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## A Global View of the U.S. Investment Position

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**IMF Working Paper**

Western Hemisphere Department

**A Global View of the U.S. Investment Position**

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**Abstract**

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This paper analyzes various indicators of the U.S. international investment position from a portfolio perspective. The 1990s saw a decline in home bias, which, coupled with rapid financial deepening, led to a large increase in gross international investment holdings. The home bias of non-U.S. investors declined more rapidly than that of U.S. investors, allowing the United States to finance a rising stock of net liabilities, even as foreign portfolios remained marketweight or underweight U.S. assets in each investment category. However, a comparison to other countries reveals that the U.S. net international investment position (NIIP) is large given the size of the economy and is deteriorating, especially through a growing negative net debt securities position

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## I. Introduction

The rapid increase in the United States' net foreign liabilities has raised questions about foreign investors' willingness to continue to hold or acquire U.S. assets. Federal Reserve Board officials, among others, have noted that the decline in the U.S. net international investment position (NIIP) is not sustainable over a longer time period (Ferguson, 2005; Greenspan, 2005). This view is partly related to concerns that global investment portfolios may by now contain excessive holdings of U.S. assets and that the financing of the current account deficit has recently shifted from equity to debt instruments. Both trends are seen as potential triggers of a disorderly exchange rate adjustment that could have harmful effects on financial markets and real activity (Cline, 2005; Obstfeld and Rogoff, 2004).

The paper analyzes various indicators of the U.S. NIIP from a portfolio perspective. It examines whether investment portfolios have become more or less internationally diversified over time and how much of the increase in foreign claims on the United States is due to the growth of U.S. financial markets versus a decline in home bias. The share of foreign portfolio exposure to U.S. assets is compared to the benchmark share of U.S. assets in the world portfolio. The U.S. NIIP is also compared with that of other countries, including a breakdown by investment category and analysis of recent changes.

## II. Measurement of Global Portfolio Shares

When measuring the degree of home bias in large countries, the size of domestic financial markets needs to be taken into account. The analysis uses the international capital asset pricing model as a point of reference, assuming that in order to maximize international risk sharing, the share of an investor's portfolio dedicated to claims on a particular country will equal the country's weight in the outstanding global financial stock.<sup>2</sup> However, it is a well-documented fact that investors strongly favor their domestic markets—this is termed “home bias.”<sup>3</sup> A standard measure of home bias that accounts for the size of the domestic financial market relative to the rest of the world is:

$$\text{Home Bias} = \frac{A^*}{A} \bigg/ \frac{W - D}{W} \quad (1)$$

where  $A^*$  represents domestic holdings of foreign assets,  $A$  is domestic holdings of all assets,  $D$  is the size of the domestic market, and  $W$  is the size of the world financial market. The numerator measures the actual share of foreign assets in the portfolio, while the denominator measures what this ratio would be in a fully diversified world. A value of zero indicates no holdings of foreign assets, while a value of one indicates that the country's portfolio is perfectly diversified from a geographic perspective. For small countries, the denominator in

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<sup>2</sup> See Karolyi and Stulz (2002) for a model and survey of the literature.

<sup>3</sup> Bertaut and Kole (2004) and Sorenson and others (2005) present recent data on home bias.

the above equation is close to one, and the results of the formula are close to those obtained by taking foreign assets as a share of investors' portfolios. For large countries, however, the denominator is lower, and the difference between the simple share of foreign assets in investors' portfolios and the above formula is larger. This implies that investors in countries with large financial markets—especially the United States—would be expected to hold a lower share of foreign assets and a higher share of domestic assets, reflecting the country's greater weight in the global financial universe.

The paper analyzes the implications of home bias for NIIPs. Replacing  $A^*$  in (1) with  $L^*$ , for foreign holdings of domestic assets, gives a measure of the degree of home bias displayed by foreign investors toward a particular country:

$$\text{Foreign Investors' Bias} = \frac{L^*}{A} \bigg/ \frac{W - D}{W} \quad (2)$$

This formula describes foreign investors' bias from the perspective of the country issuing the liabilities in question. Combining (1) and (2), the overall internationalization of a country's financial market, including both assets and liabilities, can be measured as:

$$\text{Internationalization} = \frac{\frac{1}{2}(A^* + L^*)}{A} \bigg/ \frac{W - D}{W} * 100 \quad (3)$$

Similarly, the difference between (1) and (2) provides a measure of a country's indebtedness scaled by the size of the domestic market:

$$\text{Indebtedness} = \frac{A^* - L^*}{A} \bigg/ \frac{W - D}{W} * 100 \quad (4)$$

Scaling the NIIP by the size of the domestic market facilitates an examination of indebtedness based on portfolio shares. The NIIP is typically stated as a ratio to GDP, combining a stock concept and a flow concept and focusing more on a country's ability to service its debt. Determining whether a negative NIIP is large relative to the domestic market reveals whether the already high exposure of foreign investors to domestic assets might constrain a further rise in indebtedness.

Data on international investment holdings and domestic financial market size are used to obtain measures for portfolio internationalization and net investment positions based on Equations (3) and (4).<sup>4</sup> The size of domestic financial markets—taken to be equal to the stock of financial instruments outstanding—is estimated for 45 countries. However, data limitations restrict the analysis of foreign holdings of domestic financial instruments to 22 advanced economies.

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<sup>4</sup> The data used for this paper are described in the appendix.

Reflecting diverse and complex data sources, the results of the following analysis are necessarily subject to a number of caveats. Although the data are obtained from cross-country sources with standardized definitions, some important country-specific features may not have been captured and other problems remain:

- The definition of domestic equity outstanding may not include the market value of issuance abroad by domestic corporations; data on financial stocks are not adjusted for derivatives or other complex instruments; and country surveys on international holdings cannot always ascertain the final ownership of a financial instrument, reflecting limits on data for custodial holdings.<sup>5</sup>
- Data on international holdings tend to understate assets compared to liabilities, often resulting in an upward bias for net international indebtedness (Bertaut and Grier, 2004). This dataset confirms the bias toward net indebtedness.
- Because the rate of return the United States earns on foreign claims exceeds the rate it pays on claims held by foreigners, the indebtedness concept overstates the economic burden of the United States' negative NIIP (Cline, 2005).
- Valuation changes pose a further complication in analyzing external imbalances and NIIPs, as they weaken the link between a country's current account balance and the change in its NIIP (Box 1).

### **III. Trends in Portfolio Internationalization**

Possibilities for increased holdings of international assets have multiplied due to rapid financial deepening in the 1990s (Figure 1). In industrial countries, financial markets have deepened at a remarkable pace, with stocks of debt, equity, and loans expanding from around 300 percent of aggregate GDP in 1990 to around 450 percent in 2003, interrupted only temporarily by the bursting of the global equity market bubble. Despite the similarity in overall market size, the United States relies more heavily on debt and equity financing, and less on bank financing, reflecting the larger role of U.S. securities markets in financial intermediation.

The home bias exhibited by foreign investors against U.S. assets and U.S. investors against foreign assets is slightly larger than for other countries. As shown in Figure 2, this is true for all investment types, with the overall gap widening recently. Countries with highly internationalized portfolios include centers of global finance (the United Kingdom and Switzerland), countries that receive large foreign investments (Ireland), and Norway, whose international holdings grew rapidly as a result of its accumulating oil wealth.

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<sup>5</sup> See Grier, Lee, and Warnock (2001) for an in-depth examination of U.S. data on international financial holdings.

### Box 1. Valuation Changes and the International Investment Position

This box examines the effects of valuation changes on the U.S. NIIP. The change in a country's NIIP as a ratio to GDP can be calculated as:

$$\Delta niip_t \approx -fa_t + vc_t - NIIP_{t-1} * g_t$$

where  $fa_t$  is the financial account balance as a share of GDP (which is approximately the inverse of the current account balance),  $vc_t$  is the sum of valuation changes as a share of GDP, and  $g_t$  is the growth rate of nominal GDP. BEA (2005) further decomposes valuation changes since 1990 into changes in the price of assets, exchange rate changes, and other valuation changes.

**Since 1990, net valuation changes have eased the impact of financial flows on the NIIP (Figure).**

This is more than accounted for by large positive gains since 2002. Valuation changes in the past three years improved the NIIP by 11.3 percent of GDP, offsetting a large proportion of the 14.8 percent of GDP deficit in financial flows in those years. This is consistent with the findings of Gourinchas and Rey (2005), that valuation changes on the U.S. NIIP have tended to have a stabilizing effect on external imbalances.

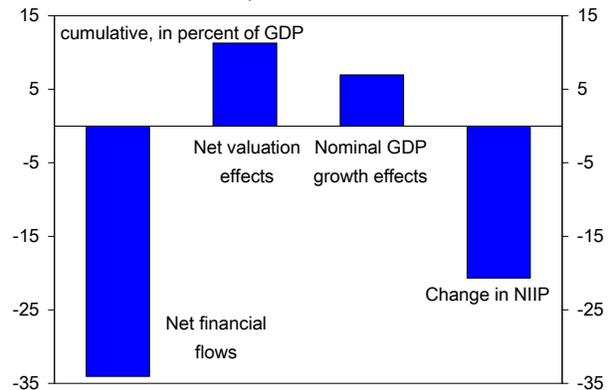
**The gains in 2002–2004 reversed small earlier losses,** as the cumulative effect on the NIIP of valuation changes from 1990–2001 was a loss of about 1.7 percent of GDP (net valuation changes were also negative in the 1980s).<sup>1</sup> Additionally,

year-to-year persistence in valuation changes is low, with essentially no correlation between the change in one year and the next, implying that valuation changes have not been systematic.

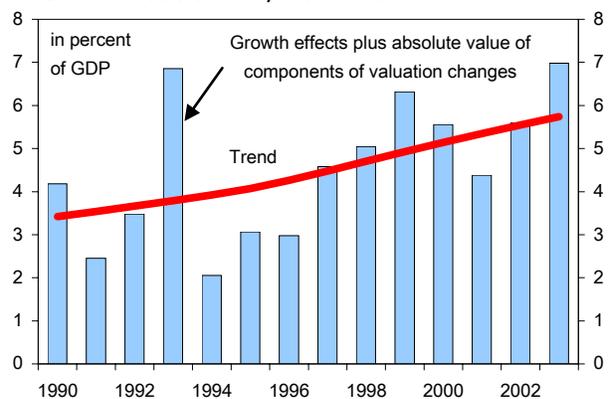
**The importance of valuation changes in determining the NIIP has been increasing as gross positions rise (Figure).** Without valuation changes, the expected correlation between a country's current account balance and the change in its NIIP is 1, but in this dataset the correlation is only 0.1 (the correlation for the United States is also 0.1). Differences in the performance of domestic and foreign equity markets and movements in the exchange rate affect gross foreign assets in a different way than gross foreign liabilities, driving overall net valuation changes.

For example, because U.S. foreign assets are mostly denominated in foreign currency and U.S. foreign liabilities in domestic currency, a depreciation of the dollar will boost the dollar value of U.S. asset holdings without changing the dollar value of U.S. liabilities, leading to an improvement in the NIIP. Tille (2003), for instance, shows that, even when the NIIP is balanced, a given change in the exchange rate will result in a larger change in the U.S. NIIP when gross positions are larger.

**United States: Change in the Net International Investment Position, 1990 – 2004**

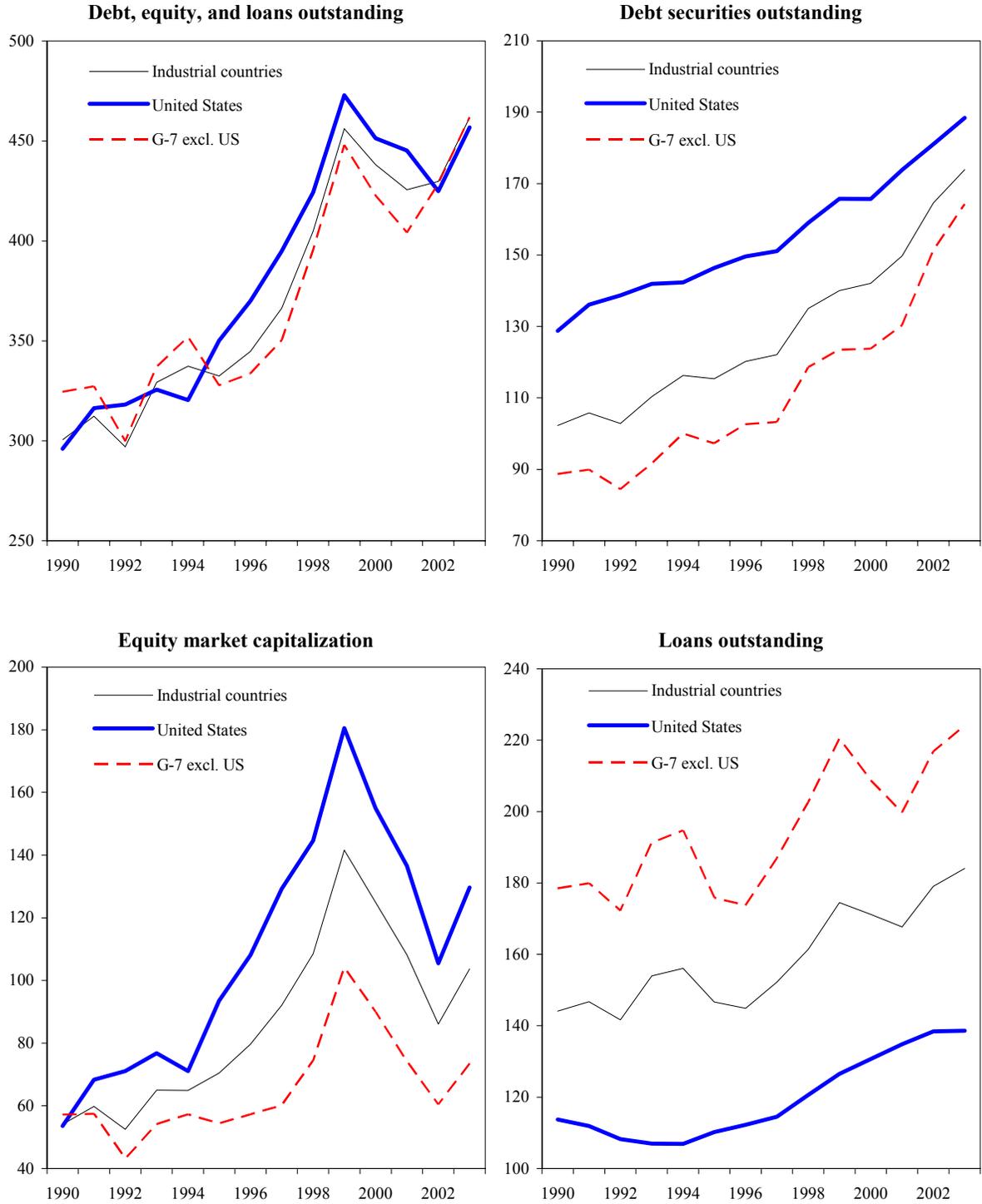


**United States: Impact of Valuation Changes and Growth Effects on NIIP, 1990 – 2004**



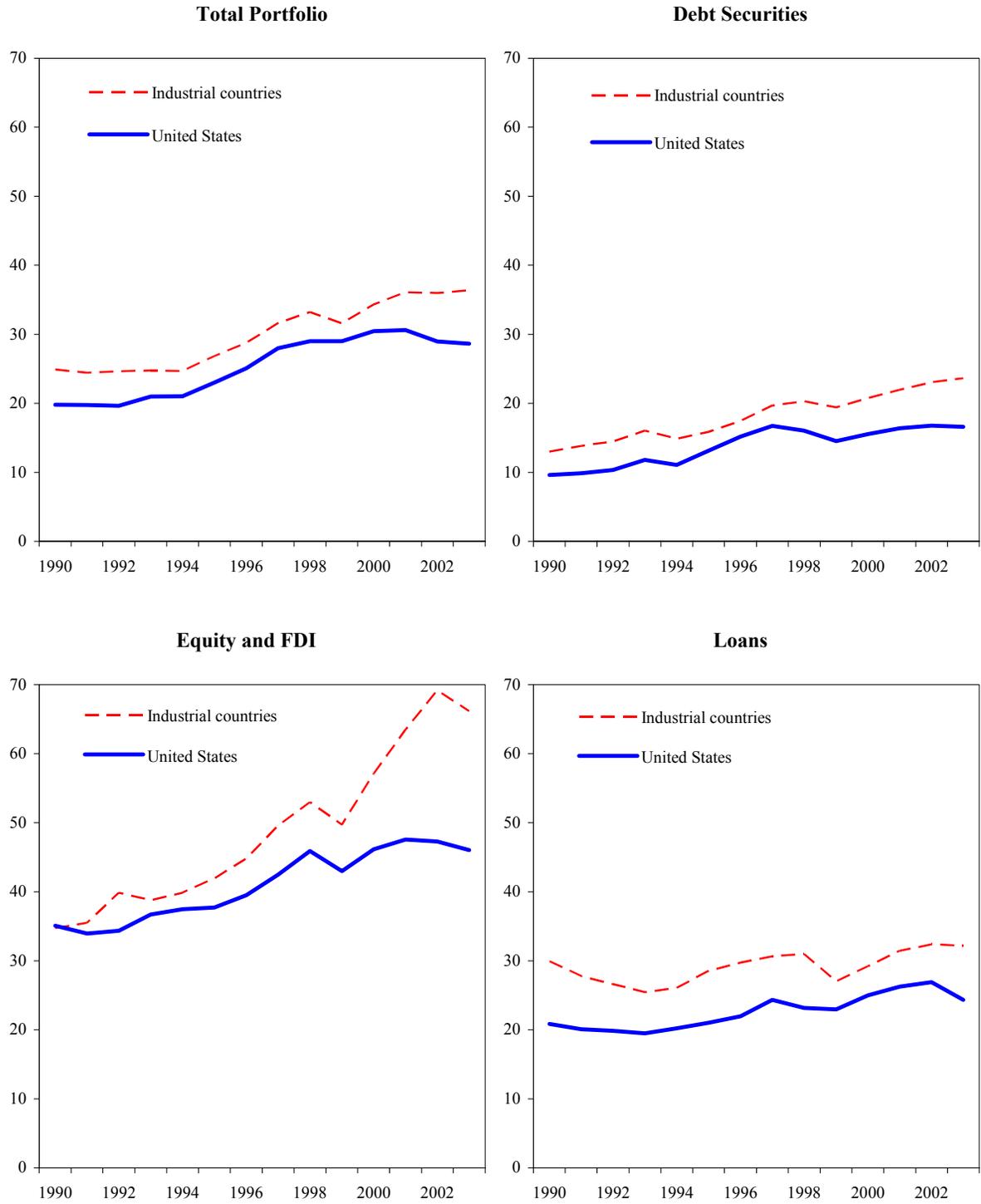
<sup>1</sup> Although cumulative valuation changes resulting from asset prices and exchange rates were negative, other valuation changes were consistently positive throughout the period.

Figure 1. Industrial Countries: Financial Deepening, 1990 – 2003  
(In percent of GDP in U.S. dollars)



Source: Fund staff calculations.

Figure 2. Internationalization of Assets and Liabilities, 1990 – 2003

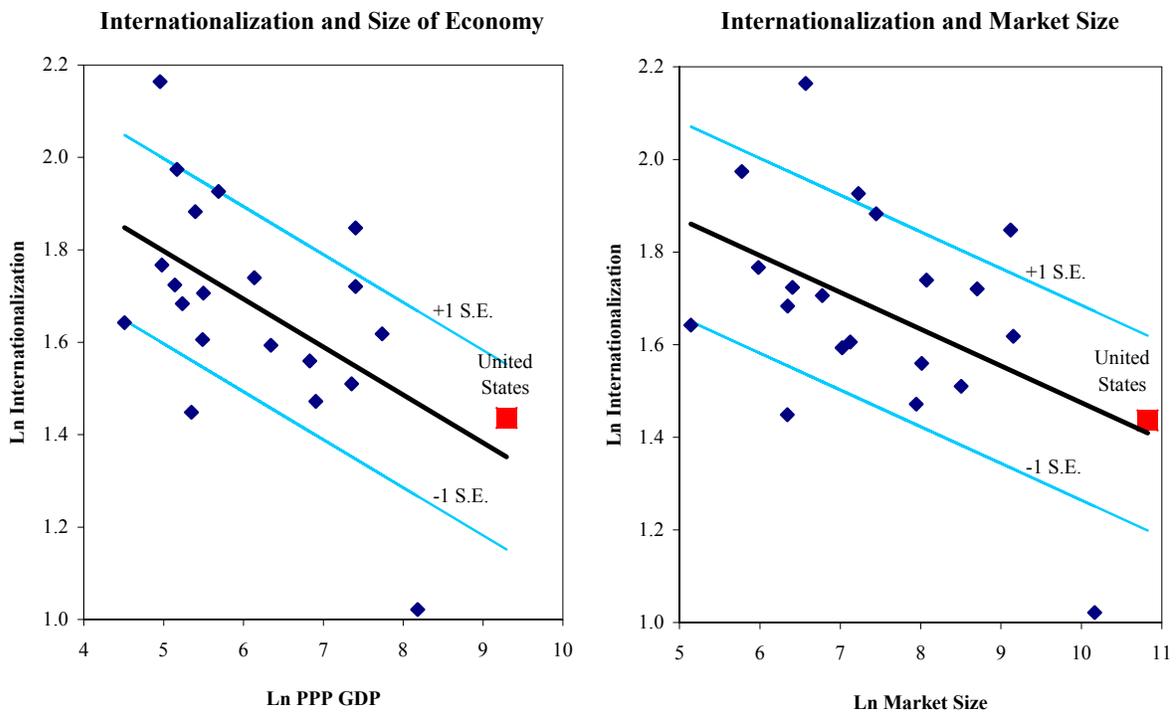


Source: Fund staff calculations.

One possible explanation for the lower portfolio internationalization of U.S. investors is that there is enough potential for portfolio diversification in the domestic market. One would expect lower benefits of geographic portfolio diversification for investors in an economy with more diverse activities and a greater variety of investment opportunities.<sup>6</sup>

Looking at the data in Figure 3, the degree of portfolio internationalization indeed appears to be negatively correlated with economy size and financial market size. Table 1 shows the results of linear regressions that explain the level of internationalization using the logarithm of the size of the economy measured by purchasing power parity of GDP (PPP GDP) or the logarithm of the size of domestic financial markets (market size) as proxies for economic size and diversity. In both cases, domestic economies that are larger and more diverse are, on average, less internationalized. However, the results are driven by the lower internationalization of Japan. When the two largest economies, the United States and Japan, are dropped, the coefficient on the size variable loses its significance.

Figure 3. Internationalization and Country Size, 2003



Source: Fund staff calculations.

<sup>6</sup> Errunza, Hogan, and Hung (1999) show that the benefits of international diversification can be emulated by holding equity in domestically based multinational corporations. To the extent that this type of firm is more prevalent on U.S. equity markets than those in other countries, this would further reduce U.S. investors' need for geographic portfolio diversification relative to investors in other countries.

The regression results indicate that the internationalization of U.S. investment holdings is close to what would be predicted—within one standard error. For the two regressions including the United States, the U.S. p-value in Table 1 is calculated as the residual on the U.S. observation divided by the standard error of the regression. For the two regressions excluding the United States, the estimated slope and intercept are applied to the U.S. value for the dependent variables to obtain a predicted value. The difference between this predicted value and the actual value is taken as the residual, and the p-value is obtained by the same procedure as in the first two regressions. The standard error bands for the full-sample regression are shown in Figure 3.

Table 1. Determinants of Portfolio Internationalization, 2003 1/  
 $\text{Ln}(\text{Internationalization}) = \alpha + \beta * \text{Ln}(\text{Size}) + \varepsilon$

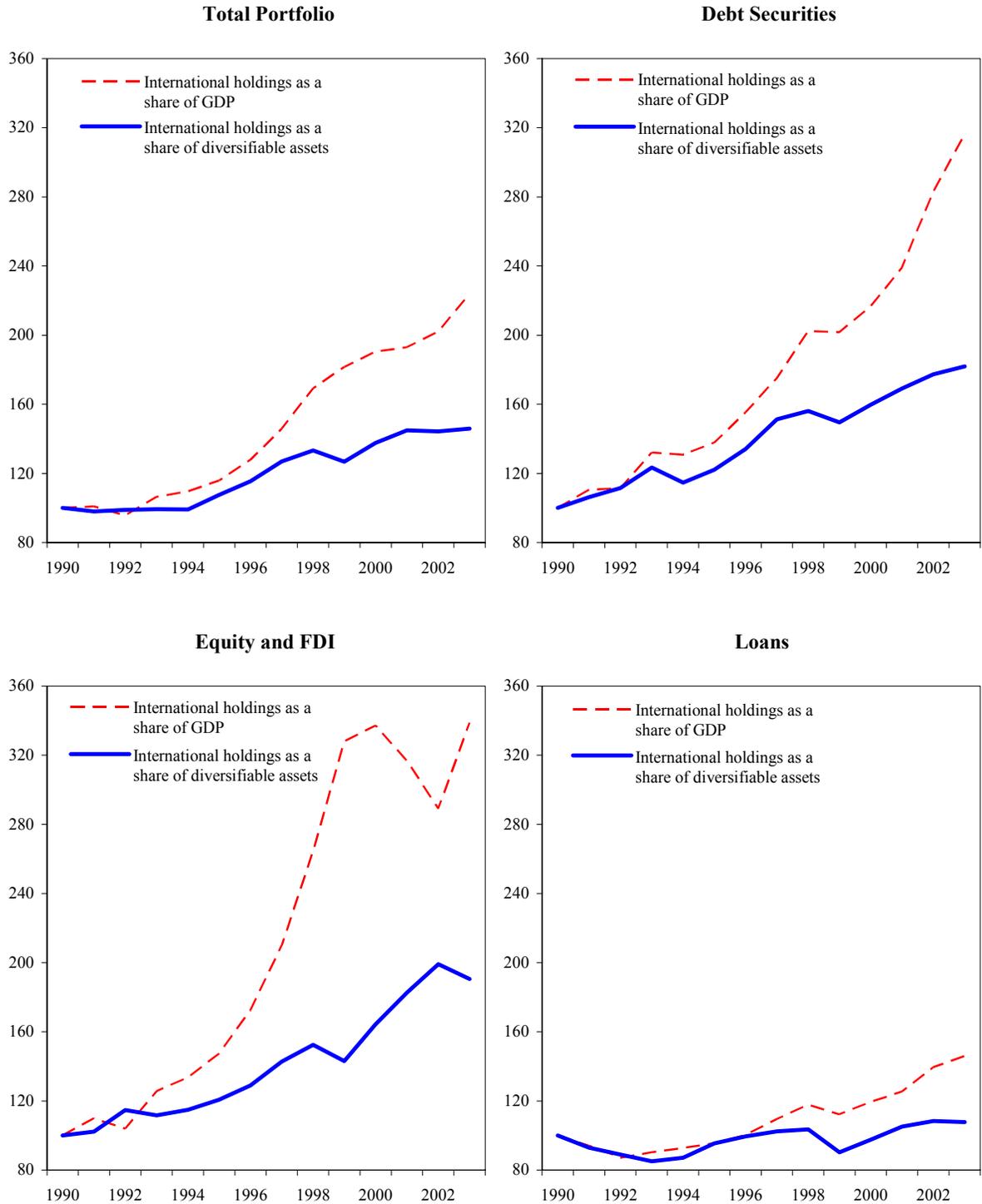
	Economy size	Financial market size
All countries 2/	-0.10 ***	-0.08 **
Standard error	(0.04)	(0.03)
U.S. p-value 3/	0.68	0.90
Excluding Japan and U.S.	-0.07	-0.03
Standard error	(0.04)	(0.04)
U.S. p-value 3/	0.73	0.37

Source: Fund staff calculations.  
 1/ Dependent variable is the log of internationalization of a country's investment portfolio. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels, respectively.  
 2/ Includes 21 of the countries in italics in Table A.1., with Iceland excluded.  
 3/ Calculated using the residual on the U.S. observation and the standard error of the regression.

Notwithstanding a rise in portfolio internationalization, rapid growth in global financial markets has been a larger contributor to the increase in foreign asset holdings. The dashed line in Figure 4 can be seen as the contribution of the growth in financial markets to higher levels of international investment holdings, while the solid line is the contribution from a decline in home bias. The figure shows that holdings of foreign assets more than doubled as a share of GDP since the early 1990s. Portfolio internationalization also increased, but reached only one-and-a-half times the level it had in 1990, implying that growing domestic markets were responsible for a larger share of the growth in foreign holdings than the decline in home bias. The fastest-growing markets, in debt securities and equity, were also the markets becoming more internationalized during the period, perhaps adding to the perception that investors shifted a large proportion of their portfolios abroad.

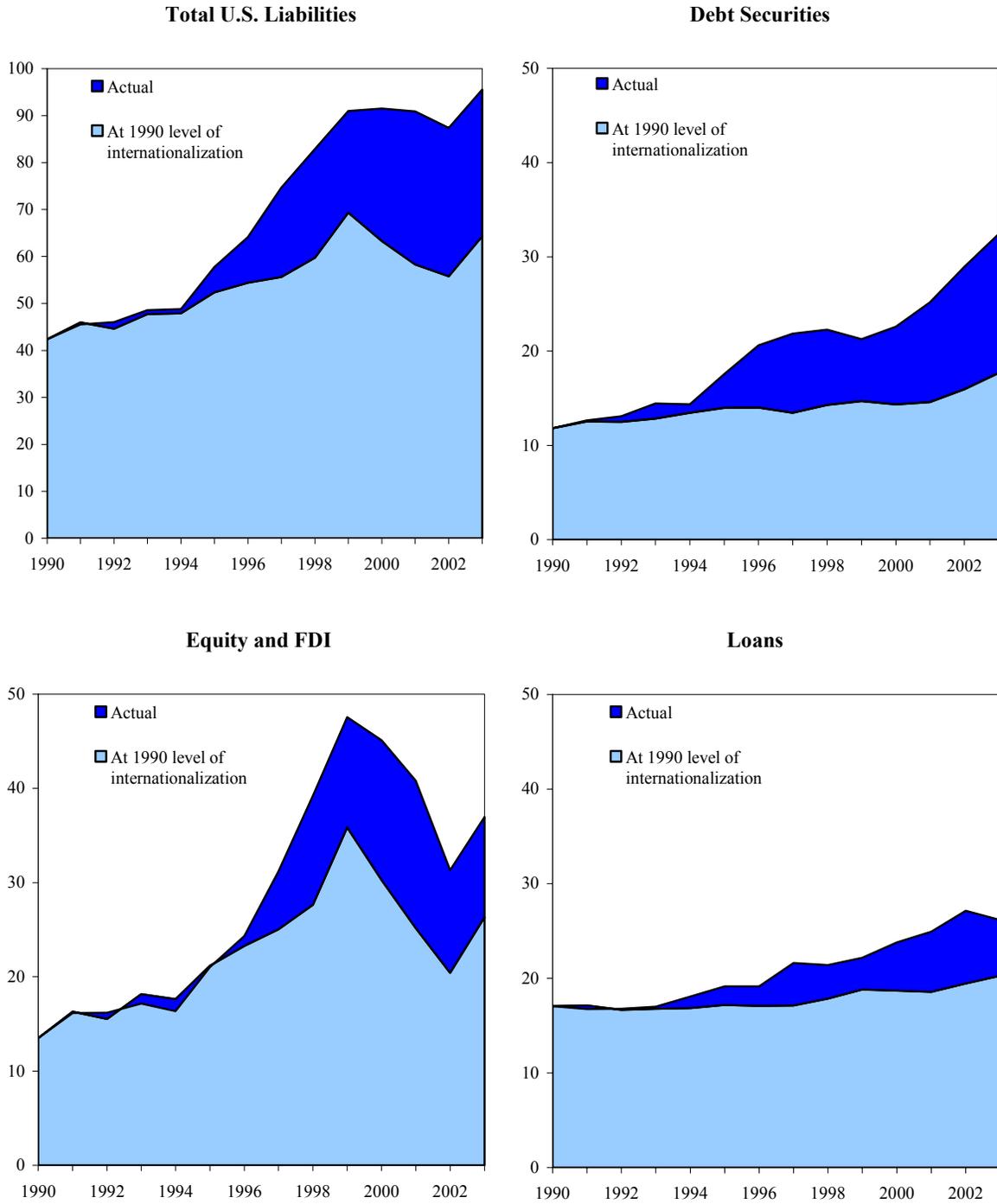
The United States appears to have particularly benefited from a worldwide decline in the home bias to finance rising liabilities. Figures 5 and 6 decompose the changes in U.S. holdings of foreign assets and foreign holdings of U.S. assets. On the liabilities side, growth in U.S. markets would have caused foreign holdings to increase from 42 percent of GDP to 64 percent of GDP since 1990. The increased propensity of foreign investors to hold U.S. assets added another 31 percent of GDP, with about half the increase in debt securities liabilities. By contrast, the internationalization of U.S. asset portfolios has increased less strongly. Growth in foreign markets would have caused U.S. holdings to increase from 37 percent of GDP to 56 percent of GDP, with a fall in the home bias of U.S. investors contributing an additional 13 percent of GDP, mainly in equity and FDI.

Figure 4. Industrial Countries: Internationalization of Assets and Liabilities, 1990 – 2003  
(1990 = 100)



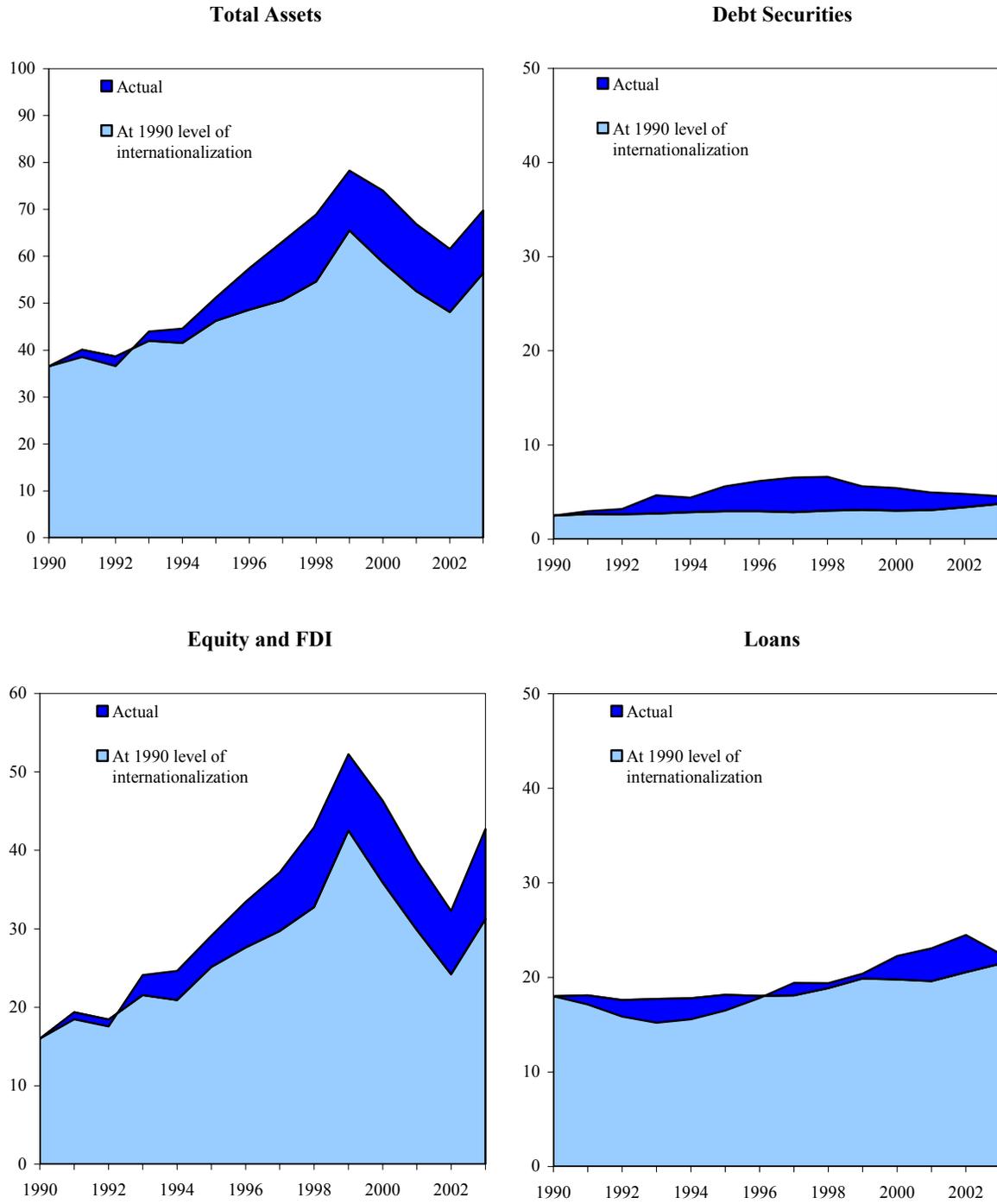
Source: Fund staff calculations.

Figure 5. Foreign Holdings of U.S. Assets, 1990 - 2003  
(in percent of GDP)



Sources: Bureau of Economic Analysis; Fund staff calculations.

Figure 6. United States: Holdings of Foreign Assets, 1990 - 2003  
(in percent of GDP)



Sources: Bureau of Economic Analysis; Fund staff calculations.

#### **IV. The U.S. Share in Foreign Portfolios**

Global asset portfolios do not appear to be significantly overweight in U.S. assets, relative to the United States' benchmark share in an internationally diversified portfolio. The benchmark share is constructed taking into account the assets that investors in each country would maintain in domestic financial instruments. All other financial instruments are considered to be "diversifiable," in that they would be owned by foreign investors in a world of complete geographic diversification. Given the degree of home bias shown in Figure 2, actual foreign portfolios are much smaller in size than "diversifiable" assets. Figure 7 examines whether, given this home bias, claims on the United States occupy a larger share of foreign portfolios than the benchmark—the U.S. share of diversifiable assets outstanding. By this metric, non-U.S. portfolios are underweight in U.S. equity/FDI and loans, and marketweight in U.S. debt securities. U.S. equity and FDI as a share of foreign portfolios peaked during the stock market boom in the late 1990s but have since fallen from slightly overweight to well underweight, while the portfolio share of U.S. loans increased steadily until falling back in 2002 and 2003. The share of foreign portfolios dedicated to U.S. debt securities peaked in 1997 and 2001 before declining more recently. These numbers give little indication that foreign absorption capacity of claims on the United States would be constrained in the near future.<sup>7</sup>

#### **V. The U.S. Net International Investment Position**

The U.S. NIIP is comparable to that of many other industrial countries, despite deteriorating slightly since 1990. The NIIP has moved from a negative position of 3 percent of U.S. market value to 9 percent in 2003, and appears poised to fall further due to continued current account deficits. Most other industrial countries' positions improved during this period, with only Germany, Greece, and the Netherlands showing a worsening NIIP.

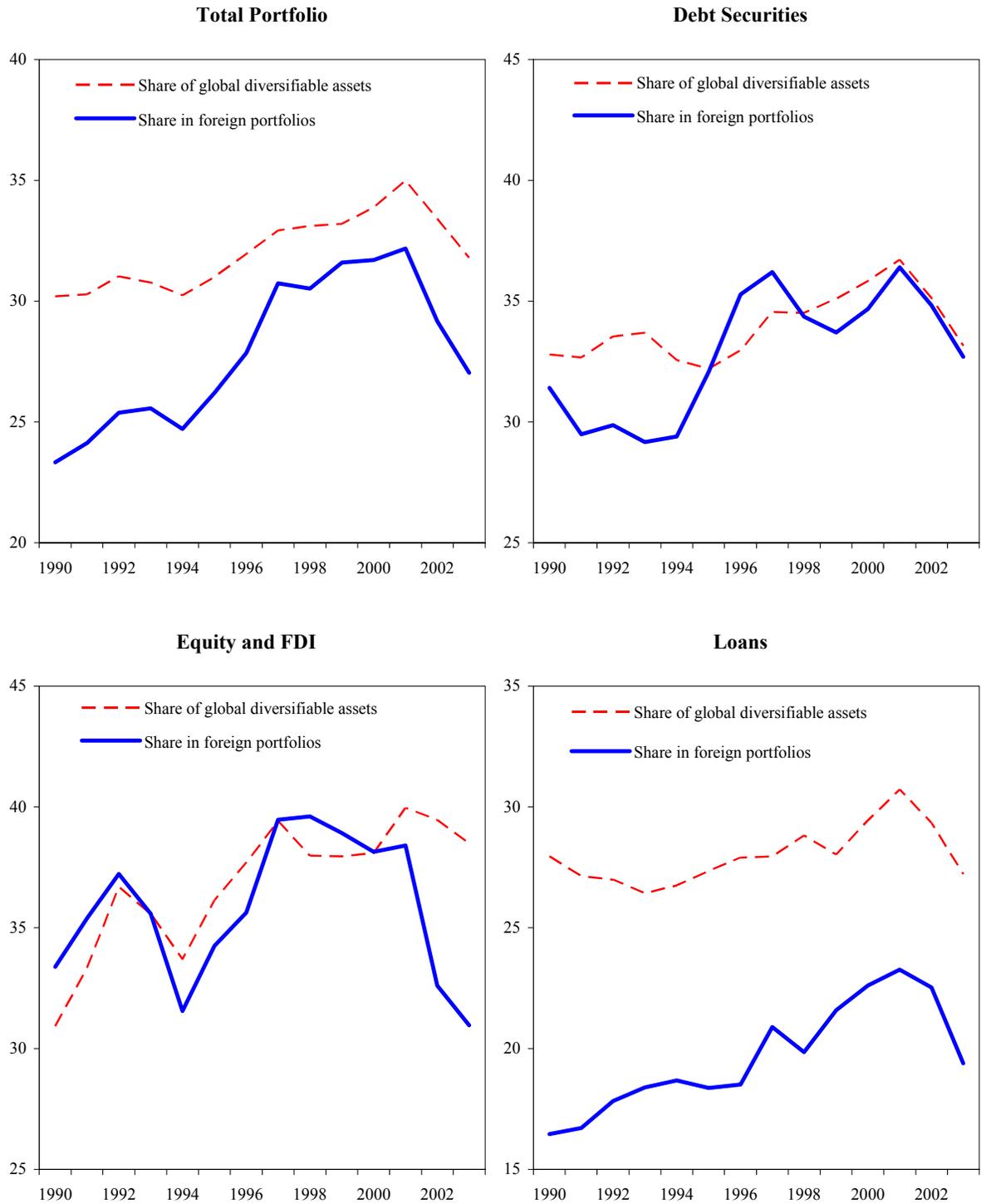
In particular, the U.S. position in debt securities is weaker than in other investment classes and is deteriorating (Figure 8). Both the net equity and FDI position, which is slightly positive, and the net loan position, which is slightly negative, are near the average for industrial countries (Figure 9). However, the net debt securities position has fallen to 25 percent of the outstanding market from 13 percent in 1990. This is significantly larger than the industrial country average of 11 percent. The decline appears to have been driven mainly by an influx of foreign investment into U.S. debt securities, as the position would have been broadly stable if the degree of home bias had remained at 1990 levels (Figure 10).<sup>8</sup>

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<sup>7</sup> This measure may overstate the share of non-U.S. equities that are truly "diversifiable," as Bertaut and Kole (2004) and Dahlquist and others (2003) find that the share of U.S. equities in the global portfolio available to most investors is even higher when using float-adjusted market capitalization (equity not held by controlling shareholders).

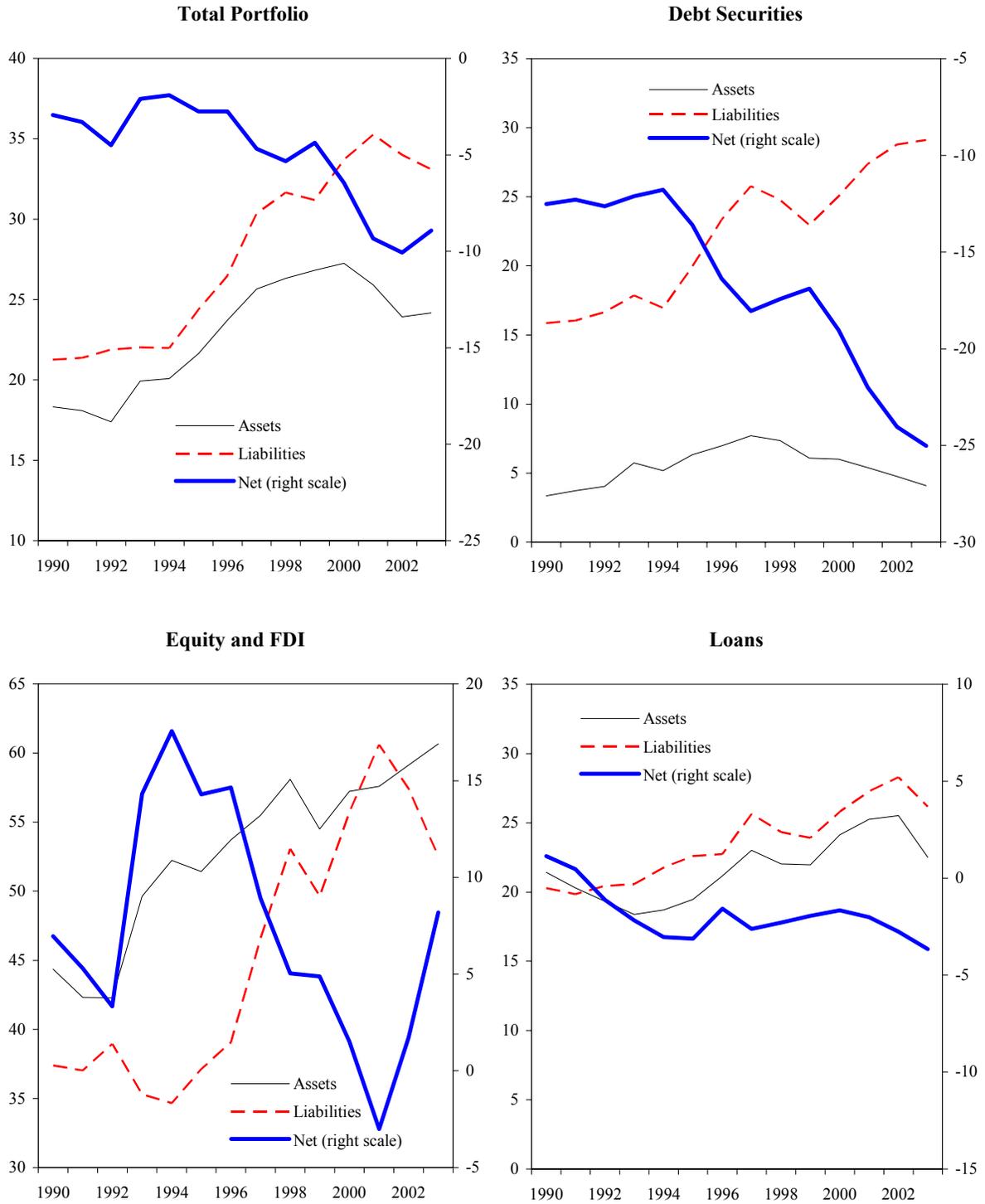
<sup>8</sup> The only variation in the lines labeled "At 1990 level of internationalization" is due to the changing weights of each asset class in U.S. and global financial stocks.

Figure 7. Share of U.S. Assets in Foreign Portfolios, 1990 – 2003



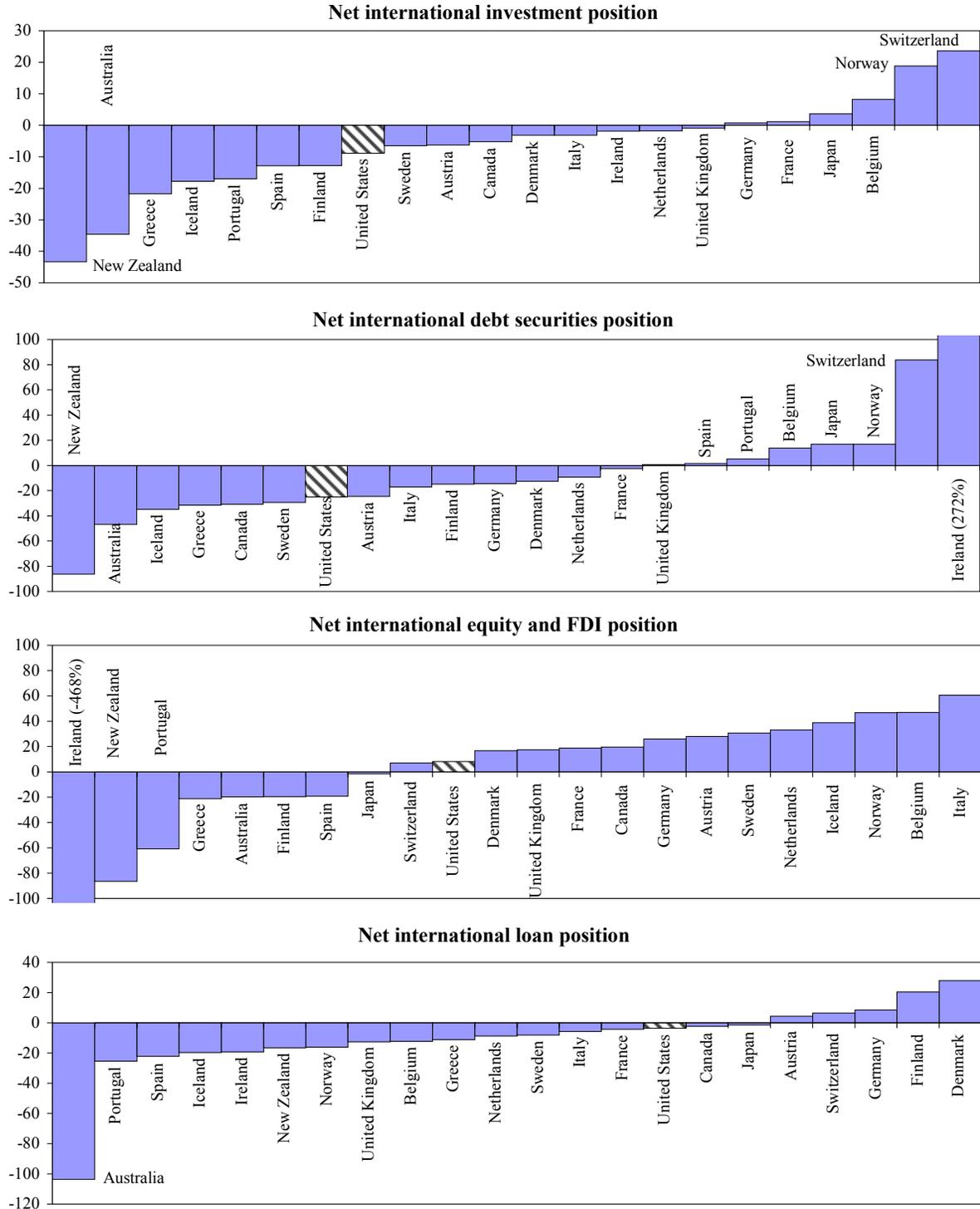
Source: Fund staff calculations.

Figure 8. United States: International Asset and Liabilities Positions, 1990 – 2003  
(In percent of diversifiable assets)



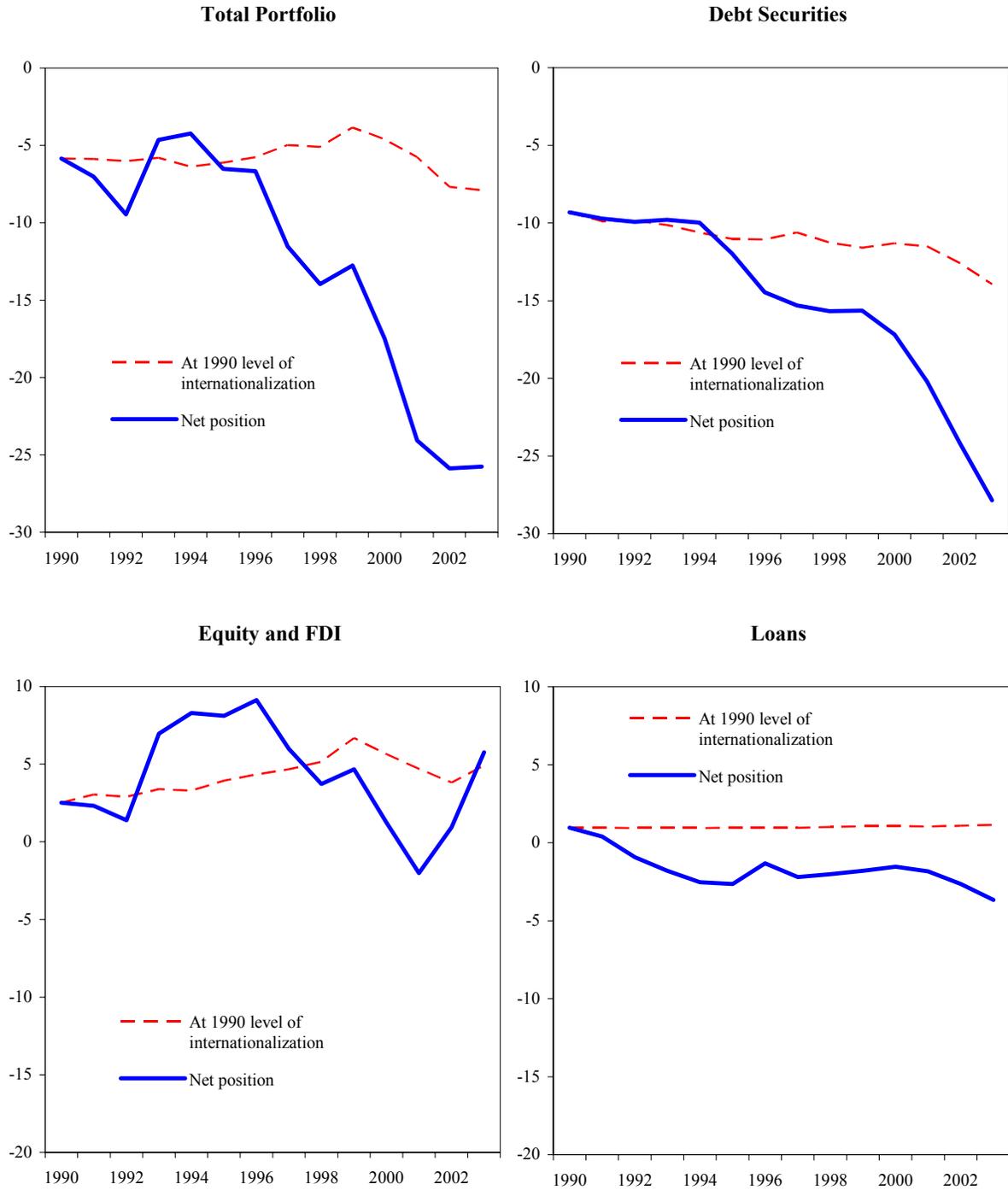
Source: Fund staff calculations.

Figure 9. Industrial Countries: Net International Position by Type of Investment, 2003  
(In percent of diversifiable assets)



Source: Fund staff calculations.

Figure 10. United States: Net International Positions, 1990 – 2003  
(In percent of GDP)

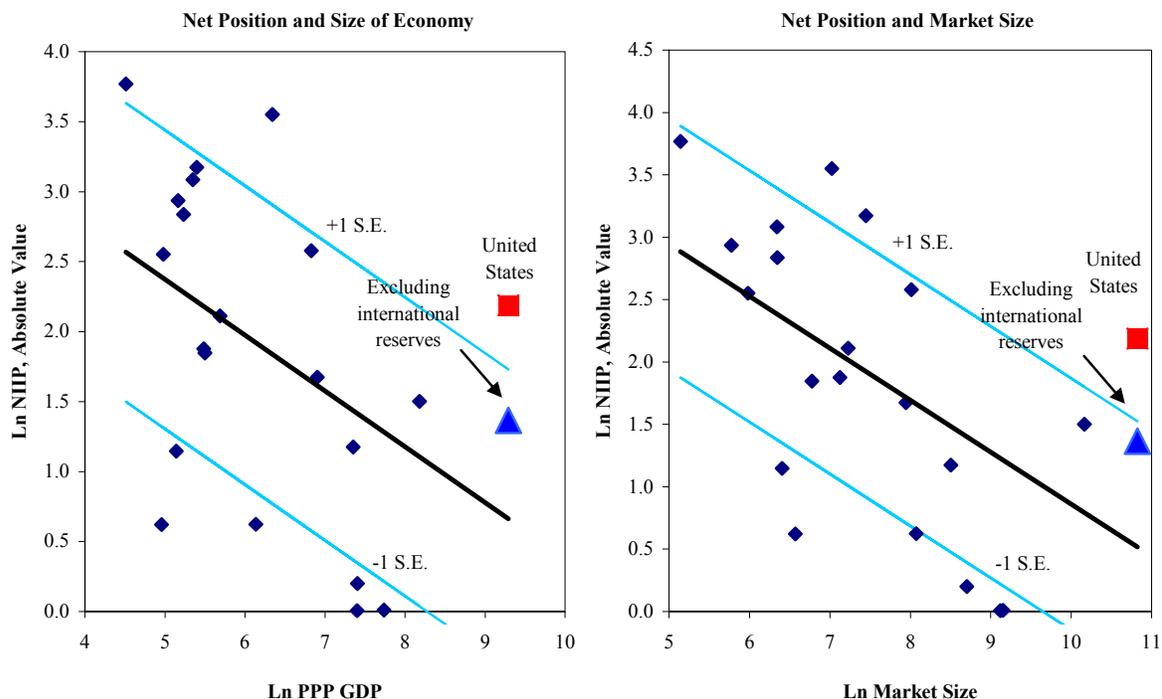


Sources: Bureau of Economic Analysis; Fund staff calculations.

The U.S. dollar's reserve currency status accounts for some of the negative U.S. debt securities position, but the recent deterioration has mainly been in non-reserve items. At end-2003, Treasuries held as international reserves accounted for over 20 percent of all Treasuries held by the public, and 8 percent of agency bonds were also held as reserves (up from 11 percent and 1 percent, respectively, in 1990). Excluding reserves, the United States had a net debt securities position of -6 percent of the outstanding market in 1990 and -16 percent in 2003. Debt securities excluding reserves thus accounted for 10 percentage points of the 12 point deterioration in the net debt securities position over the period, while reserves only accounted for 2 percentage points of the deterioration.

The overall U.S. NIIP is comparable to that of many other industrial countries, but appears to stand out given the tendency for larger countries to have lower absolute NIIPs (Figure 11). For small open economies, net foreign assets or liabilities can often be large relative to the size of their domestic financial markets. For example, Australia and New Zealand report high levels of net indebtedness, amounting to over 30 percent of the outstanding stock of domestic investments. However, larger countries such as the G-7 generally maintain NIIPs—either positive or negative—closer to balance, presumably for the same reasons such countries have lower internationalization.

Figure 11. Absolute Net International Investment Position and Country Size, 2003



Source: Fund staff calculations.

Simple linear regressions confirm that the U.S. NIIP is larger than would be predicted given the size of the economy and the financial market. Table 2 presents the results of regressions

of the natural log of the absolute value of the NIIP on the log of GDP measured at purchasing power parity and the log of financial market size. In all cases, the negative relationship between size of the economy and absolute NIIP is statistically significant. To determine whether the United States and Japan were once again driving the results, the regressions were run excluding those two countries. In those regressions, the relationship was confirmed, with an even larger negative coefficient.

Table 2. Net International Investment Position Size, 2003 1/  
 $\text{Ln } |niip| = \alpha + \beta * \text{Ln (Size)} + \epsilon$

	Economy size	Financial market size
All countries 2/	-0.40 ***	-0.42 **
Standard error	(0.19)	(0.15)
U.S. p-value 3/	0.17	0.11
Excluding Japan and U.S.	-0.72 ***	-0.75 **
Standard error	(0.23)	(0.18)
U.S. p-value 3/	0.01	0.00

Source: Fund staff calculations.  
 1/ Dependent variable is the log of the absolute value of the NIIP as a share of market size. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels, respectively.  
 2/ Includes 21 of the countries in italics in Table A.1., with Iceland excluded.  
 3/ Calculated using the residual on the U.S. observation and the standard error of the regression.

To determine whether the U.S. NIIP is an outlier, Table 2 gives the p-value of the U.S. residual for each regression, calculated by the same procedures as those in Table 1. In the regressions on the entire sample, the U.S. observation is within two standard errors of the mean, while in the regressions excluding the United States and Japan, the U.S. observation is more than two standard errors away from the mean. These results raise concerns about the extent of U.S. indebtedness, although the applicability of the comparison may be somewhat limited by the importance of the United States in the global financial system relative to other countries.

## VI. Conclusions

The United States has experienced the same trends toward financial deepening and internationalization of portfolios as other industrial countries. U.S. markets remain less internationalized than other countries, even adjusting for the United States' large share of the global market. The difference can be explained by the United States' greater variety of economic activities—it is not as necessary for U.S. investors to diversify their portfolios by investing abroad as it would be for investors in a country with a smaller assortment of economic activity.

Global portfolio data give mixed signals regarding foreigners' exposure to U.S. assets, and the decline in the U.S. net debt position is a cause for concern. On the positive side, an examination of foreign portfolios confirms that they contain about the expected proportion of U.S. assets, and measures for U.S. indebtedness rank near the middle of industrial countries in most asset classes. That said, the U.S. NIIP is weaker than would be expected given the size of the U.S. economy and financial markets, even if international reserves are excluded from the analysis, and its net debt securities position is particularly large. The overall NIIP and the net debt securities position are also deteriorating rapidly, and the large current account deficit implies that foreign claims on the United States will continue to mount.

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### Data Appendix

- **Domestic equity market capitalization:** For most countries, taken from the World Federation of Exchanges, which standardizes across countries and excludes the capitalization of foreign companies listed on an exchange; the value of mutual funds and similar shares; and options, futures, and derivatives. Additional data sources are: Datastream; the IMF's *Global Financial Stability Report*; Meridian's *World Stock Exchange Factbook*; and Standard and Poor's *Emerging Stock Markets Factbook*.
- **Debt securities outstanding:** From the *Quarterly Review* of the Bank of International Settlements (Basel), Tables 12A and 16A.
- **Domestic stock of loans outstanding:** Where available, from the OECD's *National Accounts Volume IIIB*, spliced with data from the IMF's *International Financial Statistics* (IFS) for missing observations in the former dataset. Data for non-OECD members were taken mainly from the IMF's *Money and Banking Database*, which is based on raw data used in the IFS. Additional data were taken from IFS and, for Chile, China, the Czech Republic, Hong Kong SAR, Peru, and Taiwan Province of China, from published national sources. Data were converted to U.S. dollars using exchange rates from IFS.
- **Foreign holdings of financial instruments:** Data on the international holdings of financial instruments were kindly provided by Philip Lane and Gian Maria Milesi-Ferretti (see Lane and Milesi-Ferretti, 2005a). These combine official data on international investment positions with estimates of external assets and liabilities based on balance of payments flows and various other sources, with appropriate valuation adjustments based on equity price fluctuations and exchange rate changes. For a description of the methodology, see Lane and Milesi-Ferretti (2001).

Table A.1. List of Countries 1/

Argentina	<i>Greece</i>	Philippines
<i>Australia</i>	Hungary	Poland
<i>Austria</i>	<i>Iceland</i>	<i>Portugal</i>
<i>Belgium</i>	India	Russia
Brazil	Indonesia	Singapore
<i>Canada</i>	<i>Ireland</i>	Slovak Republic
Chile	<i>Italy</i>	South Africa
China,P.R.: Mainland	<i>Japan</i>	<i>Spain</i>
China,P.R.:Hong Kong, SAR	Korea	<i>Sweden</i>
Colombia	Malaysia	<i>Switzerland</i>
Czech Republic	Mexico	Taiwan Province of China
<i>Denmark</i>	<i>Netherlands</i>	Thailand
<i>Finland</i>	<i>New Zealand</i>	Turkey
<i>France</i>	<i>Norway</i>	<i>United Kingdom</i>
<i>Germany</i>	Peru	<i>United States</i>

1/ Italics indicate countries for which international holdings data were analyzed. Non-italicized countries were only included in the totals for global financial stocks.