkable, but so is the fact that during 2003 and 2004 U.S. net liabilities have actually declined when scaled by world GDP, despite the large current account deficits. We investigate this issue further in the next section. At the same time, Japan, some small industrial countries, emerging Asia, and Middle-Eastern countries have built up significant creditor positions.

As shown in Figure 3, the cross-country dispersion of net external positions has also increased during the last decade, whether scaled by world GDP or domestic GDP. The increase is sharper for external positions scaled by world GDP, because of the increased liabilities of the United States. The point is reinforced if one examines the size of net holdings of the top 5 creditors and debtors: in 1994 the liabilities of the top debtors (United States, Australia, Canada, Brazil, and Mexico) were 3.5 percent of world GDP, while the assets of the top creditors (Japan, Switzerland, Germany, Taiwan Province of China, and the United Arab Emirates) accounted for 5 percent of world GDP. By 2003, the top-five creditors (Japan, Switzerland, Hong Kong SAR, Taiwan Province of China, and Singapore) had a net balance of 8.2 percent of world GDP and the top-five debtors (United States, Spain, Australia, Brazil, and Mexico) a net balance of -10.3 percent of world GDP.[7]

In previous work (Lane and Milesi-Ferretti (2003, 2005b), we have documented the spectacular growth in gross international asset trade, especially since the mid-1990s. To relate the magnitude of net positions to the size of gross asset trade, we use the Grubel-Lloyd (GL) index as a summary measure, following Obstfeld (2004). The GL index is given by $1-\frac{|A-L|}{A+L}$, where A are external assets and L external liabilities. It takes the value 1 if the net position is zero and only gross cross-border asset trade takes place and the value 0 if asset trade occurs solely to finance net positions.

Figure 4 shows the unweighted-average GL index in our database, as well as the index for G-7 countries, defined as $1-\frac{\sum_i |A_i - L_i|}{\sum_i (A_i + L_i)}$. The unweighted index is clearly trending upwards since the late 1980s, indicating that the growth in gross asset trade has been more dramatic than the increased dispersion in net positions. As for G-7 countries, they have primarily

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[6] The net foreign asset data are from the comprehensive database on international investment positions developed by Lane and Milesi-Ferretti (2005b). Investment position data for 2004 are based on preliminary calculations by the authors.

[7] Even excluding the United States, the 5 other largest debtors accounted for 2.6 percent of world GDP in 1994 and 3.9 percent in 2003.

engaged in gross asset trade, with smaller net positions, as indicated by the absolute values of the index close to unity. Since 1990, the index has first increased sharply with the growth in asset trade, peaking in 1999, and then declined as G-7 net imbalances have widened.

The growth in cross-border asset trade suggests that rates of return on external portfolios may have increased in importance as a driver of external positions, in addition to trade balances. In particular, return differentials between external assets and liabilities—driven by factors such as differences in types of instruments, currency composition, and risk profiles—can potentially exert significant effects on the dynamics of net foreign assets. How important a role have these factors played in explaining the widening dispersion of external imbalances in recent years? We turn to this question in the next section.

III. The Dynamics of External Positions

To explore in more detail the stylized facts described in the previous section, we first provide a simple accounting framework that relates the dynamics of net foreign assets to the trade balance, output growth, rates of return, and real exchange rates. We then use the framework to decompose the factors underlying changes in net foreign asset positions for the largest external creditors and debtors in recent years.

A. An Accounting Framework

The change in the net foreign asset position *B* can be written as follows:

$$B_t - B_{t-1} = CA_t + KG_t + \mathrm{E}_t \tag{1}$$

where B_t is the net foreign asset position, CA_t is the current account balance, KG_t is the capital gain or loss on net foreign assets (equal to the change in stocks minus the underlying flows) and the term E_t includes factors such as capital account transfers (the so-called capital account balance) and errors and omissions that drive a wedge between a country's current account and net inflows of capital. In turn, the current account CA_t equals the sum of the balance on goods, services, and current transfers $BGST_t$ and the investment income balance $i_t^A A_{t-1} - i_t^L L_{t-1}$, where A and L are external assets and liabilities, respectively, and i_t^A, i_t^L are the nominal yields on these assets and liabilities.[8]

Indicating ratios to GDP with lower-case letters, we can express (1) as follows:

$$b_t - b_{t-1} \equiv bgst_t + \frac{i_t^A A_{t-1} - i_t^L L_{t-1} + KG_t}{Y_t} - \frac{g_t + \pi_t}{(1+g_t)(1+\pi_t)} b_{t-1} + \varepsilon_t \tag{2}$$

[8] We incorporate international labor income in the term *BGST*.

where g_t is the growth rate of real GDP, π_t is the inflation rate, and the term ε includes the ratio of capital transfers and errors and omissions to GDP. The second term on the right-hand-side of equation (2) captures the effect of nominal returns on external assets and liabilities on the dynamics of the external position. To see this more clearly, define $kg_t^A (kg_t^L)$ as the ratio of the capital gain on external assets (liabilities), measured in domestic currency, to the outstanding stock of external assets (liabilities) at the beginning of the period, so that $kg_t^A A_{t-1} - kg_t^L L_{t-1} = KG_t$. Then the real rate of return on foreign assets, measured in domestic currency, will equal $r_t^A = \frac{1 + i_t^A + kg_t^A}{1 + \pi_t} - 1$, and an analogous definition will hold for the rate of return on foreign liabilities r_t^L. Using these definitions, we can re-write (2) as follows:[9]

$$b_t - b_{t-1} \equiv bgst_t + \frac{r_t^L - g_t}{1 + g_t} b_{t-1} + \frac{r_t^A - r_t^L}{1 + g_t} a_{t-1} + \varepsilon_t \qquad (3)$$

This framework delivers several important insights. First, the gap between current production and current absorption (i.e. the trade balance) is only one factor in determining the aggregate evolution of the net foreign asset position: the "intrinsic dynamics" of net foreign assets depend on the difference between the rate of return and the growth rate, captured by the second term on the RHS of (3), which is familiar from the standard debt accumulation equation. Second, when rates of return on external assets and liabilities differ, as captured by the last term on the RHS of equation (3), the gross scale of the international balance sheet matters in addition to the net position.

Several factors can account for differences in rates of return between external assets and liabilities.[10] In larger advanced economies, assets tend to be denominated in foreign currency and liabilities mostly in domestic currency. Consequently, an unexpected exchange rate depreciation (not reflected in ex-ante interest differentials) will increase the domestic-currency rate of return on external assets and hence improve the net foreign asset position. In contrast, for emerging markets that are net debtors and whose external liabilities are primarily denominated in foreign currency, a real exchange rate depreciation raises the domestic-currency burden of foreign liabilities. [11] More generally, differential changes in

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[9] The same equation can be written using real rates of return in dollars, rather than domestic currency, using the equivalence $1 + r_t^{\$} = (1 + r_t)(1 + s_t)$ where s_t is the rate of real domestic-currency appreciation vis-à-vis the US dollar.

[10] See also the extended discussion in Lane and Milesi-Ferretti (2005a).

[11] A trend towards a larger share of external liabilities denominated in domestic currency is at play in emerging markets as well, driven in particular by the increased importance of foreign FDI and portfolio equity investment.

asset prices (for example, in stock prices) across countries will tend to drive a wedge between returns on external assets and liabilities. We highlight the quantitative role of these factors in explaining the recent evolution of net external positions in the following section.

B. Recent Evolution: Selected Countries

We can now make use of equations (2) and (3) to show the factors contributing to the evolution of net foreign asset positions for a number of key countries over the past decade. Table 1 uses the decomposition highlighted by equation (2) for large industrial countries/areas for the period 1994-2000, and Table 2 for the period 2001-2004.

During 1994-2000, the U.S. dollar strengthened and stock prices increased sharply in most markets. The current account deficit in the United States started to widen in 1998, but other industrial countries saw no large change in current account balances, with Switzerland continuing to post large current account surpluses and Australia large current account deficits. As was already discussed in the previous section, external imbalances were reduced or reversed in some emerging markets, particularly so in Asia after the 1997 crisis, and from the following year in Latin America.

As shown in Table 1, valuation effects implied some losses for the United States and the United Kingdom during 1994-2000, on account of their strengthening currencies and booming stock markets during this period. Canada experienced large capital gains, in part due to its positive net equity position, which benefited from rapidly rising stock prices.

As for the period 2001-2004, a number of interesting factors emerge from Table 2:

- Despite running substantial trade deficits (close to 5 percent of GDP per year on average), the cumulative increase in the external liabilities of the United States has been only about 1.5 percentage points per year. While growth helped, the lion's share of the difference between the cumulative trade deficits and the deterioration in the net external position is accounted for by large capital gains (over 10 percent of GDP). In addition, despite being a net debtor throughout the period, the United States' net investment income receipts have been positive.

- The picture for Canada and the euro area is in many ways the mirror image of the one for the United States. Despite running trade surpluses during this period, both have seen a deterioration in their external accounts, primarily in light of substantial capital losses.

Tables 1 and 2 highlight the importance of capital gains and losses in driving the dynamics of net foreign asset positions. Accordingly, we probe more deeply the overall impact of rates of return on the dynamics of external positions in Table 3 and 4. The overall effect of returns is easily calculated by combining the capital gains with investment income (columns (4) and (7) in Tables 1 and 2). The Tables also shows the real rate of return (expressed in domestic currency) on external assets and liabilities, as well as financial market factors that can help explain rate of return differentials—namely, the percentage change in the real effective

exchange rate and the differential between stock market price gains overseas and in the domestic economy (both measured in U.S. dollars).

To fix thoughts, consider the following numerical example. Take a country that has net external liabilities of 20 percent of GDP at the beginning of the sample period, and assume that the rate of return on external assets and liabilities is the same, and is equal to 6 percent in nominal terms for the whole 4-year period. In this case, returns would explain a cumulative deterioration in the net external position of around 5 percent (1.2 percent per year).

During the period 1994-2000 (Table 3), all large economies made strong returns on their external portfolios, thanks in particular to booming stock prices. It is interesting to notice that while the United States made some capital losses, in light of the large dollar appreciation and buoyant domestic stock market, it still earned higher returns on its assets than on its liabilities, thanks in particular to the larger weight of equity instruments in its asset portfolio than in its stock of foreign liabilities.

Among countries that benefited from valuation effects during this period, Australia and Canada stand out. These countries enjoyed a hefty positive difference between the return on assets and on liabilities: Australia was helped by the depreciation of its currency, and Canada, as mentioned above, by its positive net equity position.

As already highlighted in Table 2, the U.S. has made substantial capital gains on its net foreign asset position in the period 2001-2004. During these years, as shown in the second column of Table 4, the real effective exchange rate of the dollar has depreciated by 15 percent, and "foreign" stock market prices have increased more rapidly than domestic prices (third column). As a result, rates of return on foreign assets (which are to a considerable extent denominated in foreign currency) have exceeded the rate of return on external liabilities by an average of over 5 percentage points.

Results for Canada and the euro area are the opposite to the U.S. case (with the United Kingdom representing an intermediate case). Both have made capital losses on their external position, both experienced a real appreciation, and both paid out higher returns on their external liabilities than the returns they gained on their external assets.

C. Return Differentials and Capital Gains: Some Historical Evidence

While differences in rates of return on external assets and liabilities are not new, two factors at play in recent years have contributed to make them both more important and more volatile. First, as documented in Lane and Milesi-Ferretti (2003, 2005a), the size of gross external portfolios has grown dramatically, particularly during the past decade. As a result, a given rate of return differential between assets and liabilities has now a much larger effect on the dynamics of the net position, as clearly shown by equation (3). Second, the relative importance of direct investment and portfolio equity investment in international portfolios has increased, and those instruments have on average higher and more volatile returns than debt instruments. We document these stylized facts making use of a longer time series for the United States and Japan.

United States[12]

For the United States, capital gains and losses on external assets and liabilities are driven by stock price fluctuations and currency fluctuations. Since most of the foreign-currency-denominated assets held by U.S. residents are in the form of equity (direct investment and portfolio equity instruments), capital gains and losses are primarily determined by the difference in foreign and domestic stock market performance, measured in U.S. dollars.

Figure 5 plots the evolution of capital gains and losses (defined as the difference between the net external position and cumulative capital flows) together with the real effective exchange rate of the dollar, for the period 1980-2004. While in certain periods the correlation between capital gains and the real exchange rate is clearly very strong, the data suggest a more nuanced view.

- During the period 1983-1989, the co-movement between the real exchange rate and capital gains was very strong. In particular, the United States made substantial capital gains on its external position between end-1984 and end-1988 (around 7 percent of GDP), thanks to two factors. First, the impact of the sharp real effective depreciation (over 30 percent) on the dollar value of foreign assets, particularly foreign direct investment. And second, the strong increase in foreign stock prices, above and beyond what can be explained by the dollar depreciation.[13]

- During 1988-1992, the U.S. made capital losses on its external position of around 3 percent of GDP.[14] This time the real exchange rate was broadly flat. However, stock market performance diverged strongly: U.S. markets increased sharply, while foreign markets—particularly Japan—declined. Therefore, capital gains were driven by asset prices, rather than exchange rates.

- During 1992-1994, the exchange rate was again broadly flat, while there was a major net capital gain (7.5 percent of GDP), arising from the strong performance of non-U.S. stock markets (up almost 40 percent) relative to the U.S. stock market (up 6 percent).

- During the period 1994-2001, the real appreciation of the U.S. dollar and the stronger performance of U.S. stock markets relative to overseas markets implied capital losses on external asset holdings totaling 5 percent of GDP.

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[12] See Tille (2003) for an interesting study of valuation effects during the period 1990-2002.

[13] It is striking that these gains accrued with equity holdings abroad totaling only 8 percent of GDP at end-1984. At end-2004, equity holdings abroad amounted to 50 percent of GDP.

[14] Losses may actually be understated in the data, because likely underestimation of portfolio equity outflows suggests very large capital gains on U.S. foreign equity holdings, despite very weak stock market performance outside the United States. See Thomas et al (2004).

- Finally, during 2002-2004 the weakening dollar and stronger stock market performance overseas with respect to the United States generated capital gains for the U.S. amounting to over 12 percent of GDP.

In sum, over the period the United States has enjoyed nontrivial capital gains on its external asset holdings, albeit with considerable fluctuations from period to period. This effect is in addition to the well-documented positive differential between the yield on U.S. assets and the one on U.S. liabilities, and has implied that the U.S. has enjoyed a large positive rate of return differential between its overseas holdings and its liabilities.

Japan

For Japan, capital gains and losses on their external equity portfolio depend on asset prices in equity markets, while gains and losses on the debt portfolio depend particularly on exchange rate fluctuations, as the currency composition of domestic liabilities is more skewed towards yen denomination than the currency composition of their debt assets.

During the second half of the 1980s Japan's real appreciation and run-up in stock prices implied capital losses on their net external position (Figure 6), while during the mid-1990s Japan did not experience sizable net capital gains or losses on its external position. A sizable "cycle" in capital gains and losses started in 1999, with significant losses driven by the equity portfolio—liabilities increased in value substantially, with booming domestic stock prices. These losses were reversed since, driven by gains on the equity portfolio during 2000-2001 (as Japanese stock price plummeted faster than world stock prices), and by gains on debt instruments following the yen depreciation over the next 3 years.

Rates of return for major countries

Table 5 puts together capital gains and investment income data, showing the rates of return on external assets and liabilities, broken down by international financial instrument, for the last 10 years. Care should be exercised in comparing returns across countries, particularly so since some countries (like the United States) measure foreign direct investment at market value, while others (like the euro area) measure investment at book value.[15] Nevertheless, Table 5 contains some useful and interesting stylized facts.

- The share of equity instruments in total external assets and liabilities differs sharply across major financial centers; for example, the 2004 share of equity assets in the U.S. external portfolio is close to 60 percent, compared to under 20 percent in Japan.

[15] Ceteris paribus, returns measured at market value will be higher than returns at book value during stock market booms (for example, the periods 1994-1999 and 2003-2004) and lower during periods of stock market declines (such as 2000-2001). Another potential problem in measuring returns on foreign direct investment is the distortion created by tax-driven transfer pricing practices.

- During the last decade, the United States earned a higher rate of return on its assets than on its liabilities, except for the period 2000-2001.[16] In general, the favorable return differential is associated with the 'equity premium', together with the higher weight of equities in total assets than in total liabilities.

- Japan has instead earned lower returns on its assets than on its liabilities, with the exception of the period 2000-2001.

- Rates of return on assets and liabilities for the United Kingdom have been lower than for the United States, primarily on account of the lower share of equities in the United Kingdom's external portfolio.

D. Summary and Discussion

The evidence in this section has highlighted that the distribution of net external positions has widened in recent years. Moreover, with financial globalization, the dynamics of positions has become heavily influenced by factors other than accumulated current account balances. A striking illustration is provided by the contrasting fortunes of the U.S. and Canada during 2001-2004: both countries experienced virtually identical declines in their net foreign asset positions (5.8 percent and 5.7 percent respectively), even though the U.S. ran a cumulative trade deficit of 19.8 percent of GDP, while Canada ran a cumulative trade surplus of 18.5 percent of GDP during this period.

The wealth effects associated with capital gains and losses on international positions are imperfectly understood (Obstfeld 2004). Clearly, sharp distinctions must be drawn between valuation shocks that benefit both home and foreign investors (such as an improvement in domestic asset returns) versus those that inevitably generate asymmetries (such as the valuation effects induced by shifts in exchange rates): external valuation effects should not be viewed in isolation from aggregate (domestic and foreign) wealth dynamics.[17] Indeed, valuation effects at times simply reflect risk sharing: if a country's economic prospects improve, the value of capital will go up, and part of the benefit accrues to foreign owners of domestic capital.

Some recent contributions have attempted to incorporate international valuation effects into analyses of external adjustment (Blanchard, Giavazzi and Sa 2005, Cline 2005, Corsets and

[16] The same result holds for the previous decade. The U.S. made earned higher returns on assets in 1980-84 (3 percentage points), 1985-89 (7 percentage points), and 1990-94 (4 percentage points).

[17] Ideally, it would be desirable to express external positions relative to measures of wealth rather than GDP. However, good measures of domestic wealth are not widely available and most proxies are highly correlated with GDP.

Konstantinou 2005, Edwards 2005, Gourinchas and Rey 2005, International Monetary Fund 2005, Obstfeld and Rogoff 2005, and Roubini and Setser 2005) and quantitative models of monetary policy (Benigno 2001 and Tille 2005). It is widely recognized in this literature that the portfolio behavior of international investors is a critical element in understanding the macroeconomic impact of valuation shocks.[18] Accordingly, in the next section, we conduct a preliminary investigation of the dynamics of international portfolios, with a special focus on the distribution of foreign asset holdings between the U.S. and other destinations.

IV. GLOBAL PORTFOLIO DYNAMICS

In the previous section, a recurrent theme has been that the growth in cross-border investment positions has increased the importance of valuation effects in determining the evolution of net foreign assets. There has also been some speculation that financial globalization has also increased the sustainability of external imbalances, in line with an increased capacity of the global investor pool to absorb the liabilities issued by individual countries (Greenspan 2005).

In this section, we probe this claim by investigating the relations among rate of return differentials, portfolio holdings, capital flows and net foreign asset positions. In particular, we focus on the dynamics of the U.S. share in the aggregate cross-border financial holdings of foreign investors. Finally, we discuss whether there are indications that the capacity of the rest of the world to absorb U.S. liabilities is diminishing.

A. Recent Trends

Figure 7 shows the importance of U.S. external liabilities in total and in various asset categories relative to the rest of the world's holdings of foreign assets.

In terms of total holdings, the early 1980s represents an earlier phase of rapid growth in U.S. prominence in the foreign portfolios of the rest of the world, growing from 19.3 percent in 1980 to 28.3 percent in 1985. There was a subsequent reversal during 1986-1990, with the 1985 peak only being surpassed in 1996. The late 1990s saw a rapid increase in the U.S. share, peaking at 34.9 percent in 1999. Recent years have seen a substantial decline: the share of the U.S. in the total foreign assets held by the rest of the world had decreased to 26.2 percent in 2003. The decline has been even more spectacular for the equity category: the U.S. share has fallen from 51.2 percent in 1998 to 29.7 percent in 2003. The smallest decline has been in the debt category, falling from a 2001 peak of 27.8 percent to 24.1 percent in 2003. [19]

[18] These authors generally build on the earlier portfolio-balance literature developed by Henderson and Rogoff (1982) and Kouri (1983), amongst others.

[19] The International Monetary Fund's Coordinated Portfolio Investment Survey provides an alternative source of information on the US share in international portfolios. Excluding offshore centers, the 2003 US share in the total portfolio holdings of the rest of the world amounted to 21.7 percent. For individual asset categories, the shares for portfolio equity,

(continued…)

Of course, the recent decline in part has to do with the decline in the value of U.S. assets in recent years, between the asset price reversal in U.S. equity markets and the depreciation of the dollar since 2001. It also reflects an acceleration in the scale of cross-border asset trade among other country pairs in recent years (for instance, growing cross-border trade within Europe and within the emerging market grouping), such that the U.S. matters less than it previously did as a financial trading partner.

Figure 8 provides a complementary perspective by showing the evolution of the net external position of the U.S. (scaled by U.S. GDP): in recent years, the trend increase in net portfolio debt has accelerated, while its traditional net positive position in equity has re-emerged, after the temporary decline in this category in the late 1990s (in fact, the net equity position was only negative in one year – 2001).

B. An Analysis of Portfolio Dynamics

Next, we examine the underlying factors driving the evolution of the share of U.S. assets in the cross-border portfolios of international investors. Define this share by

$$\theta_t = \frac{FA_t^{ROW,US}}{FA_t^{ROW,SUM}} \tag{4}$$

where $FA_t^{ROW,SUM}$ is the total value of cross-border assets held by non-U.S. investors and $FA_t^{ROW,US}$ is the value of the U.S. assets held by non-U.S. investors.[20] This ratio will fluctuate over time in line with shifts in the allocation of capital flows between the U.S. and other destinations and rate of return differentials between the U.S. and other destinations, so that

$$\theta_t = \theta_{t-1}\left[\frac{(1+R_t^{US})+FL_t^{US}}{(1+R_t^{SUM})+FL_t^{SUM}}\right] \tag{5}$$

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long-term debt securities and short-term debt securities were 18.4 percent, 22.4 percent and 32.7 percent respectively.

[20]An increase in foreign holdings of US assets can be attributed to some combination of an increase in the share of foreign assets that is allocated to the US; an increase in the ratio of foreign to total assets of the rest of the world; and an increase in the ratio of total assets to GDP for the rest of the world. Here, we focus on the first component: the share of total cross-border assets that is allocated to the US. As such, we do not here investigate the growth in the aggregate foreign assets held by the rest of the world and its relation to the financial development and international financial integration of these countries.

where rates of return R_t^{US}, R_t^{SUM} are expressed in dollar terms and flows are expressed as a percentage of the accumulated positions $FL_t = FLOW_t / FA_{t-1}$.

Given this partitioning, it is useful to analyze the behavior of relative rates of return and relative capital flows. With respect to the former, we begin by highlighting the key role played by the exchange rate in determining rate of return differentials between the U.S. and the rest of the world. Table 6 reports simple regressions of various relative return indicators on the U.S. multilateral real exchange rate. Using investment position and balance of payments data, we derive rates of return for the U.S. as in the previous section: namely, the rate of return in a given category is the sum of investment income plus capital gains, divided by the accumulated asset position. For rates of return in the rest of the world, we use market-based indicators, based on ex-US global return indices for stocks and bonds.[21] As a robustness check, we also examine return indices for U.S. stocks and bonds in addition to the BOP-derived returns. Finally, as a general proxy for economy-wide returns, we also consider the difference between U.S. and global GDP growth rates.

The results are shown in Table 6. With the exceptions of BOP-derived debt returns and relative output growth, the simple regression of relative returns on the real exchange rate is significant in all categories: real appreciation of the dollar increases the return on U.S.-located assets relative to overseas returns.[22]

Although Table 6 contains some useful information, it is desirable to seek the underlying fundamental determinants of changes in real exchange rates and other factors driving return differentials. In particular, we are interested in knowing whether the outstanding portfolio positions influences these return factors. According to the portfolio balance literature, we might expect a negatively-sloped demand schedule for U.S.-issued liabilities – the greater is the share of U.S. assets in the accumulated portfolio, the larger is the risk premium required to hold these assets. On the other side, as has been highlighted by Gourinchas and Rey (2005), the stability of the U.S. net external position is facilitated by a negative relation between outstanding liabilities and returns.

Accordingly, Table 7 regresses these return factors on the lagged level of the U.S. net foreign asset position, the lagged share of U.S. assets in the aggregate cross-border portfolio of foreign investors, and the lagged share of capital flows to the U.S. to aggregate cross-border flows. In order to isolate the exchange rate channel, we first examine the impact of portfolio

[21] The bond and stock return data are from Global Financial Data. The stock return index is used as a proxy for returns on both portfolio equity and FDI; the bond return index is used a proxy for returns in the debt category. A weighted average of stock and bond returns is employed for the return on the aggregate holdings of foreign assets.

[22] Here we employ the trade-weighted real exchange rate. Results were quite similar for a crude portfolio-weighted real exchange rate. That the exchange rate is significant for relative bond returns in row (6) but not relative debt returns in row (2) is consistent with poor measurement of overall returns on non-portfolio debt (e.g. bank loans).

factors on exchange rate behavior; in subsequent regressions for the other return factors, the exchange rate term is held fixed such that these regressions pick up any influence of portfolio factors on other components of these return factors. Accordingly, for these return categories, the specification is

$$(R_t^{US} - R_t^{ROW}) = \alpha + \rho DREER_t^{US} + \beta_1 NFAY_{t-1}^{US} + \beta_2 ST\_SHARE_{t-1}^{US} + \beta_3 FL\_SHARE_{t-1}^{US} + \varepsilon_t \quad (6)$$

where $DREER^{US}$ is the rate of real exchange rate appreciation by the U.S. against its trading partners, $NFAY^{US}$ is the ratio of U.S. net foreign assets to GDP, ST_SHARE^{US} is the share of the U.S. in the rest of the world's total cross-border holdings in that category, and FL_SHARE^{US} is the share of capital flows to the U.S. in the rest of the world's total cross-border capital flows in that category.

A number of striking results emerge from Table 7. First, the exchange rate tends to appreciate, the more positive is the lagged net foreign asset position and the smaller is the lagged share of the U.S. in portfolio flows. This pattern is qualitatively consistent with the Gourinchas-Rey finding: strong capital inflows and a high outstanding net liability position is associated with subsequent real depreciation.[23] Second, the strong influence of exchange rates on return differentials found in Table 6 is confirmed in the broader specifications in columns (2)-(6) of Table 7. Third, the exchange rate channel is not the only route by which the outstanding net foreign asset position influences debt and equity return differentials – again, the pattern is stabilizing, with relative returns on U.S. assets declining (holding fixed the exchange rate) as the net foreign asset position deteriorates.

Moreover, as shown in columns (3) and (5), an increase in the share of the U.S. in lagged equity positions and lagged equity flows is associated with a decline in subsequent relative returns, reinforcing the stabilization pattern. The only evidence in favor of the portfolio-balance argument is that relative bond returns are increasing in the relative size of the U.S. in bond portfolios – but these results are not quite significant and hold constant the exchange rate channel. Finally, it is intriguing to note that an increase in the share of the U.S. in the foreign asset portfolio of foreign investors is associated with an increase in relative output growth in the U.S. (although again this result is only marginally significant).

In summary, the results in Table 7 do not provide much evidence that investors have demanded a risk premium in relative returns in order to absorb increased levels of U.S. liabilities in their portfolios. Rather, there is considerable support for a stabilizing pattern in returns, with returns negatively covarying with portfolio exposures. Of course, these results

[23] The Gourinchas-Rey setup involves identifying unsustainable external positions by examining the co-movement of net exports and the net foreign asset position. Our specification rather takes a 'financial account' perspective by looking at capital flows rather than the trade balance.

may well be specific to this sample period and may not carry over in projecting future returns to the extent that investor attitudes to U.S. liabilities may well shift (or have already shifted).

Our next step is to explore the influence of portfolio factors on relative capital flows. Again, we adopt a portfolio-balance perspective and ask how relative capital flows adjust to lagged returns and the scale of the portfolio exposure to the U.S. We look at both absolute capital flows to the U.S., FL_t^{US} (expressed as a percentage of lagged U.S. liabilities) and capital flows to the U.S. relative to capital flows from the rest of the world to other destinations ($FL_t^{US} - FL_t^{ROW}$). We allow for persistence in flows by including the lagged dependent variable as a regressor.

In addition, we include the lagged three-year moving average of relative returns in the U.S. versus the rest of the world $R_{t-1}^{US} - R_{t-1}^{ROW}$. To the extent that future relative returns are unpredictable, an investor that wishes to maintain a fixed U.S. weight in her international portfolio must offset poor relative returns in one period with a subsequent increase in relative flows. However, lagged returns may also serve as a leading indicator for future returns (with positive or negative sign), such that the sign on this variable in explaining capital flows is not easily tied down.[24]

In order to further capture elements of the portfolio-balance story, we also include the outstanding portfolio position (for absolute capital flows to the U.S., we include the lagged stock of U.S. liabilities relative to U.S. GDP, L_{t-1}^{US}; for the relative flows specification, we include the lagged share of U.S. liabilities in the total foreign asset portfolio of international investors, $ST\_SHARE_{t-1}^{US}$). To the extent that investors wish to maintain stable portfolio shares, we should generally expect that an increase in the portfolio share in one period is associated with a subsequent contraction in relative capital flows.

More formally, the specifications for absolute and relative capital flows are

$$\begin{aligned} FL_t^{US} &= \alpha + \rho FL_{t-1}^{US} + \beta_1 R_{t-1}^{US} + \beta_2 L_{t-1}^{US} + \varepsilon_t \\ \left(FL_t^{US} - FL_t^{ROW}\right) &= \alpha + \rho\left(FL_{t-1}^{US} - FL_{t-1}^{ROW}\right) + \beta_1\left(R_{t-1}^{US} - R_{t-1}^{ROW}\right) + \beta_2 ST\_SHARE_{t-1}^{US} + \varepsilon_t \end{aligned} \tag{7}$$

The results are presented in Table 8. These regressions deliver some striking results. First, the dynamic behavior of capital flows differs substantially across asset categories. While there is significant positive serial correlation for aggregate flows and FDI flows, the pattern

[24]Hau and Rey (2004) provide empirical support for the portfolio-balance model, using monthly data on equity flows, equity returns, and exchange rates. Also using monthly data, Bohn and Tesar (1996) find evidence of return-chasing in the foreign equity purchases of US investors. However, Portes and Rey (2005) do not find evidence of return-chasing in annual data on equity transactions for a sample of 14 advanced countries.

is actually negative for equity flows: all else equal, high equity flows in one period are reversed in the next period.

Second, there is some evidence that lagged returns influence the level of capital flows. For absolute and relative debt flows, an improvement in U.S. relative returns is associated with a subsequent decline in the relative share of the U.S. in debt flows. In contrast, there is some evidence that capital flows are positively influenced by lagged returns for the equity and FDI categories. (However, this is only true for absolute capital flows. Lagged relative returns do not explain the relative share of flows to the U.S. in these categories. It seems as if high relative returns in the U.S. are associated with a generalized increase in capital flows in the equity and FDI categories to the U.S. but also to other destinations.)

Holding fixed return differentials, the evidence on the relation between outstanding portfolio positions and subsequent capital flows is mixed. For absolute and relative capital flows in the FDI category, the results do indicate that a high outstanding U.S. share is associated with a subsequent decline in FDI flows to the US. This is also true for relative flows in the portfolio equity category, even if absolute portfolio equity flows positively co-move with the outstanding level of U.S. portfolio equity liabilities. The outstanding debt position does not influence absolute or relative debt flows to the U.S. In part, this may reflect the role played by central banks in debt flows and the complexity of policy decisions regarding reserve accumulation.

In summary, the results from the non-structural regressions in Table 8 provide some insights into the dynamics of capital flows. The variation in behavior across asset categories is especially striking, with the correlates of capital flows markedly different between debt, portfolio equity and FDI categories. However, our findings are certainly not conclusive regarding the importance of portfolio-balance factors: more detailed investor-level data, plus a structural econometric approach, would be required for a more accurate investigation.

C. Looking to the Future

We conclude this section by examining whether there any indications that the capacity of foreign investors to absorb U.S. liabilities is diminishing.

There are several forces pointing towards a declining appetite for U.S.-issued liabilities. First, as is shown in Figures 9, 10, and 11, the composition of capital flows to the U.S. has shifted in recent years: equity (portfolio and FDI) inflows have dried up, with a much greater reliance on debt inflows than in the late 1990s. This is consistent with the evidence in the previous section to the extent that the decline in equity inflows may be attributed to the lower returns earned by foreign equity investors in the U.S. relative to other major financial centers. An increased dependence on debt flows increases the risk profile of U.S. external liabilities and also leaves the U.S. more vulnerable to sudden shifts in investor sentiment.

Second, within the category of debt flows, there has been a broadly-recognized shift from private to official foreign investors, with foreign central banks emerging as the key marginal purchaser of U.S. debt issues (especially U.S. government debt). We illustrate this in Figure 12: the ratio of official to total debt inflows average 8.8 percent during 1999-2001 and rose to

26.3 percent during 2002-2004 (official flows relative to portfolio debt inflows averaged 17.3 percent during 1999-2001 and 42.6 percent during 2002-2004).[25]

Third, there are strong reasons to believe that the recent rapid pace of reserve accumulation that has been a mainstay of demand for U.S.-issued liabilities will not be sustained. For instance, Figure 13 shows that reserves are at a historic high for the group of developing countries and studies such as IMF (2003) have shown that the recent level of reserves far exceeds that predicted by standard models of optimal reserve holdings. The current policy debate in these countries all point to a reduction in their level of demand for U.S. debt securities via greater currency diversification in reserves, modifications of exchange rate strategies, and an improving climate for domestic investment after several years of post-crisis retrenchment, reform and restructuring.[26]

More generally, the evidence in this paper is that an important reason why the share of U.S. liabilities in the portfolios of foreign investors has been maintained at a relatively stable level (relative to the scale of capital flows to the U.S.) has been the operation of the valuation channel of exchange rate adjustment: increases in portfolio shares have been undone through exchange rate depreciation. As is extensively discussed in Lane and Milesi-Ferretti (2005a), it is not a viable long-run strategy to rely on such valuation gains to ameliorate a structural reliance on net capital inflows. At some point, the vision of the U.S. as a safe haven and natural home for liquid holdings would be undercut by persistent portfolio losses induced by a depreciating currency and/or investors will begin to require more significant risk premia on U.S.-issued liabilities.

Finally, a countervailing factor is that the growth in cross-border asset trade has amplified the importance of rate of return differentials. To the extent that the U.S. does manage to maintain a positive return differential (either due to composition effects or superior performance within given asset categories), the ongoing scaling-up of its international balance sheet progressively increases the gain from this financial transformation process. A simple numerical example helps clarify this point, using U.S. data and equation (3) as a guide. Assume that the net foreign asset position b equals minus 25 percent of GDP, the output growth rate g is 3 percent, the real rate of return on external liabilities r^L is 4 percent (its average level in the U.S. for the past 20 years), and gross foreign assets stand at 80 percent of GDP (roughly their end-2004 level for the U.S.). In this case, with no return differential between external assets and liabilities, a trade deficit of 5 percent of GDP would entail a deterioration of net foreign assets of 5¼ percent of GDP. However, with a positive differential of 300 basis points between returns on assets and on liabilities (its average level

[25] These numbers are lower bounds for the importance of the official sector, since significant official flows take place through indirect transactions. See also Higgins and Klitgaard (2004). Roubini and Setser (2005) make the important additional observation that the maturity structure of U.S. (government) liabilities has shortened considerably in recent years.

[26] It is also understood that Japan has decelerated its official purchases of U.S. assets, ceasing to intervene in the yen-dollar market.

for the period 1990-2004), the net foreign asset position would deteriorate by only 3 percent of GDP—a gain of over 2 percent of GDP with respect to the benchmark case.[27] If gross assets were, say, 110 percent of GDP, the deterioration in net foreign assets would only be 2 percent of GDP—a gain of over 3 percent of GDP. Even a 125 basis point differential at the current level of financial globalization delivers a non-trivial gain of 1 percent of GDP.

Clearly these calculations are purely illustrative, and rely on the assumption that the rate of return differential stay constant as the level of international financial integration increases—the pay-off to an increase in the gross foreign asset position would obviously be smaller, if growth in cross-border holdings were concentrated in those asset categories in which the U.S. return premium is less significant.

V. CONCLUSIONS

This paper has provided wide-ranging empirical evidence on the dynamics of external positions for key creditor and debtor nations. We have highlighted the key role of valuation effects in the recent evolution of external imbalances, which have moved in a stabilizing direction for the world's largest debtor, while other countries have experienced the depressing combination of substantial trade surpluses yet sharp declines in their net external positions. We have also presented some preliminary findings concerning the inter-relations, between relative rates of return, portfolio shares, and international capital flows.

An important message from our work is that the notion that the United States attracts foreign capital because it offers high returns to foreign investors appears, for the years of the new millennium, rather shaky. Our analysis of relative rates of return and capital flows shows that: (i) U.S. residents have consistently earned higher returns on their assets than they pay out on their liabilities; (ii) real dollar returns on foreign investment in the United States have on average been negative over the past 4 years, and even more so when expressed in the currencies of most foreign investor countries; and (iii) since 2000, capital flows to the United States have shifted towards fixed-rate (and low-yield) debt instruments, and away from equities, even during the recovery in stock market performance in 2003–2004. In addition, the recent accumulation of dollar assets by the foreign official sector is unlikely to persist into the indefinite future—a tightening at the margin of external demand for U.S.-issued liabilities is clearly possible, although the timing of this shift is of course highly uncertain.

Finally, the United States has relied on sizable capital gains to stabilize its external position during the past few years. Looking forward, exploiting this channel again would require a continued sizable differential in rates of return between U.S. external assets and liabilities. While some positive differential may well persist, and would play an increasingly important role as long as financial integration increases, logic would suggest that return differentials of

[27] To put it differently, a 300 basis points return differential means that a trade deficit of 2 percent of GDP would be consistent with a stable net foreign asset position, despite the assumption that the return on liabilities is higher than the growth rate.

the order of magnitude of those seen in the past 3 years cannot be sustained for a prolonged period of time—they would likely require persistent dollar depreciation, which would eventually be incorporated in inflation expectations and ex-ante interest rate differentials. Notwithstanding the importance of valuation effects, the current level of U.S. trade deficits cannot be permanently sustained and global adjustment requires the rebalancing of savings and investment flows between the United States and the rest of the world.

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Table 1. Decomposition of change in net foreign assets, 1995-2000

	Initial NFA position (1994)	Change in net foreign assets	Cumulative current account		Other factors		
			Cumulative trade balance	Cumulative investm. Income	KA, EO	Growth effect	K-gains
United States	-3.3	-13.5	-15.9	1.4	0.6	2.7	-2.4
United Kingdom	2.0	-5.7	-10.8	2.8	2.1	2.4	-2.3
France	-4.2	15.1	11.0	0.5	2.6	-0.6	1.5
Germany	9.5	-8.1	-4.4	-0.7	0.8	-0.7	-3.1
Italy	-9.4	11.8	16.8	-6.7	-6.2	1.3	6.5
Canada	-33.6	28.8	20.6	-20.4	6.3	5.5	16.8
Japan	14.4	9.9	6.6	7.3	0.8	-0.5	-4.3
Switzerland	100.3	23.1	9.5	47.7	1.8	-15.3	-20.7
Australia	-65.3	5.1	-7.0	-20.0	1.3	18.5	12.3

Note: The decomposition reflects the one in equation (2) in the text, with all variables scaled by GDP. For example, the cumulative trade balance is equal to the sum of the trade balance to GDP ratio. The column KA, EO indicates the sum of errors and omissions and capital account transfers. See IMF (1993) for a description of these categories.

Table 2. Decomposition of change in net foreign assets, 2001-2004

	Initial NFA (2000)	Change in net foreign assets	Cumulative current account		Other factors		
			Cumulative trade balance	Cumulative inv. income	KA, EO	Growth	K-gains
United States	-16.7	-5.8	-19.8	1.0	-0.9	3.9	10.1
United Kingdom	-3.7	-9.1	-15.3	7.4	0.6	1.0	-2.9
Euro Area	-9.8	-5.6	3.9	-2.3	0.4	1.4	-9.0
Canada	-4.8	-5.7	18.5	-9.7	-1.0	1.7	-15.2
Japan	24.3	14.5	5.0	6.8	-1.2	0.3	3.7
Australia	-52.2	-17.2	-7.5	-11.4	-1.5	14.6	-11.4

Note: The decomposition reflects the one in equation (2) in the text, with all variables scaled by GDP. For example, the cumulative trade balance is equal to the sum of the trade balance to GDP ratio. The column KA, EO indicates the sum of errors and omissions and capital account transfers. See IMF (1993) for a description of these categories.

Table 3. Decomposition of change in net foreign assets, 1995-2000: rates of return

	Initial NFA position (1994)	Rate of return effects	Change in REER	Stock prices (foreign minus domestic)	avg real return on assets	avg real return on liabilities
United States	-3.3	-0.9	26.4	-143.0	8.8	7.9
United Kingdom	2.0	0.5	25.6	10.9	4.7	4.7
France	-4.2	2.1	-9.9	-54.5	11.0	11.0
Germany	9.5	-3.8	-12.6	-4.2	5.4	6.8
Italy	-9.4	-0.2	2.0	-16.5	7.1	6.4
Canada	-33.6	-3.6	-1.4	-41.9	8.0	6.0
Japan	14.4	3.0	-5.1	168.6	7.2	8.2
Switzerland	100.3	27.0	-4.6	-47.2	7.0	8.5
Australia	-65.3	-7.7	-12.9	85.9	11.1	5.7

Note: The decomposition reflects the one in equation (3) in the text. The rate of return effects are given by the sum of investment income and capital gains in Table 2. The change in REER equals the percentage change in the country's real effective exchange rate between end-1994 and end-2000. The stock price column indicates the difference between the percentage increase of foreign stock prices (in dollars) and domestic stock prices (also in dollars). Real rates of return on external assets and liabilities are expressed in domestic currency.

Table 4. Decomposition of change in net foreign assets, 2001-2004: Rates of return

	Initial NFA position (2000)	Rate of return effects	Change in REER	Stock prices (foreign minus domestic)	avg real return on assets	avg real return on liabilities
United States	-16.7	11.1	-14.8	11.6	4.8	-0.4
United Kingdom	-3.7	4.6	1.6	-6.3	0.1	-0.4
Euro Area	-9.8	-11.3	31.5	4.4	-2.7	-0.5
Canada	-4.8	-24.9	16.0	-27.8	-5.3	0.5
Japan	24.3	10.5	-16.8	-0.6	5.9	5.0
Australia	-52.2	-22.8	23.8	-81.1	1.7	3.3

Note: The decomposition reflects the one in equation (3) in the text. The rate of return effects are given by the sum of investment income and capital gains in Table 2. The change in REER equals the percentage change in the country's real effective exchange rate between end-2000 and end-2004. The stock price column indicates the difference between the percentage increase of foreign stock prices (in dollars) and domestic stock prices (also in dollars). Real rates of return on external assets and liabilities are expressed in domestic currency.

Table 5. Real domestic-currency returns on external assets and liabilities

	Asset returns			Share of equity in total assets	Returns on liabilities			Share of equity in total liabilities
	Total	Equity	Debt		Total	Equity	Debt	
United States								
1995-1999	11.8	17.8	3.5	59	10.5	22.9	2.4	42
2000-2001	-7.9	-14.4	3.5	60	-4.9	-13.3	3.9	47
2002-2004	9.6	13.7	6.1	56	0.9	3.8	0.3	38
Japan								
1995-1999	6.2	3.1	1.9	29	10.1	22.1	-0.4	20
2000-2001	13.7	6.8	10.2	40	0.7	-24.4	3.2	29
2002-2004	2.8	-1.7	1.3	33	5.8	8.7	-2.2	26
United Kingdom								
1995-1999	4.8	11.3	2.4	28	5.4	16.0	2.5	24
2000-2001	1.7	-1.6	3.5	33	0.4	-5.5	3.2	29
2002-2004	0.4	3.6	-0.9	30	-0.3	0.4	-0.3	23
Euro area								
1995-1999								
2000-2001	0.7	-5.8	5.1	32	0.6	-5.8	4.9	45
2002-2004	-4.2	-2.2	-5.7	38	-1.0	4.0	-2.9	45

Note: returns are constructed as the sum of investment income and capital gains, divided by the stock of outstanding assets or liabilities at the end of the previous year. Capital gains in year *t* are given by the difference between the change in the stock of assets and liabilities between end-year *t* and year *t*-1, minus the asset or liability flow during year *t*. They are deflated by the domestic consumer price index.

Table 6. Rate of Return Differentials and The Real Exchange Rate

	Return differential	D(REER)		Adj. R^2	Obs	DW
(1)	Aggregate	0.35	(3.84)***	0.18	24	2.18
(2)	Debt	0.15	(1.35)	0.09	18	1.85
(3)	Portfolio equity	1.45	(2.95)***	0.24	18	1.94
(4)	FDI	0.77	(2.8) ***	0.23	24	1.42
(5)	Stocks (US minus ROW)	1.46	(3.12)***	0.31	24	1.39
(6)	Bonds (US minus ROW)	0.71	(2.96)***	0.27	24	2.32
(7)	Growth differ. (US minus ROW)	0.02	(.49)	-0.04	24	1.57

Note: The dependent variable is the differential between the rate of return on assets held by nonresidents in the U.S. and the rate of return in the rest of the world. The explanatory variable is the rate of appreciation of the U.S. real effective exchange rate. Estimation by OLS, with t-statistics calculated using Newey-West standard errors in parenthesis. See text for definitions of variables. ***,**,* denote significance at the 1, 5 and 10 percent levels respectively.

Table 7. Real Exchange Rate, Rate of Return Differentials, and Portfolio Factors

	(1) $DREER^{US}$	(2) Debt return differential	(3) Equity return differential	(4) FDI return differential	(5) Stocks return differential	(6) Bonds return differential	(7) Growth differential
$DREER^{US}$		0.78 (13.8)***	0.5 (2.04)*	0.76 (2.6) **	1.33 (5.5) ***	0.78 (3.1)***	0.05 (1.1)
$NFAY_{t-1}^{US}$	0.51 (1.92)*	0.23 (2.78)**	0.83 (5.3)***	0.47 (1.1)	0.9 (2.75) **	0.58 (1.63)	-0.01 (.09)
$ST\_SHARE_{t-1}^{US}$	-0.34 (.39)	0.27 (.88)	-1.11 (4.6)***	-0.45 (.96)	-0.78 (4.7)***	1.43 (1.62)	0.19 (1.79)*
$FL\_SHARE_{t-1}^{US}$	-0.85 (1.82)*	-0.15 (.94)	-0.02 (1.52)	-0.47 (.94)	0.03 (2.35)**	-0.7 (1.4)	0.13 (1.3)
Adjusted R^2	0.24	0.8	0.55	0.16	0.54	0.27	-0.02
Observations	22	18	18	23	23	23	23
DW	1.55	2.33	1.71	1.81	1.79	2.5	1.79

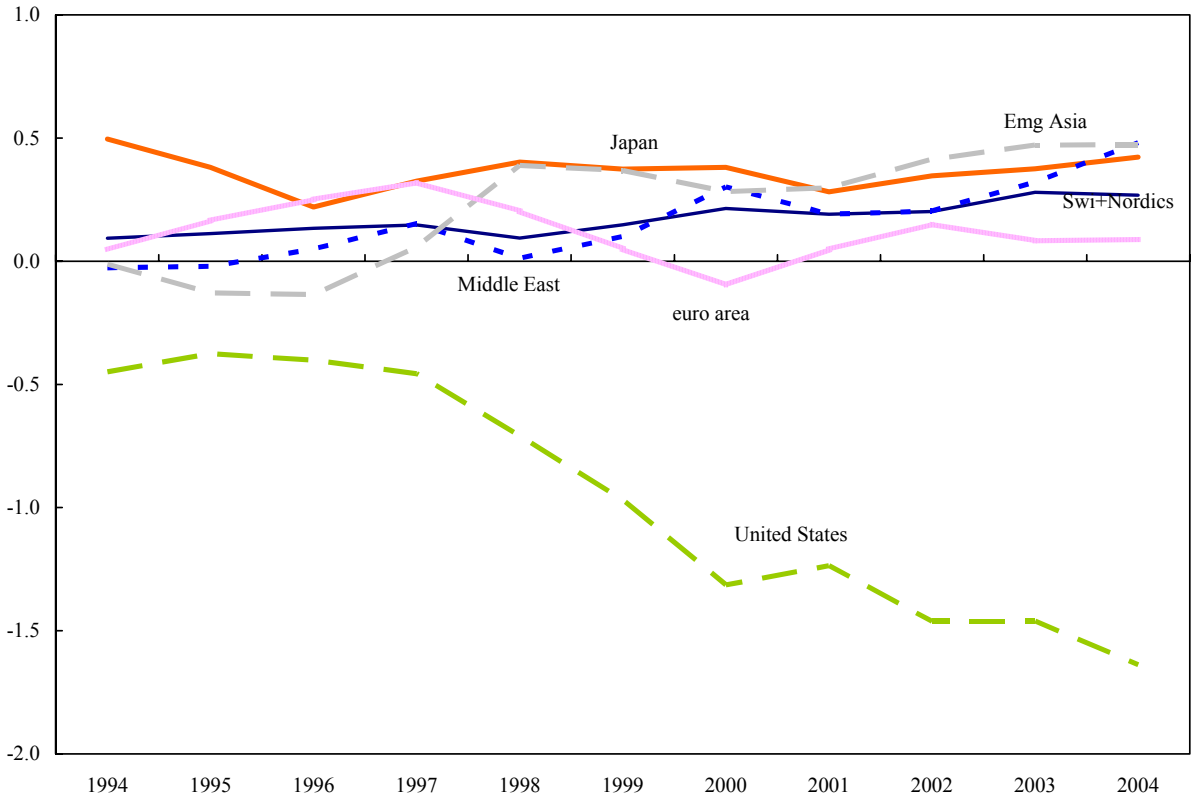
Note: In Column (1) the dependent variable is the percentage change in the U.S. real effective exchange rate. In Columns (2)-(4), the dependent variable is the difference between the rate of return on assets held in the U.S. by foreign investors and the rate of return on other cross-border assets held by foreign investors. In Column (5) ((6)) the dependent variable is the difference between equity (debt) returns in the U.S. and in the rest of the world. In Column (7) the dependent variable is the difference between the growth rate in the U.S. and the rest of the world. RHS variables are defined as follows: $DREER^{US}$ is the rate of U.S. real appreciation vis-à-vis its trading partners, $NFAY^{US}$ is the ratio of U.S. net foreign assets to GDP, ST_SHARE^{US} is the share of the U.S. in the rest of the world's total cross-border holdings in the asset category being considered, and FL_SHARE^{US} is the share of capital flows to the U.S. in the rest of the world's total cross-border capital flows in the asset category being considered. Estimation by OLS, with t-statistics calculated using Newey-West standard errors. The regression in column (1) also includes an AR(1) correction. ***,**,* denote significance at the 1, 5 and 10 percent levels respectively.

Table 8. Capital Flows and Portfolio Factors

	(1) All flows To the U.S.	(2) All flows To U.S. relative to ROW	(3) Debt flows To the U.S.	(4) Debt flows To U.S. relative to ROW	(5) Equity flows To the U.S.	(6) Equity flows To U.S. relative to ROW	(7) FDI flows To the U.S.	(8) FDI flows To U.S. relative to ROW
Lagged Dep. Var.	0.54 (3.0)***	0.61 (3.0) ***	0.24 (1.53)	0.3 (1.45)	-0.83 (5.26)***	-0.53 (2.11)*	0.58 (4.4)***	0.36 (1.99)*
Lagged returns	-0.06 (.32)	-0.02 (.4)	-1.44 (3.56)***	0.09 (.34)	0.16 (4.93)***	0.11 (.09)	0.17 (2.77)**	-0.06 (.6)
L_{t-1}^{US}	0.11 (1.11)		-0.09 (.8)		1.14 (5.75)***		-0.19 (2.42)**	
$ST\_SHARE_{t-1}^{US}$		-0.18 (.61)		-0.23 (.63)		-9.38 (3.4)***		-0.2 (1.82)*
Adjusted R^2	0.33	0.52	0.37	-0.14	0.67	0.2	0.55	0.33
Observations	18	21	15	15	15	15	21	21
DW	1.62	1.64	1.92	1.3	1.87	1.93	1.9	1.99

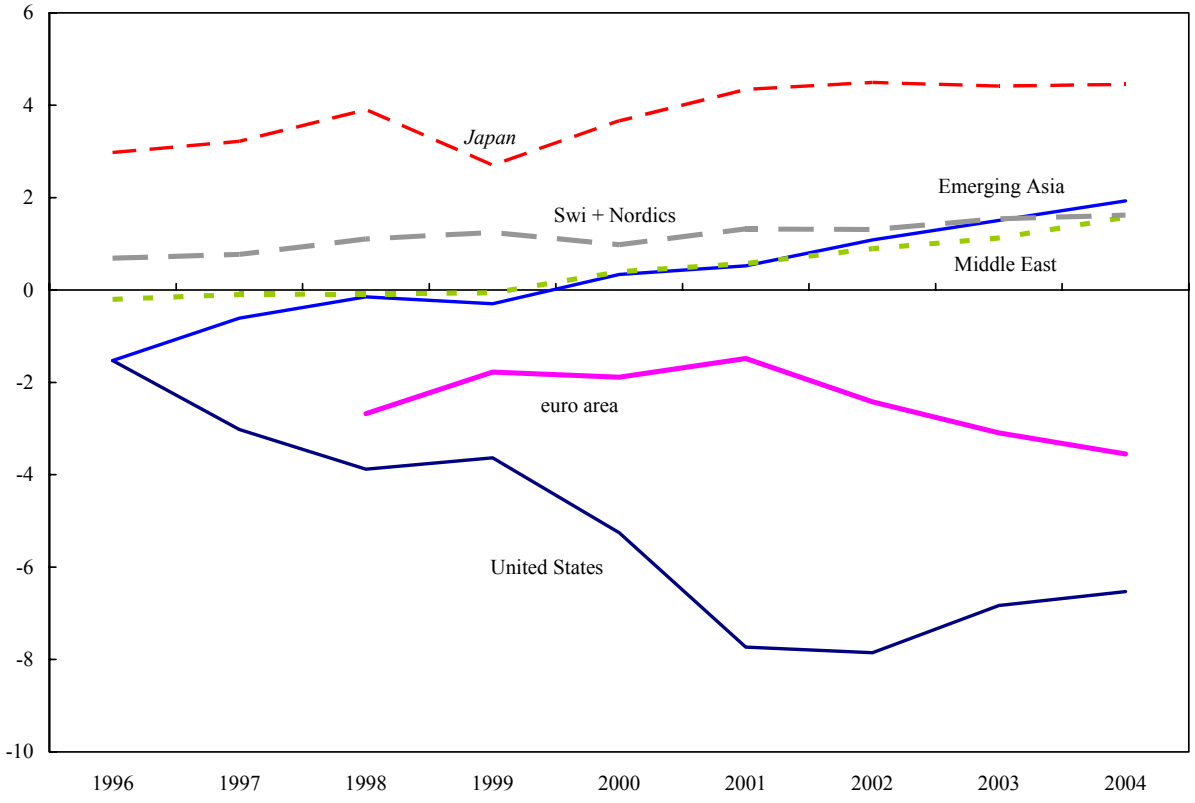
Note: Estimation by OLS, with t-statistics calculated using Newey-West standard errors. In columns (1), (3), (5), and (7) the dependent variable is capital flows to the U.S. in the respective category, scaled by outstanding U.S. liabilities. In the remaining columns, the dependent variable is the difference between capital flows to the U.S. and capital flows to other destinations, scaled by the respective size of outstanding liabilities. As for RHS variables, lagged returns are returns on U.S. external liabilities for columns (1), (3), (5), and (7), and the return differential between the U.S. and the ROW for columns (2), (4), (6), (8). L_{t-1} is the outstanding stock of U.S. external liabilities in the category being considered, scaled by GDP, and ST_SHARE^{US} is the share of the U.S. in the rest of the world's total cross-border holdings in the asset category being considered. ***,**,* denote significance at the 1, 5 and 10 percent levels respectively.

Figure 1. Current account balances (percent of world GDP)



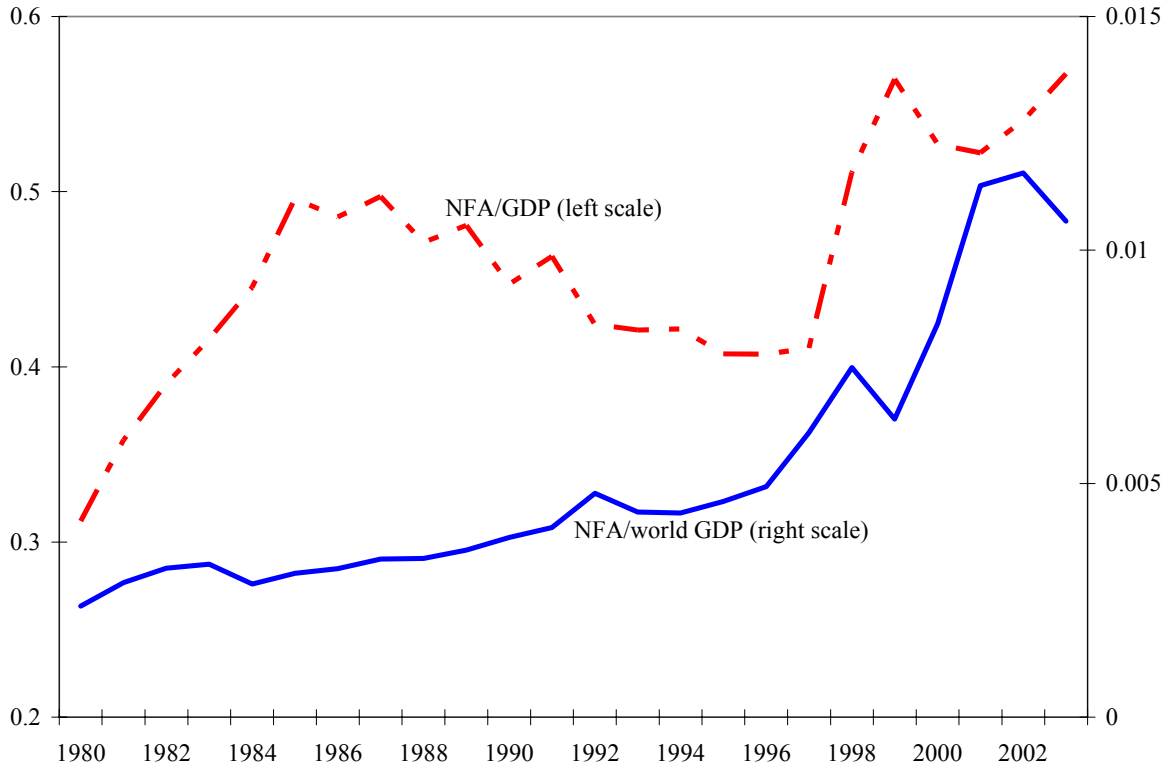
Note: the emerging Asia group includes China, Hong Kong SAR, Taiwan Province of China, Korea, Malaysia, Singapore, and Thailand. The Swi + Nordics group includes Norway, Sweden, and Switzerland. The Middle East group includes Algeria, Bahrain, Egypt, Iran, Jordan, Kuwait, Libya, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, and Yemen.

Figure 2. Net foreign assets (percent of world GDP)



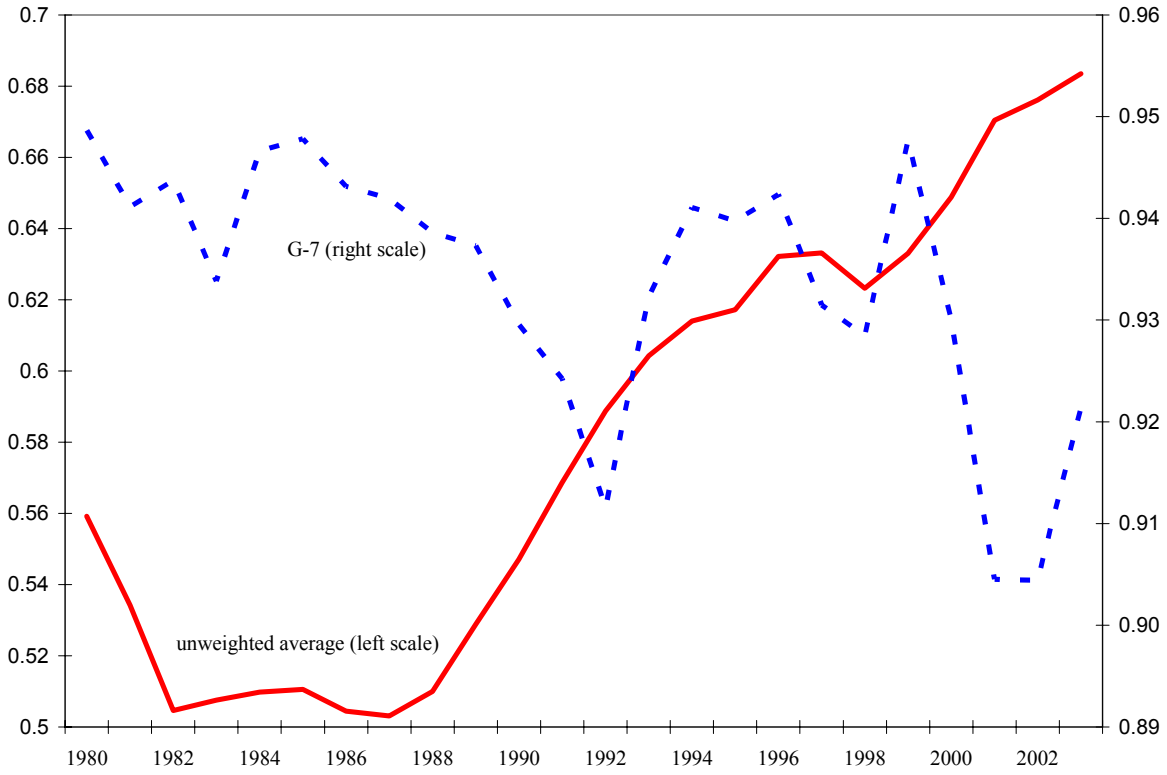
Note: the emerging Asia group includes China, Hong Kong SAR, Taiwan Province of China, Korea, Malaysia, Singapore, and Thailand. The Swi + Nordics group includes Norway, Sweden, and Switzerland. The Middle East group includes Algeria, Bahrain, Egypt, Iran, Jordan, Kuwait, Libya, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, and Yemen.

Figure 3. Standard deviation of net foreign assets across countries, 1980-2003



Note: the dashed line plots the standard deviation in the ratio of net foreign assets to GDP and the solid line the standard deviation in the ratio of net foreign assets to domestic GDP for a large set of industrial countries and emerging markets. The samples excludes transition economies 9for which data are available only since the early 1990s) and extreme outliers such as small financial centers, with net financial positions equal to multiples of GDP.

Figure 4. Grubel-Lloyd index (G-7 and cross-country average)



Note: see Section II for a description of the construction of the Grubel-Lloyd index.

Figure 5. United States: capital gains and the real exchange rate, 1980-2004

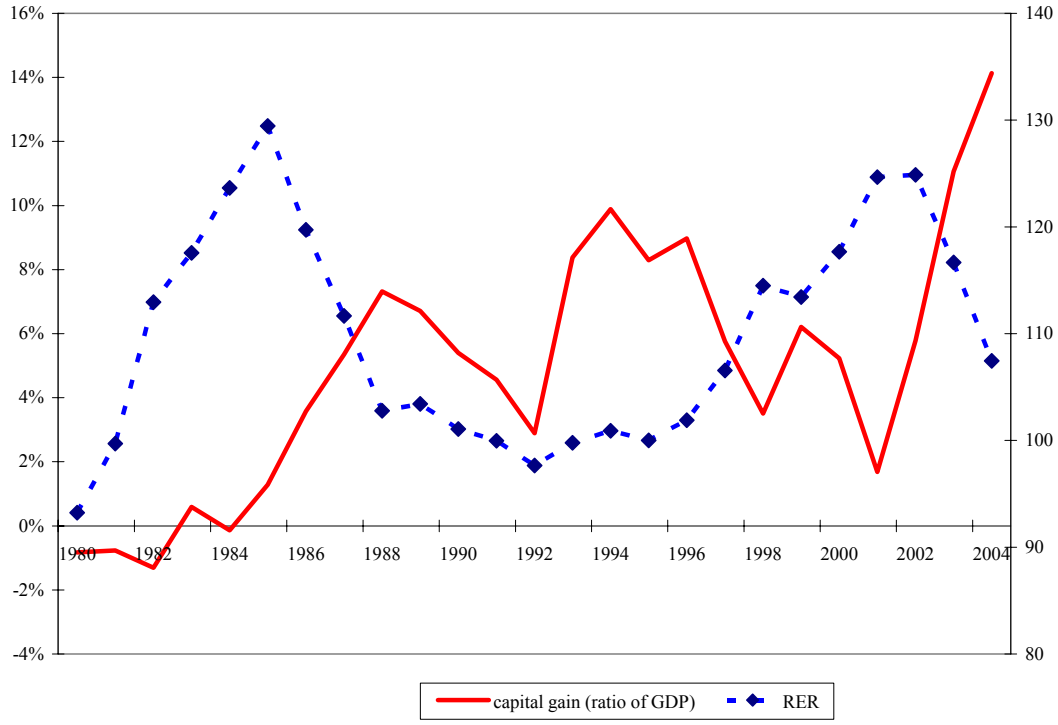
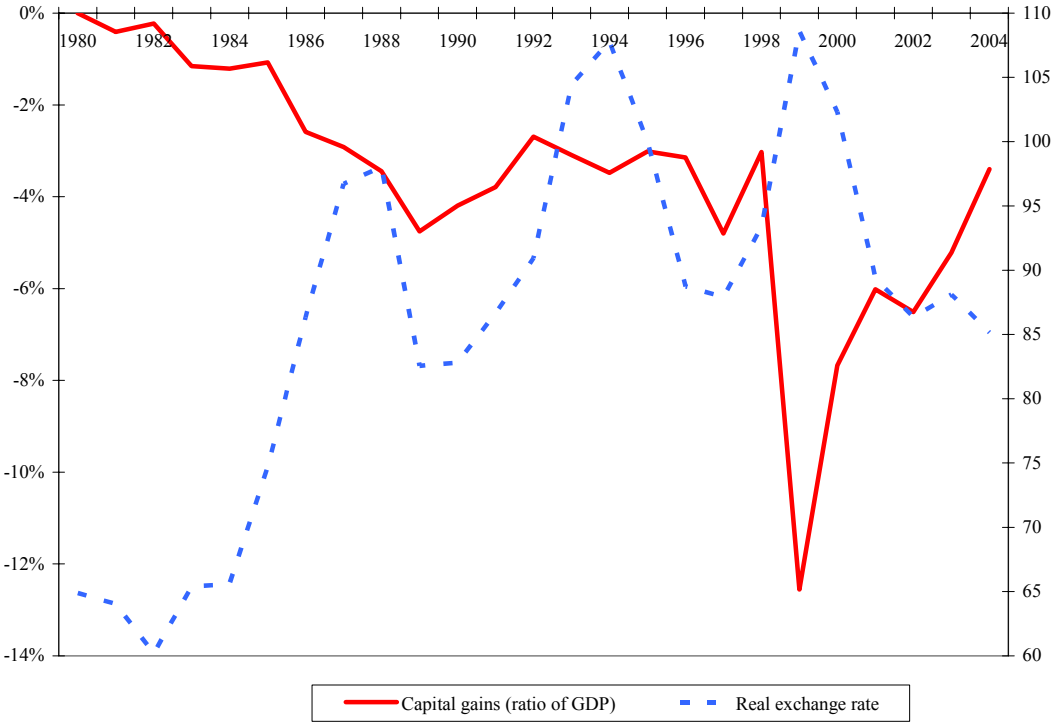
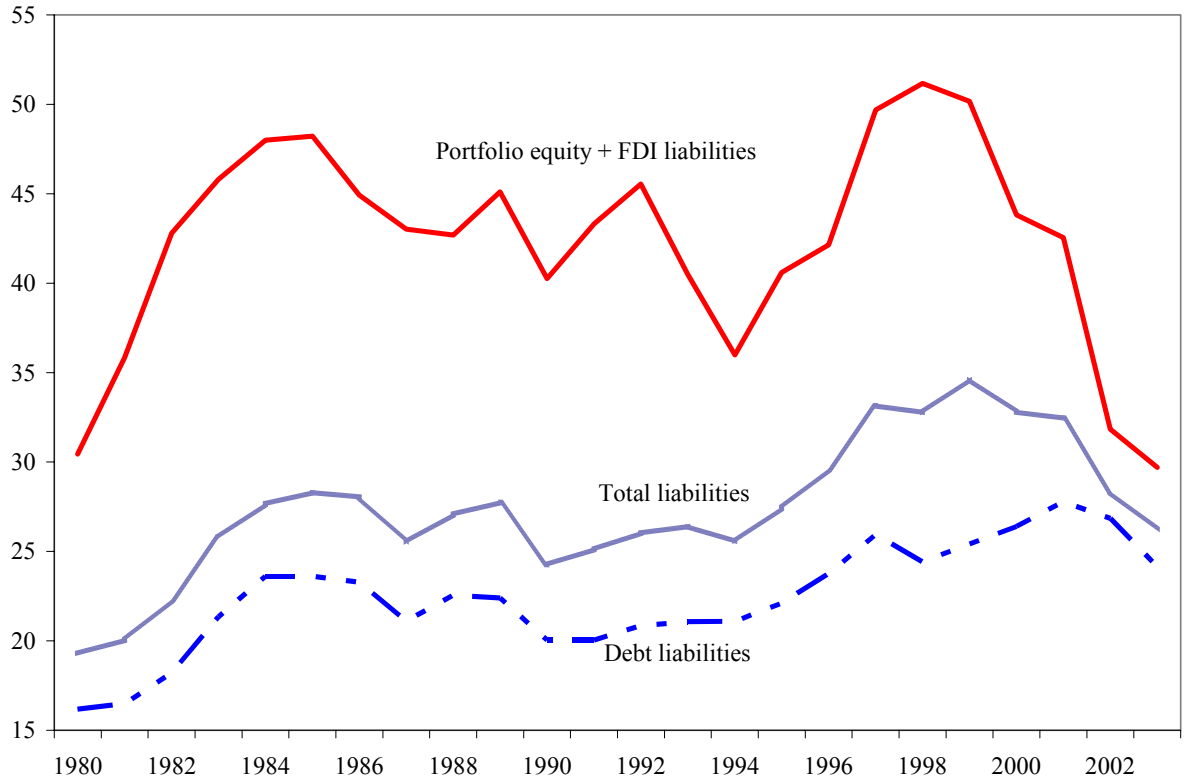


Figure 6. Japan: capital gains and the real exchange rate, 1980-2004



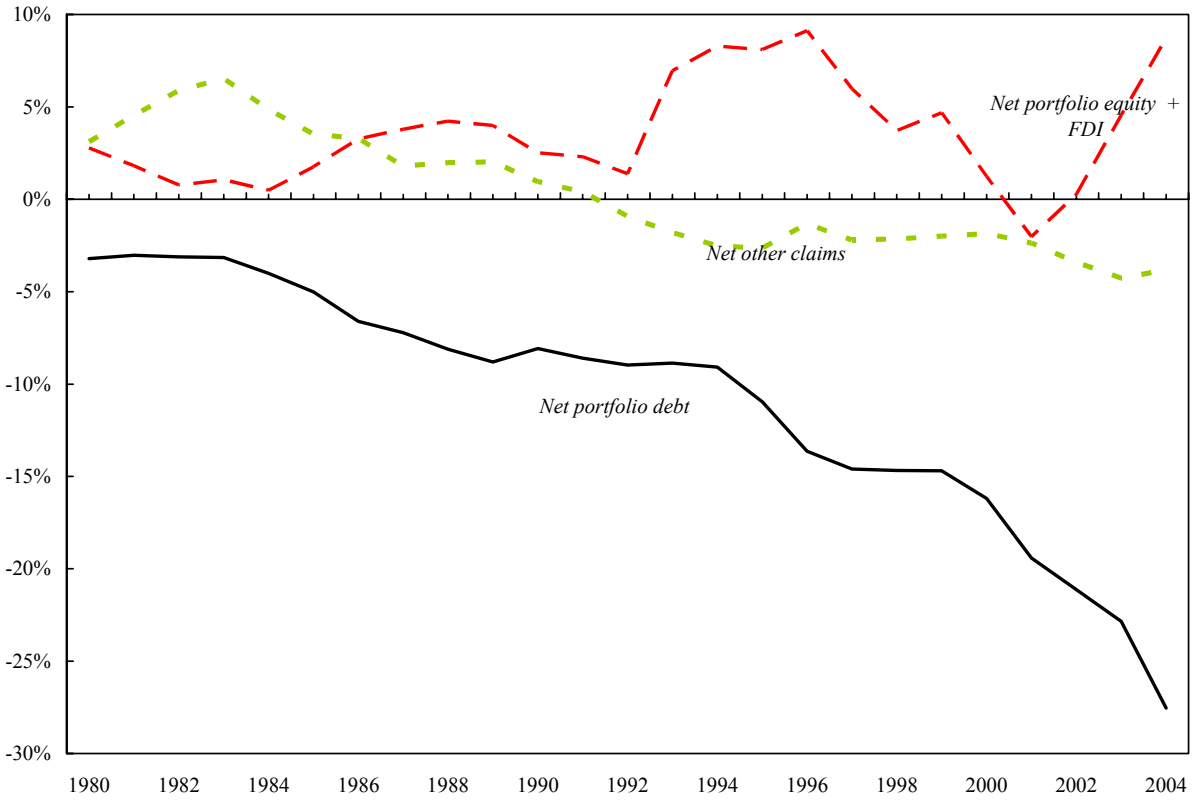
Note: capital gains are the difference between the net foreign asset position and cumulative capital flows (both scaled by GDP), with an arbitrary starting value of zero in 1980.

Figure 7. Share of the United States in the Foreign Asset Portfolio of International Investors



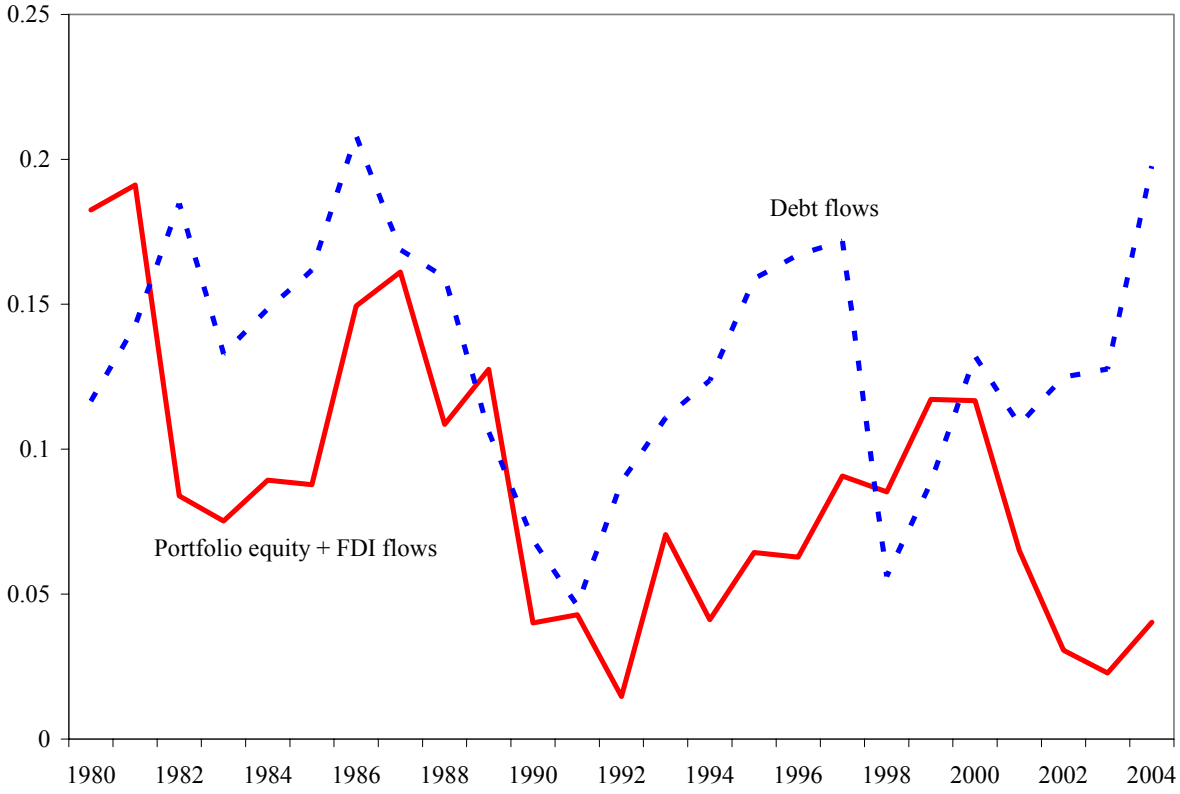
Note: Total liabilities are U.S. gross external liabilities scaled by total foreign assets of the rest of the world; portfolio equity + FDI liabilities are the sum of gross U.S. FDI and portfolio equity liabilities, scaled by the portfolio equity and FDI assets of the rest of the world; and debt liabilities are gross U.S. portfolio debt and other liabilities, scaled by total (portfolio and other) debt assets of the rest of the world.

Figure 8. United States: net external position, underlying components (ratio of GDP)



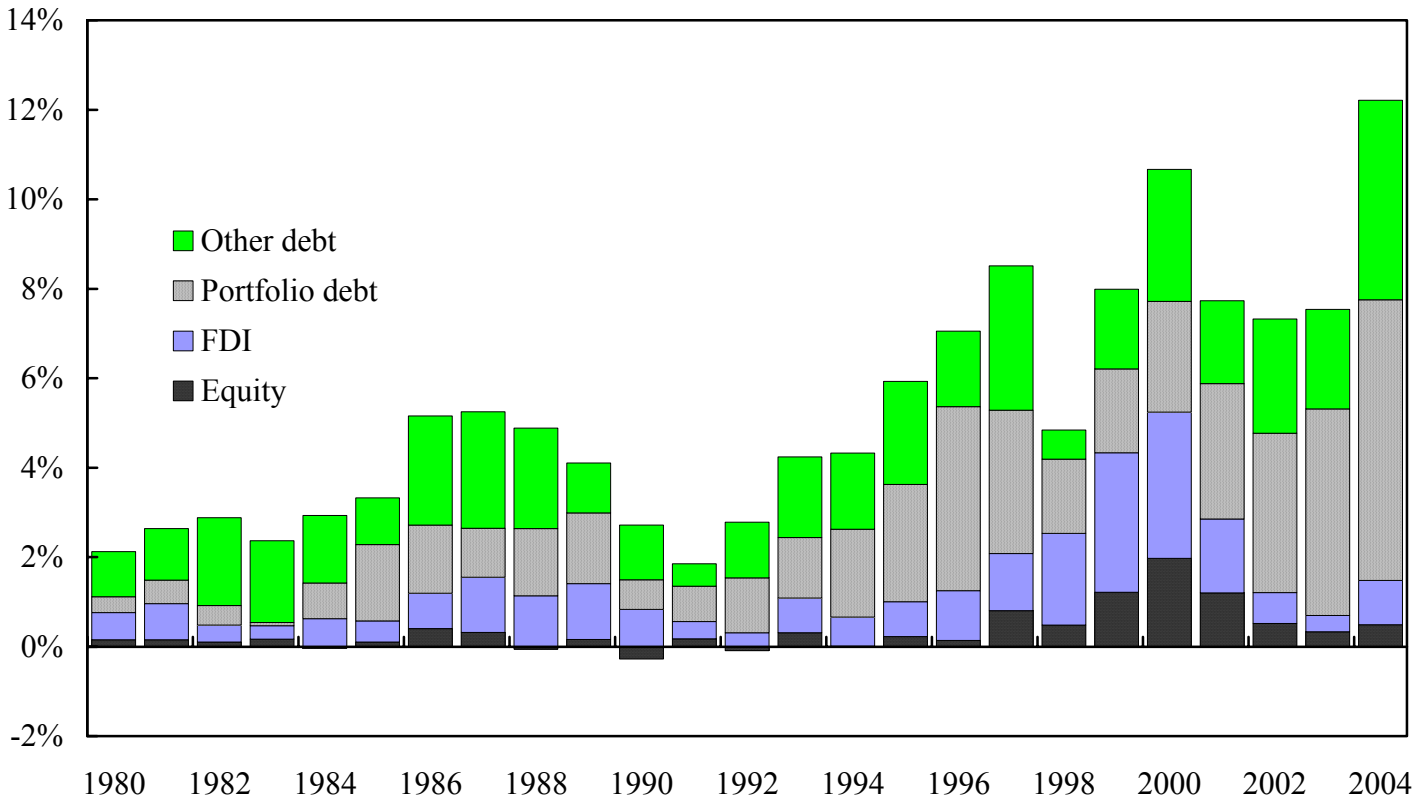
Note: net portfolio equity + FDI equals the difference between the sum of FDI and portfolio equity assets and the sum of FDI and portfolio equity liabilities. Net other indicates the difference between the stock of other assets and other liabilities, and net portfolio debt the difference between the sum of portfolio debt assets and reserves and the stock of portfolio debt liabilities.

Figure 9. Composition of capital flows to the United States, 1980-2004
(share of outstanding liabilities)



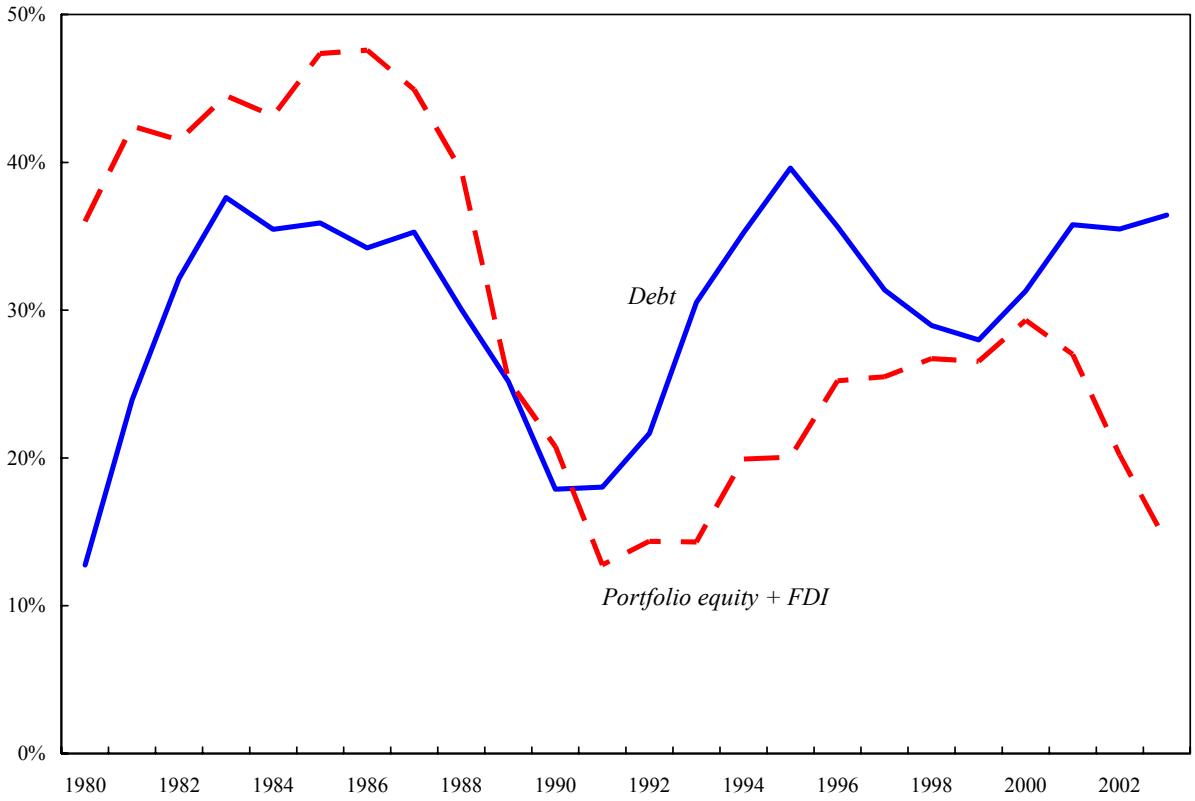
Note: Equity inflows to the United States (portfolio and FDI) are scaled by the outstanding stock of U.S. equity liabilities; debt inflows (portfolio and other) are scaled by outstanding stock of U.S. debt liabilities.

Figure 10. United States: Composition of Capital Inflows (ratio of GDP)



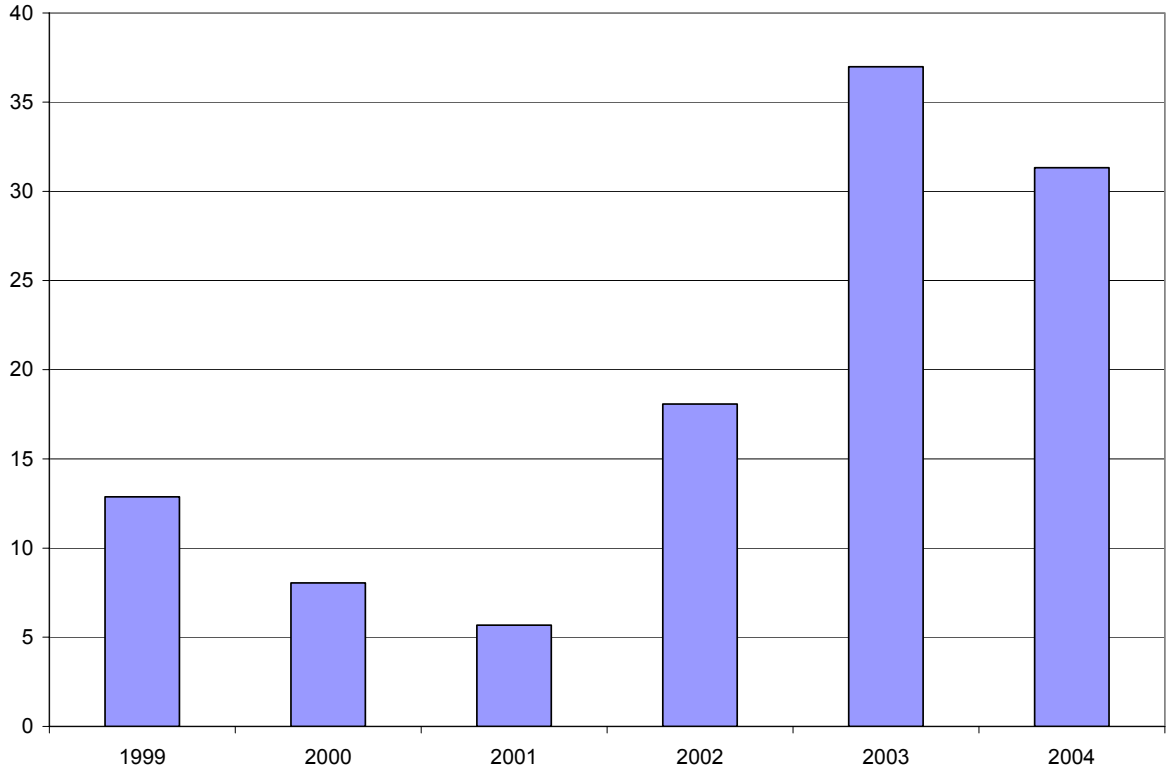
Source: IMF, Balance of Payments Statistics.

Figure 11. Capital flows to the United States (percent of rest of the world's capital outflows)



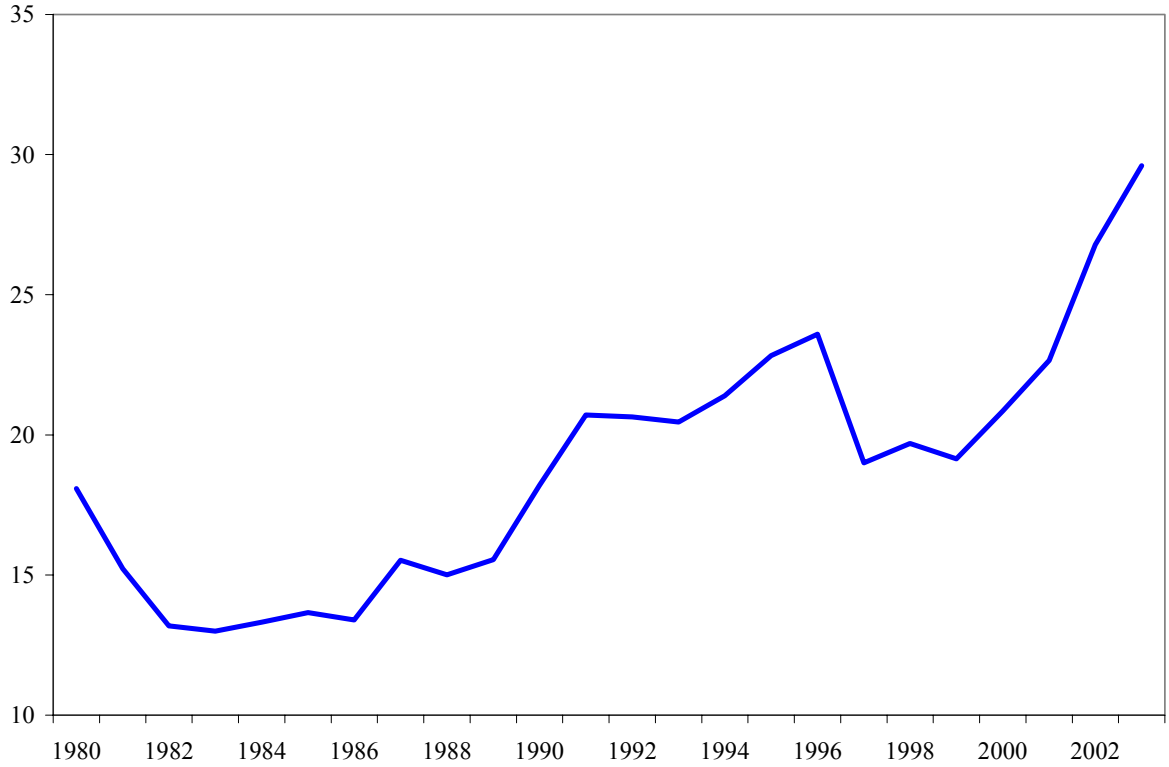
Note: The solid line ("Debt") is the three-year moving average of debt flows to the United States as a share of total debt outflows of the rest of the world. The broken line ("Portfolio equity+FDI") is the three-year moving average of the sum of portfolio equity and FDI inflows to the United States, as a share of portfolio equity + FDI outflows of the rest of the world. Source: Lane and Milesi-Ferretti (2005b).

Figure 12. United States: Official Inflows as a percent of Total Debt Inflows, 1999-2004



Note: Data source is Bureau of Economic Analysis.

Figure 13. Official Reserves in percent of Total Foreign Liabilities, Developing Countries



Note: Ratio of official reserves in percent of total foreign liabilities for the group of non-industrial countries.