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Exchange Rate Movements and the U.S. International Balance Sheet

The U.S. current account deficit has been growing for several years, as the country has been importing increasingly more than it has been exporting. In 1992, the current account deficit was 0.8% of GDP, and by the end of 2003, it had soared to an unprecedented 4.8% of GDP.

To finance this widening deficit, the U.S. has had to borrow massively from foreigners, resulting in large net financial inflows. Many have pointed to these inflows as the main reason for the rising net U.S. indebtedness to foreigners; in 1992, U.S. net indebtedness was 7% of GDP, and at the end of 2003 it was over 24% of GDP.

Net foreign indebtedness is measured by the “net international investment position,” or NIIP, which is calculated annually by the U.S. Bureau of Economic Analysis. The NIIP is negative when the value of U.S. investments abroad is less than the value of foreign investments in the U.S., and it is positive in the reverse case. The size of the negative NIIP has raised concerns in some quarters about whether current account deficits of this magnitude are sustainable. For example, if foreign investors, both private and official, had accumulated a disproportionate share of U.S.-issued securities in their portfolios, then they might want to pull their money out of the U.S. and diversify into non-U.S. assets. Doing so would shrink the pool of resources available for the U.S. to finance its foreign borrowing and, according to many, that could lead to higher interest rates. Higher interest rates, in turn, could put a damper on aggregate demand and lead to slower economic growth.

Recent research has examined the evolution of the NIIP and has found that current account deficits and the associated net financial inflows are not the only factors influencing it; rather, research finds that changes in asset prices and especially in exchange rates have played an important role recently because of their effect on the values of the stocks of assets and liabilities that make up the NIIP.

In this *Economic Letter*, I review this literature, discuss these determinants of the NIIP, and provide some evidence on their relative quantitative importance.

In particular, the evidence suggests that since the late 1990s, exchange rate movements have had a more significant effect on the value of U.S. assets abroad and, therefore, have played a larger role in shaping the evolution of the NIIP.

What is the NIIP, and what are its determinants?

The U.S. NIIP reflects the U.S. international balance sheet. On one side of the ledger is the value of the accumulated stock of U.S. claims on foreigners; this would include, for example, the shares or bonds of, say, German firms held by U.S. residents. On the other side is the value of the accumulated stock of foreign claims on U.S. residents; this would include, for example, shares or bonds of U.S. firms held by German residents. The difference between the two is the NIIP, and when claims of foreigners on the U.S. are greater than U.S. claims on foreigners, it represents the net foreign indebtedness of the U.S. economy.

The types of assets and liabilities included in this measure go well beyond corporate securities like shares and bonds. For example, U.S. claims on foreigners include other private assets, such as the value of U.S. direct investment abroad (U.S. subsidiaries and branches in foreign countries) and U.S. bank loans and trade credits. They also include official reserve assets (such as gold and foreign currency reserves) and government assets (such as foreign treasury bills).

Among the most important determinants of the NIIP—and the most commonly referred to until recently—are net financial inflows. For example, consider today’s current account deficit in the U.S. In order to pay for the excess of imports over exports, the U.S. must borrow funds from foreigners, and, by the same token, foreigners must purchase liabilities issued by the U.S. Hence, a current account deficit generates net borrowing from abroad. These financial transactions are recorded as net financial inflows and imply an increase in the stock of net U.S. liabilities to foreigners and a deterioration in the NIIP.

But another determinant of the NIIP to consider is valuation adjustment. This occurs through changes in the value of the stock of foreign assets owned by U.S. residents and in the value of the stock of U.S.

liabilities held by foreigners. Changes in the values of these U.S. assets and liabilities reflect fluctuations both in asset prices and in exchange rates.

Valuation adjustments arising from asset price fluctuations occur when the prices of existing equity shares change. For example, when the price of the shares of a U.S. firm owned by a German investor increases, so does the value of his asset holdings of that firm. Therefore, it leads to a deterioration of the U.S. NIIP. In the same way, when the share prices of a U.S. firm fall, so does the value of the foreign investor's asset holdings, leading to an improvement in the U.S. NIIP. Conversely, when the price of foreign assets held by U.S. investors increases, the U.S. NIIP improves, while a drop in those prices leads to a decrease in the value of the gross asset position and to a deterioration of the U.S. NIIP.

When assets or liabilities are denominated in foreign currencies, exchange rate movements may also create valuation adjustments affecting the dollar equivalent of the value of gross U.S. assets and liabilities. As a substantial fraction of U.S. claims on foreigners is denominated in foreign currencies (39% according to Tille 2004), exchange rate movements generate corresponding gains or losses on these assets. For example, an appreciation of the dollar drives down the dollar value of assets held by U.S. investors that are denominated in foreign currencies. In contrast, most U.S. liabilities to foreigners are denominated in dollars; so their value is basically not affected by exchange rate movements. Therefore, holding other things equal, a dollar appreciation results in a deterioration of the NIIP; and, correspondingly, when the dollar depreciates, the dollar value of foreign-currency denominated assets held by U.S. investors increases, resulting in an improvement in the U.S. NIIP.

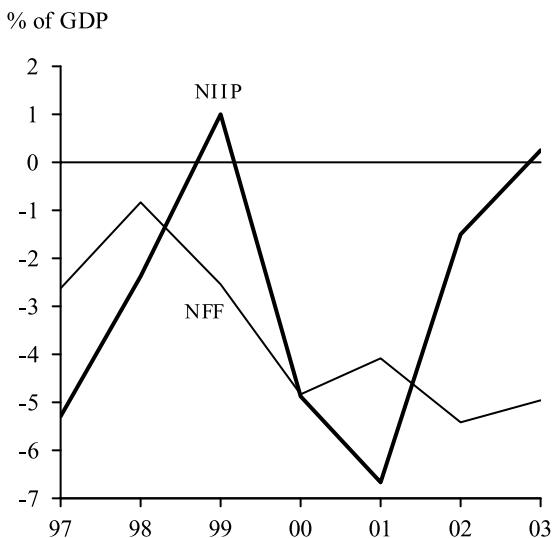
Why do valuation adjustments matter now?

Before the late 1990s valuation adjustments had only a small impact on the NIIP—in other words, net financial inflows arising from the current account deficit and changes in the NIIP traced each other closely for the most part.

In the late 1990s, however, the two began to diverge significantly. Figure 1 plots net financial inflows and annual changes in the U.S. NIIP from 1997 to 2003, the last year of available data. As the figure shows, in 1999, for example, net financial inflows amounted to about 2.5% of GDP, but the change in the NIIP was actually positive at 1% of GDP; on a cumulative basis, from 1998 to 2003 the net financial inflows required to fund the ongoing current account deficits amounted to 21.9% of GDP, while the U.S. NIIP deteriorated by only 11.8%. The difference between these numbers suggests how important valuation adjustments

Figure 1

U.S.: change in NIIP vs. change in net financial flows (NFF)



have been in shaping the recent behavior of the U.S. NIIP. Specifically, valuation adjustments have added a significant counterbalance to the increase in the U.S. NIIP arising from the current account deficit.

A key reason for the growing importance of valuation adjustments for the U.S. NIIP is the country's increased financial integration with the rest of the world over the last two decades. The volumes of both gross assets and gross liabilities increased sharply in the U.S., and, as a result, asset price and exchange rate fluctuations generated larger capital gains and losses.

Similar results have been found for other countries. Lane and Milesi-Ferretti (2001) reported that for industrialized countries, such as Australia, Austria, Finland, the Netherlands, New Zealand, Sweden, Switzerland, the U.K., as well as the U.S., the correlation between the current account and changes in the NIIP is low or even negative, suggesting the increased importance of valuation adjustments for short-run movements in the NIIP. Like the U.S., these countries have developed a significant degree of financial integration with the rest of the world and built up substantial gross international investment positions (see also Obstfeld and Rogoff 2001 and Lane and Milesi-Ferretti 2003). In a subsequent study, Lane and Milesi-Ferretti (2004) found similar patterns for some emerging economies, such as Hungary, Indonesia, Mexico, and Thailand.

Which matters more—asset price changes or exchange rate movements?

Tille (2003) explores the relative importance of asset price changes and exchange rate changes for valuation adjustments. He finds that between 1999 and

2001 valuation adjustments were responsible for 37% of the worsening of the U.S. NIIP, and, of that, 30% can be imputed to exchange rate changes; specifically, the appreciation of the dollar during that period had a substantial impact on the value of assets held by U.S. residents that were denominated in foreign currencies, while asset price declines played a quantitatively limited role. Tille (2004) also reports that during the late 1990s and up to 2002 it was common for valuation adjustments caused by exchange rate movements to influence the NIIP substantially—on the order of 2% of GDP.

Why did exchange rate movements become so important? The main reason is the surge in U.S. holdings of assets denominated in foreign currencies—these amounted to 15% of GDP in 1992 and to 24% at end of 2002 (Tille 2004). More recently, the relative importance of exchange rates appears to continue to hold. During 2002 and 2003, as the dollar depreciated substantially, valuation adjustments arising from exchange rate changes cushioned the deterioration of the U.S. NIIP. As the figure illustrates, net financial inflows amounted to about 5.4% of GDP in 2002 and 5% in 2003, while the ratio of the NIIP to GDP actually improved by 0.26% between those two years. The improvement is accounted for by valuation adjustments, and the bulk of it by exchange rate movements.

Conclusions

The increase in the degree of financial integration of the U.S. with the rest of the world has widened the channel by which valuation adjustments, and particularly exchange rate movements, can affect the NIIP. For example, a depreciation of the dollar can improve the NIIP, as gross assets are exposed to valuation adjustments due to exchange rate movements, while gross liabilities are not; this valuation effect of exchange rate movements is equivalent to a transfer of wealth from foreign countries to the U.S. Likewise, an increase in the value of the dollar worsens the NIIP and it is equivalent to a wealth transfer from the U.S. to the foreign countries it borrows from.

The consequences of exchange rate movements for a country that borrows in dollars, as many emerging market economies do, however, are quite different. A depreciation of its own currency increases the burden of its foreign borrowing and worsens its NIIP.

All this is not to say, however, that we need not pay attention to the relation between the NIIP and the

current account deficit. Rather, as Gourinchas and Rey (2004) have pointed out, the valuation adjustment through exchange rates is particularly helpful in explaining short-term and medium-term changes in the NIIP—that is, over at most a couple of years. Longer-term developments in the NIIP, however, are more deeply rooted in trade and the associated condition of current accounts.

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References

[URLs accessed August 2004.]

- Gourinchas, Pierre-Olivier, and H el ene Rey. 2004. "International Financial Adjustment." Mimeo. University of California, Berkeley. <http://socrates.berkeley.edu/~pog/academic/IFA/ifamarch16.pdf>
- Lane, Philip R., and Gian Maria Milesi-Ferretti. 2001. "The External Wealth of Nations: Measures of Foreign Assets and Liabilities for Industrial and Developing Countries." *Journal of International Economics* 55 (December), pp. 263–294.
- Lane, Philip R., and Gian Maria Milesi-Ferretti. 2003. "International Financial Integration." *IMF Staff Papers* 50 (September), pp. 82–113. <http://www.imf.org/External/Pubs/FT/staffp/2002/00-00/pdf/lane.pdf>
- Lane, Philip R., and Gian Maria Milesi-Ferretti. 2004. "Financial Globalization and Exchange Rates." Mimeo. IMF <http://www.imf.org/external/np/res/seminars/2004/60/pdf/ferret.pdf>
- Obstfeld, Maurice, and Kenneth Rogoff. 2001. "Perspectives on OECD Economic Integration: Implications for U.S. Current Account Adjustment." In *Global Economic Integration: Opportunities and Challenges*, pp. 169–208. FRB Kansas City. <http://www.kc.frb.org/publicat/sympos/2000/S00rogo.pdf>
- Tille, C edric. 2003. "The Impact of Exchange Rate Movements on U.S. Foreign Debt." *Current Issues in Economics and Finance* 9 (January), pp. 1–7. FRB New York. http://www.ny.frb.org/research/current_issues/ci9-1.html
- Tille, C edric. 2004. "Financial Integration and the Wealth Effect of Exchange Rate Fluctuations." Mimeo. FRB New York.

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