PORTFOLIO EFFECTS AND THE POSITION
OF THE DOLLAR IN EXCHANGE MARKETS

Bixio Barenco

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for valuable and dedicated assistance.
SUMMARY AND CONCLUSIONS

The search for a satisfactory explanation of the determinants of exchange rates has proven a frustrating one. On the theoretical side, a degree of consensus has emerged around a "portfolio balance" approach that treats assets denominated in different currencies as being less than perfect substitutes so that relative asset supplies and portfolio preferences are included among the factors affecting exchange rates. On the empirical side, however, these models have performed rather poorly and have generally failed to provide evidence of a significant role for relative supplies. One reason for these negative results may be the lack of data on the currency composition of private portfolios which has obliged empirical tests to rely on very crude proxies, such as cumulated current-account surpluses and deficits.

This state of affairs is especially unfortunate in view of the current situation characterised by large and persistent external imbalances, and the related debate on the assessment and policy implications of these imbalances. Of particular relevance is the U.S. current-account deficit and the prospect for its future financing. It is often assumed that if the financing does not require the share of dollar assets in private portfolios to rise significantly above present levels it may take place rather smoothly at around existing interest rates and exchange rates. On the other hand, if the financing implies a higher share of dollar assets in private portfolios it might require higher expected returns on these assets – higher U.S. interest rates or a lower dollar – to induce investors to accept this change in the currency composition of their portfolios. But here too, the analysis is hampered by the lack of data on the share of dollar assets in private portfolios.

Recent work reported in this paper goes at least a small step in the direction of filling this data gap. This work, which is briefly summarised in Section I, provides figures for the net dollar position of the non-U.S. private sector and for the foreign-currency position of the U.S. private sector. These figures fall short of giving precise information on the currency composition of private portfolios – even only in terms of dollar/non-dollar assets – and hence are still insufficient for a formal testing of the role of relative asset supplies in exchange-rate determination. Nonetheless, they provide some indication of the evolution of the share of dollar assets in non-U.S. portfolios and the share of foreign-currency assets in U.S. portfolios (Section II).
Moreover, these figures may prove valuable in the context of a more casual and narrow approach to exchange-rate determination. This approach, discussed in Section III, abstracts from the role of variables such as interest rates and expectations, and focuses on the demand for new dollar assets arising from the growth of global private portfolios. It then compares this demand with the exogenous supply of such assets related to certain balance-of-payments transactions. More precisely, net dollar positions and foreign-currency positions of, respectively, the non-U.S. private sector and the U.S. private sector provide the basis for estimating the global demand for new financial assets denominated in dollars ("dollar assets") that would be forthcoming in foreign exchange markets if the dollar share of private-sector portfolios remained constant as their value increases—what might be called the "constant portfolio composition demand" for new dollar assets. Of course, the desired currency composition of portfolios can hardly be expected to remain constant, since it depends on a large number of factors, including interest rates and expectations. Hence, as shown by the experience of 1987, in an unsettled economic environment, desired portfolio composition is likely to change significantly and the constant portfolio composition demand is swamped by other forces impinging on exchange rates, notably expectations. But effects arising from the growth of portfolios may have become so important that in less extreme circumstances they may no longer be neglected. And in a relatively favourable environment—i.e., essentially with a good general economic climate, a high level of confidence, and fairly well anchored exchange-rate expectations—the constant portfolio composition demand may play a major role in determining the total demand for dollar assets, even in the face of significant changes in interest differentials.

A comparison of this "spontaneous" demand for new dollar assets with the "exogenous" supply of new dollar assets—i.e., the supply of dollar assets which is largely unrelated to short-term interest-rate and exchange-rate considerations and can be proxied by such balance-of-payments flows as the U.S. current account, U.S. direct investment (net), and compensatory finance in dollars—seems to offer some insights into the year-to-year variations in the position of the dollar in exchange markets. In particular, this approach shows that the remarkable underlying strength of the dollar in 1989 and the first half of 1990, in the face of a strongly adverse evolution of interest differentials, large co-ordinated official intervention against the dollar, and events in central and eastern Europe which strengthened the Deutschmark, coincided with a sharp decrease in the exogenous supply of dollar assets relative to the notional constant portfolio composition demand.

Looking to the future, this flow approach suggests that the confluence of underlying factors favourable to the dollar noted in 1989 and the first half of 1990 may prove only temporary (Section IV). The exogenous supply of dollar assets may increase again if there were a new widening of the U.S. current-account deficit and a tapering off of net direct investment inflows into the United States. While the growth of global portfolios, other things being equal, could continue to translate
into an important demand for new dollar assets, this demand will probably not fully cover the expected financing need. Hence, even under rather optimistic assumptions, the projected exogenous supply of dollar assets would seem to imply a progressive increase in the share of dollar assets in non-U.S. private portfolios. Whether this would require higher expected returns on dollar assets relative to assets denominated in other currencies will largely depend on spontaneous portfolio diversification. Unfortunately, this is a rather complex question which is still not well understood. Nonetheless, it would seem that, while in the near future spontaneous portfolio diversification could remain favourable to the dollar, over the longer term as financial markets outside the United States increase their breadth and depth it could become less supportive of the dollar.

I. INTERNATIONAL INVESTMENT POSITIONS

A. Introduction

For a better understanding of some of the questions raised by the large and persistent U.S. current-account deficit and its financing, several “positions” in terms of stocks of international assets and liabilities are analytically useful. Among these the net dollar position of the non-U.S. private sector and the net foreign-currency position of the U.S. private sector are especially relevant since they may shed some light on portfolio composition and notably the share of dollar assets in non-U.S. private portfolios. As mentioned above, this share and its evolution may be an important factor determining the terms on which future U.S. current-account deficits will be financed.

Figures on the dollar position of the non-U.S. private sector and the foreign-currency position of the U.S. private sector may also be used to estimate the global demand for new dollar assets which, under certain conditions, might result from the growth of global private portfolios. Compared with the projected “exogenous” supply of dollar assets – that is, the supply of dollar assets which is largely unrelated to short-term interest-rate and exchange-rate considerations – this “spontaneous” demand for dollar assets might give at least a rough idea of the underlying position of the dollar in exchange markets.

Unfortunately, the computation of international positions is beset by major statistical as well as conceptual problems, and very little work has been done so far\(^1\). To reach even broad, tentative conclusions, rather drastic assumptions and simplifications must be introduced. It is possible to use either a “gross approach” or a “net approach”. Neither seems entirely satisfactory or clearly superior, each
one offering distinct advantages and disadvantages. Hence, they should be seen as being essentially complementary.

A "gross approach" – focusing on gross claims on the United States in non-U.S. gross portfolios – is attractive from a statistical viewpoint since, despite the many problems involved, it enables estimates to be made of the size of relevant portfolios and their share of claims on the United States. However, because of the existence of the Eurodollar and Eurobond markets and the near impossibility of estimating gross positions of non-U.S. private investors in these markets on the basis of published data, a gross approach must largely restrict itself to an analysis in terms of "claims on the United States": it can hardly perform the same analysis in terms of "claims denominated in U.S. dollars". Given the size of dollar liabilities issued by the non-U.S. public sector and held by the non-U.S. private sector, the two perspectives are quite different not only conceptually but also in practical terms.

From a theoretical point of view, a "net approach" – focusing on net asset positions in net portfolios – is certainly more appealing. Decisions concerning foreign assets and liabilities may often be made by different agents. But with the progressive liberalisation and integration of world capital markets and the introduction of new financial instruments and techniques this distinction may have become less relevant, especially when the analysis – like the one in this paper – is restricted to financial transactions. For instance, in some cases and most notably in Japan, gross investment in foreign financial assets at times seems to represent merely one side of a process of international financial intermediation with little or no impact on the net currency composition of portfolios, exchange rates, and the financing of current-account imbalances. More important perhaps, for an assessment of exchange-rate exposure, net positions are not only superior – with gross positions being downright misleading – but these should be "dollar positions", rather than "positions vis-à-vis the United States".

Using the OECD databank of dollar-denominated liabilities issued by the non-U.S. public sector2, it is possible to estimate the overall net dollar position of the non-U.S. private sector – that is, its dollar position vis-à-vis the United States as well as vis-à-vis the non-U.S. public sector. This is a distinct step forward compared to the usual approach of treating the U.S. current-account deficit (over and above official intervention) as representing the net supply of dollar assets to the rest of the world, and failing to recognise explicitly the non-U.S. public sector as a potential source of dollar assets for the non-U.S. private sector.

The problem with a net approach, however, is that the quantification of relevant portfolios and their dollar share may be even more difficult than with a gross approach. Hence this share and its evolution will not be estimated directly. The focus of this paper being on financial portfolio decisions, the analysis is restricted to stock positions in terms of financial assets and liabilities. Foreign direct investment is excluded, even though the dividing line between positions in real and
financial assets is admittedly quite blurred and any precise distinction is inevitably somewhat arbitrary.

B. Computation

Due to the paucity of data, it is impossible to calculate directly the net dollar position of the non-U.S. private sector, and it is necessary to reinterpret and calculate this position largely as the mirror image of various components of the U.S. external position. But an additional factor in the computation and a major feature of this analysis is the explicit identification of the non-U.S. public sector as a potential source of net dollar assets to the non-U.S. private sector — as a result of official dollar borrowing in financial markets outside the United States, over and above official dollar reserves held outside the United States. The aim of this section is thus to show briefly how, starting from the international investment position of the United States (Table 1, line 1)\(^4\), it is possible to identify and calculate the net dollar position of the non-U.S. private sector (Table 1, line 10)\(^5\).

This computation is in five steps:

- First, the sign of the international investment position of the United States is reversed to derive the position of the rest of the world vis-à-vis the United States (Table 1, line 2);

- Second, the above position is adjusted to derive the position of the non-U.S. private sector vis-à-vis the United States (Table 1, line 4). For this purpose it is necessary to exclude the net position of the non-U.S. public sector vis-à-vis the United States, that is, seen from the U.S. perspective, the net position of the United States vis-à-vis the non-U.S. public sector. It is thus necessary to exclude all claims of the U.S. public and private sectors on the non-U.S. public sector\(^6\), and all liabilities of the U.S. public and private sectors towards the non-U.S. public sector (Table 1, line 3);

- Third, the above position is adjusted to derive the dollar position of the non-U.S. private sector vis-à-vis the United States (Table 1, line 6). In general terms, the purpose of this adjustment is to exclude the non-dollar position of the non-U.S. private sector vis-à-vis the United States, that is, seen from the U.S. perspective, the net foreign-currency position of the United States vis-à-vis the non-U.S. private sector. If the necessary data were available, this would imply the exclusion of the foreign-currency component of claims of both the U.S. public sector and the U.S. private sector on the non-U.S. private sector, as well as the foreign-currency component of liabilities of both the U.S. public sector and the U.S. private sector towards the non-U.S. private sector. In practice, the foreign-currency components of these items is not always available and in a few cases it was estimated (Table 1, line 5)\(^7\);

- Fourth, the above position is adjusted to derive the dollar position of the non-U.S. private sector — vis-à-vis the United States as well as vis-à-vis the
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<tbody>
<tr>
<td>1. U.S. international investment position</td>
<td>67.7</td>
<td>56.2</td>
<td>37.8</td>
<td>47.9</td>
<td>58.7</td>
<td>74.2</td>
<td>83.7</td>
<td>72.7</td>
<td>78.1</td>
<td>94.5</td>
<td>106.3</td>
<td>140.9</td>
<td>128.7</td>
<td>88.9</td>
<td>3.3</td>
<td>-111.4</td>
<td>-287.8</td>
<td>-378.3</td>
<td>-532.8</td>
</tr>
<tr>
<td>2. Position of the rest of the world via-d-vis the U.S. (line 1 with sign reversed)</td>
<td>-67.7</td>
<td>-56.2</td>
<td>-37.8</td>
<td>-47.9</td>
<td>-58.7</td>
<td>-74.2</td>
<td>-83.7</td>
<td>-72.7</td>
<td>-78.1</td>
<td>-94.5</td>
<td>-106.3</td>
<td>-140.9</td>
<td>-128.7</td>
<td>-88.9</td>
<td>-3.3</td>
<td>111.4</td>
<td>287.8</td>
<td>378.3</td>
<td>532.8</td>
</tr>
<tr>
<td>3. First adjustment: to exclude the net position of the non-U.S. public sector via-d-vis the U.S.</td>
<td>6.2</td>
<td>-23.2</td>
<td>-30.6</td>
<td>-32.9</td>
<td>-39.8</td>
<td>-40.0</td>
<td>-45.1</td>
<td>-70.1</td>
<td>-93.1</td>
<td>-71.4</td>
<td>-73.4</td>
<td>-59.9</td>
<td>-48.3</td>
<td>-38.1</td>
<td>-35.7</td>
<td>-32.0</td>
<td>-60.9</td>
<td>-105.6</td>
<td>-146.5</td>
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<tr>
<td>4. Position of the non-U.S. private sector via-d-vis the U.S.</td>
<td>-61.5</td>
<td>-78.4</td>
<td>-68.2</td>
<td>-86.6</td>
<td>-98.5</td>
<td>-114.2</td>
<td>-128.0</td>
<td>-142.8</td>
<td>-169.2</td>
<td>-165.9</td>
<td>-178.7</td>
<td>-200.6</td>
<td>-183.0</td>
<td>-127.1</td>
<td>-39.0</td>
<td>79.4</td>
<td>208.9</td>
<td>272.7</td>
<td>386.1</td>
</tr>
<tr>
<td>5. Second adjustment: to exclude the net non-dollar position of the non-U.S. private sector via-d-vis the U.S.</td>
<td>86.3</td>
<td>98.2</td>
<td>108.1</td>
<td>119.3</td>
<td>126.6</td>
<td>143.2</td>
<td>156.8</td>
<td>169.8</td>
<td>168.2</td>
<td>211.7</td>
<td>242.7</td>
<td>256.3</td>
<td>242.3</td>
<td>250.3</td>
<td>256.0</td>
<td>277.9</td>
<td>308.4</td>
<td>363.9</td>
<td>381.0</td>
</tr>
<tr>
<td>6. Dollar position of the non-U.S. private sector via-d-vis the U.S.</td>
<td>27.8</td>
<td>18.8</td>
<td>30.9</td>
<td>30.5</td>
<td>28.1</td>
<td>29.0</td>
<td>28.8</td>
<td>27.0</td>
<td>17.0</td>
<td>45.8</td>
<td>63.0</td>
<td>55.5</td>
<td>59.3</td>
<td>123.2</td>
<td>217.0</td>
<td>357.3</td>
<td>515.3</td>
<td>838.8</td>
<td>787.1</td>
</tr>
<tr>
<td>7. Third adjustment: to include the net dollar position of the non-U.S. private sector via-d-vis the non-U.S. public sector</td>
<td>-40.1</td>
<td>-38.5</td>
<td>-34.6</td>
<td>-24.8</td>
<td>-14.9</td>
<td>-16.3</td>
<td>22.3</td>
<td>49.6</td>
<td>80.7</td>
<td>94.1</td>
<td>138.3</td>
<td>140.8</td>
<td>128.2</td>
<td>125.3</td>
<td>91.7</td>
<td>-1.4</td>
<td>27.7</td>
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<tr>
<td>8. Dollar position of the non-U.S. private sector (identified real and financial assets)</td>
<td>..</td>
<td>..</td>
<td>-0.2</td>
<td>-0.0</td>
<td>-8.5</td>
<td>4.2</td>
<td>14.9</td>
<td>10.7</td>
<td>39.3</td>
<td>95.4</td>
<td>143.7</td>
<td>149.8</td>
<td>197.6</td>
<td>283.8</td>
<td>345.2</td>
<td>482.6</td>
<td>607.0</td>
<td>635.2</td>
<td>794.8</td>
</tr>
<tr>
<td>9. Fourth adjustment: to exclude foreign direct investment in the U.S. and to include the cumulated BoP errors and omissions item</td>
<td>-19.0</td>
<td>-29.4</td>
<td>-32.3</td>
<td>-40.5</td>
<td>-46.7</td>
<td>-43.4</td>
<td>-36.0</td>
<td>-41.8</td>
<td>-37.2</td>
<td>-23.8</td>
<td>-28.0</td>
<td>-34.0</td>
<td>-15.6</td>
<td>-18.8</td>
<td>-22.4</td>
<td>-27.1</td>
<td>-51.6</td>
<td>-101.1</td>
<td>-168.8</td>
</tr>
<tr>
<td>10. Dollar position of the non-U.S. private sector</td>
<td>..</td>
<td>..</td>
<td>-32.5</td>
<td>-48.8</td>
<td>-53.2</td>
<td>-39.2</td>
<td>-21.1</td>
<td>-31.1</td>
<td>2.1</td>
<td>71.6</td>
<td>115.7</td>
<td>115.8</td>
<td>182.0</td>
<td>245.0</td>
<td>322.8</td>
<td>455.5</td>
<td>555.4</td>
<td>534.1</td>
<td>828.0</td>
</tr>
</tbody>
</table>

a/ That is, the net position of the United States via-d-vis the non-U.S. public sector with sign reversed.
b/ That is, the net foreign currency position of the United States via-d-vis the non-U.S. private sector with sign reversed.

non-U.S. public sector (Table 1, line 8). Broadly speaking, the purpose of this adjustment is to include the net dollar position of the non-U.S. private sector vis-à-vis the non-U.S. public sector (Table 1, line 7). More specifically, it includes "compensatory finance" in dollars carried out outside the United States, net of official dollar reserves held outside the United States (assumed to represent essentially dollar liabilities of the non-U.S. private sector towards the non-U.S. public sector). Compensatory finance – dollar liabilities of the non-U.S. public sector – represents a feature of official financing that has generally not been treated systematically in financial accounts and analysis. The estimates of net compensatory finance used here are based on relatively detailed issuance data collected by the OECD, but the data on redemptions rely on rather ad hoc judgements. As for official dollar reserves held outside the United States reliable data are practically non-existent and had to be estimated. Hence, while these estimates fill a major gap and allow the analysis to be pushed forward in one crucial aspect, they must be regarded as a first step and subject to a significant margin of error;

– Finally, the above position is adjusted to derive a more refined version of the dollar position of the non-U.S. private sector. This adjustment entails the exclusion of foreign direct investment in the United States and the inclusion of the errors and omissions item of the U.S. balance of payments (Table 1, line 9). The exclusion of foreign direct investment narrows the focus of the computation to the position in financial assets. The inclusion of the errors and omissions item of the U.S. balance of payments is motivated by the fact that U.S. official data on the international investment position totally ignore the cumulated impact on stock positions of this item, even though there is a large degree of agreement that it primarily reflects unrecorded capital flows. Over the last decade or so it has been typically quite large and positive, pointing to a sizeable net inflow of foreign funds and a build-up of U.S. liabilities towards foreigners which is not reflected in official data. The addition of the errors and omissions item of the U.S. balance of payments cumulated since 1960, while a rather crude approach, may nonetheless provide a better approximation of the true dollar position of the non-U.S. private sector than its total exclusion (Table 1, line 10).

The exact order and grouping of the various adjustments discussed above can of course be varied somewhat, depending on which intermediate steps and counterpart positions are to be emphasised. An alternative approach, followed in Table 2 and summarised in Chart A, emphasises the accounting counterparts of the net dollar position of the non-U.S. private sector. This approach also provides an overall view of the international investment positions of the United States and of the rest of the world with their respective private sectors and public sectors, and the
### Table 2. Derivation of the dollar position of the non-U.S. private sector: alternative summary presentation

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<td>47.9</td>
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<td>74.2</td>
<td>83.7</td>
<td>72.7</td>
<td>78.1</td>
<td>84.5</td>
<td>106.3</td>
<td>140.9</td>
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<td>89.9</td>
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<td>-111.4</td>
<td>-267.8</td>
<td>-378.3</td>
<td>-532.9</td>
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<tr>
<td>2. U.S. international investment position, adjusted</td>
<td>-28.2</td>
<td>-27.1</td>
<td>-53.7</td>
<td>-47.8</td>
<td>-38.1</td>
<td>-42.9</td>
<td>-58.7</td>
<td>-78.5</td>
<td>-93.7</td>
<td>-114.6</td>
<td>-137.1</td>
<td>-112.2</td>
<td>-125.9</td>
<td>-177.9</td>
<td>-287.1</td>
<td>-407.1</td>
<td>-574.3</td>
<td>-647.9</td>
<td>-793.8</td>
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<tr>
<td>3. Dollar position of the rest of the world (line 2 with sign reversed)</td>
<td>20.2</td>
<td>27.1</td>
<td>63.7</td>
<td>47.8</td>
<td>38.1</td>
<td>42.9</td>
<td>58.7</td>
<td>78.5</td>
<td>83.7</td>
<td>114.5</td>
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<td>125.8</td>
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<td>287.1</td>
<td>407.1</td>
<td>574.3</td>
<td>647.9</td>
<td>793.8</td>
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<td>4. Dollar position of the non-U.S. public sector</td>
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<tr>
<td>a/ Net claims on the U.S.</td>
<td>11.4</td>
<td>37.7</td>
<td>46.2</td>
<td>49.9</td>
<td>56.8</td>
<td>57.2</td>
<td>64.9</td>
<td>91.3</td>
<td>114.0</td>
<td>92.5</td>
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<td>73.5</td>
<td>72.4</td>
<td>76.5</td>
<td>110.8</td>
<td>152.5</td>
<td>195.3</td>
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<td>b/ Net claims on the non-U.S. private sector</td>
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CHART A

INTERNATIONAL INVESTMENT POSITIONS

I. US international investment positions

II. Adjustment item

III. Dollar positions of the rest of the world

1. US net international investment position adjusted with sign reversed
breakdown of these positions in terms of dollars and foreign currencies in the case of the United States, and in terms of dollar claims and claims on the United States in the case of the rest of the world.

From a theoretical viewpoint, the most relevant "composite product" that can be derived from these international positions may be the net dollar position of the non-U.S. private sector less the net foreign-currency position of the U.S. private sector, which can be seen as representing the net position of the global private sector vis-à-vis the dollar. Changes in this position represent the global private sector's demand for new dollar assets stemming from the desire of the non-U.S. private sector to increase its holdings of such assets in exchange for domestic currency, net of the desire of the U.S. private sector to increase its holdings of foreign-currency assets in exchange for dollars. It is this global position which is used in Section III to examine portfolio balance effects.

II. THE EVOLUTION OF PORTFOLIO POSITIONS

A. Overview

This section looks at the evolution of the dollar position of the non-U.S. private sector and its counterparts, and its implications for the composition on non-U.S. private portfolios as between dollar assets and assets denominated in other currencies. It also briefly considers the same questions with respect to the foreign-currency component of U.S. private portfolios.

The net dollar position of the non-U.S. private sector has been broadly the mirror image of the international investment position of the United States over the last 15 years or so (Chart A). But this relationship has been quite loose. The other counterparts portrayed in Chart A – the adjustment item and the net dollar position of the non-U.S. public sector – have also played an important role, especially over periods of only a few years. Hence, at end-1988, the net dollar position of the non-U.S. private sector was nearly $100 billion or 20 per cent larger than the (negative) international investment position of the United States, and in 1987 the former changed little while the latter deteriorated by over $100 billion.

The most important single factor accounting for the large and growing difference in size between the dollar position of the non-U.S. private sector and the U.S. international investment position has been the cumulated errors and omissions item of the U.S. balance of payments – $160 billion at end-1988 (Chart A, panel II).
The U.S. net direct investment position and the U.S. net foreign-currency position together represented some $100 billion at end-1988. These three factors, while growing over time, have displayed a considerable degree of stability and have consistently represented a positive counterpart to the dollar position of the non-U.S. private sector, raising it well above the level implied by the U.S. international investment position. On the other hand, the net dollar position of the non-U.S. public sector has exhibited a pronounced cyclical pattern, fluctuating around zero and reaching some $170 billion at end-1988 (Chart A, panel III). Hence, this item has been alternatively a positive and a negative counterpart to the dollar position of the non-U.S. private sector – a positive counterpart representing a negative dollar position of the non-U.S. public sector and entailing, other things being equal, a larger amount of dollar assets to be absorbed by the non-U.S. private sector. Occasionally, the evolution of the dollar position of the non-U.S. private sector has primarily reflected the evolution of the dollar position of the non-U.S. public sector, notably in 1980-82 and even more so in 1987. In that year, as a result of massive intervention in exchange markets in support of the dollar, the deterioration of the U.S. international investment position was more than matched by the strengthening of the dollar position of the non-U.S. public sector, and the dollar position of the non-U.S. private sector actually declined somewhat.

These figures strongly support the widely held view that the U.S. current-account deficit is practically all financed in dollars. Indeed, the U.S. private sector has consistently had a positive, albeit modest, net position in foreign currencies (in terms of financial assets, that is excluding direct investment abroad). This position has progressed rather regularly over the years, despite the sharp fluctuations of the dollar. On the other hand, the size and year-to-year changes in compensatory finance invalidate the corollary view that the U.S. current-account position is an acceptable proxy for the supply of new dollar assets to the rest of the world – to be absorbed either by the non-U.S. private sector or by central banks through official intervention. In fact, as it will be discussed below (Table 3), until the mid-80s, changes in compensatory finance often outweighed U.S. current-account deficits and surpluses.

For a more detailed analysis, the period covered by Chart A should be divided into three sub-periods: the first one from 1974 to 1978; the second one from 1978 to 1983; and the third one from 1983 to 1988 (with 1987 representing a major "discontinuity"). From 1974 to 1978, the non-U.S. private sector had no significant net dollar position, and the non-U.S. public sector had a rather stable and moderately positive dollar position as the rapid progression of compensatory finance in dollars was broadly matched by the growth of official dollar reserves.

From 1978 to 1983, the dollar position of the non-U.S. private sector improved by nearly $250 billion and became strongly positive. This development was not so much related to the U.S. external position as to the dollar position of the non-U.S. public sector which deteriorated by nearly $150 billion and became negative as a
result of the strong progression of compensatory finance and the decline in official dollar assets.

Finally, from 1983 to 1988, the net dollar position of the non-U.S. private sector continued to grow reflecting the widening U.S. current-account deficit and the rapid deterioration of the U.S. international investment position. Hence, unlike the 1978 to 1983 sub-period, the strengthening of the dollar position of the non-U.S. private sector was largely accounted for by an increase in identified dollar claims on the United States – even though the cumulated errors and omissions item continued to grow. On the other hand, the dollar position of the non-U.S. public sector became positive as a result of both a decrease in the stock of outstanding compensatory finance – as liquidation began to exceed new issues of official dollar liabilities over this period – and a massive increase in official dollar reserves in 1987.

B. Portfolio Composition

A first and somewhat surprising finding of this work – given the widely acknowledged international role of the dollar even in private transactions – is that the net dollar position of the non-U.S. private sector was negative in the mid-1970s\textsuperscript{10}. This negative position remained broadly stable in absolute terms, but it contracted significantly as a percentage of GNP/GDP of OECD countries excluding the United States (Chart B). Since securities prices and the exchange rate of the dollar did not, on balance, change markedly over this period, the (negative) share of dollar assets in private non-U.S. portfolios probably also decreased.

A second finding is that, as the dollar position of the non-U.S. private sector has become positive and has progressed very rapidly since the late-1970s, the share of dollar assets in financial portfolios is likely to have followed a similar trend. This is what has happened to the dollar position of the non-U.S. private sector which has progressed from practically zero in 1978 to nearly 8 per cent of the GNP/GDP of OECD countries excluding the United States in 1988. But there are two reasons why it may not be entirely permissible to assume that the ratio of private financial portfolios to GNP/GDP has remained broadly stable: first, the sharp increase in share prices world-wide and especially in Japan; and second, the depreciation of the dollar, notably vis-à-vis the yen. Both these factors have worked to accelerate the growth of financial portfolios of the non-U.S. private sector when expressed in dollar terms, and hence – other things being equal – to slow down the progression of the share of dollar assets in these portfolios\textsuperscript{11}.

Nonetheless, the growth of the dollar position of the non-U.S. private sector over the last decade seems sufficiently strong to have resulted in a significant increase in the share of dollar assets – an impression confirmed by crude estimates of the likely rate of growth of financial portfolios expressed in dollars. For instance, the average annual rate of growth of (gross) financial assets of the enterprise sector of industrial countries excluding the United States has been estimated at 16 per
CHART 6
DOLLAR POSITIONS OF THE REST OF THE WORLD
AS PERCENTAGE OF GNP/GDP (1)

1. OECD GNP/GDP excluding United States
cent for the period 1982-88\textsuperscript{12}, a considerably slower progression than the 24 per cent annual rate of growth recorded by the (net) dollar position of the non-U.S. private sector over the same period. A more disaggregated analysis of the currency composition of gross portfolios focusing on Japanese institutional investors also seems to lend some support to this impression. Of course, because of its string of current-account surpluses and the piling up of net external assets, Japan is at one extreme of the spectrum of countries representing the non-U.S. group. And, on a gross basis, the increase in the share of dollar assets in private portfolios must have been much higher in Japan than elsewhere given the growing role of Japan in international financial intermediation. But, as noted above, both the share-prices effect and the exchange-rate effect have been especially relevant in Japan and have tended to limit countries' disparities in this respect. Moreover, given the importance of Japanese financial portfolios compared to those of the rest of the non-U.S. sector, the average for the entire non-U.S. sector is highly dependent on the Japanese case.

It should be noted that, even if the share of dollar assets in non-U.S. private portfolios did increase over the last decade or so, this does not necessarily imply that expected returns on dollar assets relative to assets denominated in other currencies had to increase since there may have been a concomitant shift in portfolio preferences (or spontaneous portfolio diversification) in favour of the dollar. Because of widespread exchange controls and financial regulations, the share of dollar assets in the late-1970s was probably well below its desired level. Its subsequent rise, following the progressive abolition of these controls and regulations, may have represented a catching-up process with the desired share, which may itself have been further pushed up by the process of financial innovation and integration of world capital markets.

As for the share of foreign-currency assets in U.S. private portfolios, it seems to have decreased over the last decade or so. Over this period, the net position of the U.S. private sector in foreign currencies has progressed regularly but rather slowly, reaching only a little over $50 billion at end-1988. The foreign-currency position of the U.S. private sector has remained remarkably stable at around 1 per cent of U.S. GNP – despite the rapid integration of world financial markets and the impressive development of cross-border transactions. To a certain extent, this may be evidence that spot figures are a poor proxy for overall exchange-rate exposure. The little information available suggests that, while U.S. investors rarely hedge their exchange-rate risk, U.S. companies which borrow in foreign currencies typically cover their exchange-rate exposure by swapping the proceeds into dollars or through other techniques. For instance, if four-fifths of the proceeds of foreign-currency borrowing since 1980 have been swapped into dollars, this would represent a decrease of foreign-currency liabilities and an increase of the net foreign currency position of the U.S. private sector of some $30 billion or ½ per cent of GNP. But even allowing for this factor, in view of the sharp rise in U.S. share prices over this period, it is doubtful whether the share of foreign-currency assets in U.S. portfolios has increased at all.
III. PORTFOLIO EFFECTS, BALANCE-OF-PAYMENTS FLOWS
AND THE POSITION OF THE DOLLAR IN EXCHANGE MARKETS

Relying on the stock positions of the U.S. and non-U.S. private sectors calculated above and on the OECD data bank on compensatory finance in dollars, this section develops a simplified flow analysis of the position of the dollar in exchange markets. The analysis abstracts from the role of variables such as interest rates and expectations and focuses, on one side, on the demand for new financial assets denominated in dollars ("dollar assets") arising from the growth of global private portfolios and, on the other side, on the exogenous (or structural) supply of such assets related to certain balance-of-payments transactions. This is clearly a second best and rather heuristic approach which begs many questions. Nonetheless, given the rather dismal performance of formal models of exchange-rate determination\(^13\) a less rigorous approach restricted to a core subset of exchange-rate transactions may be justified. More specifically, this flow analysis may indicate whether the proximate causes of year-to-year variations in the position of the dollar in exchange markets are essentially monetary, to be explained on the demand side in terms of changes in expected yield differentials; or whether they are primarily related to changes in either demand or supply due to, respectively, portfolio effects and changes in balance-of-payments flows like the U.S. current account, U.S. direct investment and compensatory finance in dollars which are usually explained in terms of a different set of factors (including the lagged impact of past changes in exchange rates).

A. The exogenous supply of dollar assets

The exogenous supply of new dollar assets cannot be derived from changes in the stock positions computed in Section I. Those are \textit{ex post} positions which represent, at the same time, quantities demanded and quantities supplied, equated through the usual market-clearing mechanism of changes in exchange rates. As a proxy for \textit{ex ante} or exogenous supply data it is necessary to rely on sources of dollar assets which are relatively insensitive to short-term interest-rate and exchange-rate considerations. It is thus necessary to reconsider from this perspective the stocks of dollar assets and their sources — that is, certain U.S. balance-of-payments flows and selected dollar transactions of the non-U.S. public sector.

The main U.S. sources of net financial assets to the rest of the world are the U.S. current-account deficit, U.S. direct investment outflows (net)\(^14\), and U.S. official capital outflows\(^15\). These three items can be taken as representing the U.S. balance on non-financial transactions which, by definition, must be matched by offsetting private financial flows and net transactions of monetary authorities (essentially, official intervention). As noted, U.S. external deficits are practically all financed in dollars and U.S. residents have maintained a rather modest and only gradually
increasing net position in foreign currencies (at least, in terms of financial assets and on a spot basis). In addition, current-account transactions, direct investment and official capital flows are all relatively unresponsive, within a year or so, to changes in expected yield differentials. Hence, as a broad generalisation, the U.S. balance on non-financial transactions can be seen as representing the exogenous U.S. supply of new financial assets denominated in dollars to be absorbed by the rest of the world (Table 3, line 4). To find the global, exogenous supply of these assets it is then necessary to add those dollar transactions of the non-U.S. public sector – new compensatory finance in dollars and changes in official dollar reserves – which can be taken as being largely unresponsive to short-term exchange-rate and interest-rate considerations.

While compensatory finance is generally defined as foreign-currency borrowing by the public sector undertaken for balance-of-payments purposes, for the calculation of the dollar position of the non-U.S. private sector, it had to be defined to include all dollar borrowing by all public-sector entities. Hence, it includes borrowing by Canadian provinces and other public entities which may reflect more a portfolio optimising behaviour than government economic policies, and should be treated like a financial transaction of the private sector – that is, an endogenous interest-rate and exchange-rate sensitive flow. Moreover, a country may decide to engage in compensatory finance because of its own external position but the specific currency, or currencies, in which it borrows may be dictated, at least in part, by portfolio considerations and reflect factors like the position of the dollar in exchange markets at that moment. Nonetheless, compensatory finance in dollars of Canadian provinces is a relatively small proportion of the total, and given the depth and breadth of the dollar sector of the international capital market compared to the other sectors, the scope for currency substitution may be limited. Therefore, while it will be necessary to keep these caveats in mind, as a broad generalisation, it may be permissible to treat compensatory finance as an exogenous source, adding to the net flow of dollar assets generated by the U.S. balance on non-financial transactions (Table 3, line 5).

With respect to official dollar reserves, ideally a distinction should again be made between exogenous transactions, motivated by factors other than the position of the dollar in exchange markets and representing a component (positive or negative) of the global supply of dollar assets; and endogenous transactions, related to the position of the dollar and not directly relevant to this analysis in terms of the exogenous demand and supply of dollar assets. The first category would include changes in official dollar reserves which reflect: i) an external financing need of countries which peg their exchange rate and use the dollar as the reserve currency; and ii), a long-term strategy of official portfolio diversification. The second category would include changes in dollar reserves which reflect: i) bilateral or multilateral efforts to stabilise dollar exchange rates; and ii) official portfolio shifts motivated by the evolution of the dollar in exchange markets. But the dividing line is
Table 3. "Supply" and "demand" of new dollar assets

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</table>

Memorandum items:

9. Absorption of dollar assets by monetary authorities

-3.0 | 15.0 | 49.0 | 29.0 | -4.0 | -2.0 | 5.0 | -19.0 | 6.0 | 15.2 | 10.1 | 49.3 | 128.2 | -4.5 |

10. Implied absorption of dollar assets by the non-U.S. private sector

12.1 | 10.2 | 1.4 | 43.0 | 62.5 | 28.0 | 2.8 | 48.9 | 41.9 | 62.1 | 94.9 | 77.4 | 1.7 | 68.9 | .

* = deficits or outflows.


* = Lines 4 plus 5.

* = Estimated under the assumption that global investors wish to keep the same composition of their portfolios as between assets denominated in dollars and assets denominated in other currencies, and that private portfolios grow at an average annual rate of 10 per cent.

a/ Lines 6 minus 7.

b/ Lines 6 minus 9.

quite blurred, and it may be practically impossible to classify changes in official dollar reserves according to these criteria. Since official intervention to stabilise key dollar rates have probably accounted for the bulk of official dollar purchases and sales over the period since 1975, for working purposes all changes in official dollar reserves will be treated as an endogenous demand for dollar assets (or "absorption" of dollar assets), and shown in Table 3 as a memorandum item (line 9), along with the implied absorption of dollar assets by the non-U.S. private sector (line 10)\textsuperscript{18}.

B. The portfolio-related demand for dollar assets

In a growing world economy considerations of portfolio balance may be expected to result in a spontaneous or exogenous demand for new dollar assets. A parallel with micro-economic theory may help to clarify this point. It is a well-established tenet of the theory of demand that the quantity demanded of any given good depends, among other factors, on the level of income to be spent or allocated. In the case of most goods, an increase in income, other things being equal, results in an increase in demand which will be more or less than proportional depending on the income elasticity of the good in question. In the case of financial investment, net financial wealth plays essentially the same role that income plays in the theory of demand. It is generally assumed that an increase in the size of the total portfolio, with the relative attractiveness of all assets remaining unchanged, results in an increased demand for both assets denominated in domestic currency and assets denominated in foreign currencies. But it is difficult to be more specific and stipulate how the desired composition of portfolios as between assets denominated in different currencies will vary in response to the growth of portfolios. This is a point which has not been satisfactorily discussed in the vast literature on exchange-rate determinations which, in the case of portfolio effects, has focused on changes in relative asset supplies, shifts in portfolio preferences, and the redistribution of wealth among countries with different portfolio preferences through current-account imbalances\textsuperscript{19}. Exchange-rate models have typically assumed asset demands to be homogeneous functions of the first degree with respect to wealth which means that the desired composition of portfolios does not depend on their size\textsuperscript{20}.

Using this assumption, it is possible to provide a rough estimate of the demand for new dollar assets stemming from the growth of global portfolios. While it is impossible to quantify with any precision the size of relevant portfolios and their share of dollar assets, the rate of growth of these portfolios – known or assumed – combined with the net dollar position of the non-U.S. private sector calculated above is sufficient to derive the amount of additional dollar assets which in any given period must be absorbed by the non-U.S. private sector to keep the dollar/non-dollar composition of its portfolios at the existing level – whatever that might be. The same approach applied to the net position in foreign currencies of the U.S. private sector and the combination of the two results gives a tentative idea
of the global demand for new dollar assets which might take place spontaneously as a result of the growth of portfolios – what might be called the “constant portfolio composition demand”.

This is of course a partial demand which is derived under the usual assumptions that everything else remains unchanged. In real life, “other things” are hardly ever “equal”: the desired composition of portfolios and the total demand for dollar assets typically are the net result of a large number of factors, including interest rates and expectations. These two factors have often been singled out as the main proximate determinants of exchange rates and, especially in a rather unsettled economic environment, expectations are believed to swamp all other considerations. But in less extreme circumstances, the demand for new dollar assets related to the growth of global portfolios may have become so important that it can no longer be neglected in an assessment of the position of the dollar in exchange markets. And in a relatively favourable environment – that is, essentially with a good general economic climate, a high level of confidence, and fairly well anchored exchange-rate expectations – the constant portfolio composition demand may play a major role in determining the total demand for dollar assets, even in the case of significant changes in interest differentials. Finally, this kind of portfolio effect seems especially relevant for a forward-looking analysis, where the aim is to ascertain whether the financing of future U.S. external deficits is likely to take place around current interest rates and exchange rates, or whether it might require significant changes in these variables.

C. The position of the dollar in exchange markets

Comparing the demand and supply of dollar assets, as defined above, may shed some light on the underlying position of the dollar in exchange markets. Table 3 shows an estimate of the constant portfolio composition demand (line 7) under the highly simplifying assumption of a uniform annual rate of growth of relevant portfolios of 10 per cent21. Charts C and D show the global supply and absorption of dollar assets and their components – as presented in Table 3 – combined with the effective exchange rate of the dollar. The resulting overall picture is quite different as between the 1970s, the 1980s until 1987, and 1988-89.

In the first period, while the U.S. balance on non-financial transactions may be sufficient for a general explanation of the evolution of the dollar, compensatory finance seems to provide a striking additional reason for the dollar crisis of 1977-78 and its progressive resolution over the following years. With the net dollar position of the non-U.S. private sector close to zero, the constant portfolio composition demand was largely irrelevant during this period.

From 1980 until 1987, neither the U.S. balance on non-financial transactions nor compensatory finance showed any consistent correlation with the evolution of the dollar. While the U.S. balance on non-financial transactions followed a steep
CHART C
SUPPLY OF NEW DOLLAR ASSETS AND THE EXCHANGE RATE OF THE DOLLAR
CHART D

ABSORPTION OF NEW DOLLAR ASSETS AND THE EXCHANGE RATE OF THE DOLLAR

[Graph showing absorption of new dollar assets and the exchange rate of the dollar over time, with labels for official absorption and private absorption, and indices for the exchange rate.]
upward trend and compensatory finance trended downward, the dollar first soared and then plunged. Hence, this major cycle in the exchange rate of the dollar seemingly had little to do with supply-side conditions and its proximate causes should be sought essentially on the demand side – presumably in terms of changes in expected yield differentials. Another, albeit minor factor contributing to the rise of the dollar might have been the constant portfolio composition demand which, following the rapid build-up of net dollar assets by the non-U.S. private sector, by 1984 might have been of the order of $20 billion, or one-fourth of the global supply of dollar assets. Once the dollar turned around, this factor presumably cushioned the severity of its fall. But in 1987, with unsettled financial markets, the constant portfolio composition demand was apparently swamped by other factors, and global investors sought to reduce the share of dollar assets in their portfolios. The non-U.S. private sector hardly absorbed any new dollar assets, the exchange rate of the dollar fell, and central banks had to absorb practically the whole global supply of new dollar assets.

More recently, after fluctuating with no clear trend in 1988, the dollar rebounded in the first half of 1989 and remained resilient in the following twelve months despite a sharply adverse movement of interest differentials, heavy official intervention to cap it, and events in central and eastern Europe which strengthened the Deutschemark. Conjunctural factors, such as the outlook for interest rates and the prospect for a “soft-landing”, as well as smaller-than-expected monthly U.S. trade deficits, undoubtedly played an important role. But the underlying strength of the dollar may have been associated with a major reduction in the global supply of dollar assets and a growing role of portfolio effects.

Mainly as a result of an improvement of the U.S. current account and a surge in net inflows related to direct investment, the global supply of new dollar assets fell by over $70 billion in less than two years — from $130 billion in 1987 to $56 billion in 1989. Hence, in 1989 the global supply of dollar assets was practically in line with the demand for new dollar assets that would have taken place if the composition of global portfolios in terms of dollar/non-dollar assets had remained unchanged — compared with an excess “supply”, on the same basis, of $80 billion in 1987 (Table 3, line 8). But with central banks being large net sellers of dollars in 1989, the non-U.S. private sector seems to have absorbed an amount of dollars well in excess of the global supply as defined here, thus increasing the share of dollars in its portfolios. Following the “pause” of 1987, which presumably caused this share to decrease, and in view of the more settled environment investors may have sought to catch up with respect to longer-term investment strategies.

Given the margin of error of the calculations and the tentative nature of any portfolio-based effect, these considerations are clearly very speculative. Nonetheless, with a generally improved economic climate and better anchored exchange-rate expectations, over the last couple of years global investors may have been more inclined to expand their holdings of dollar assets roughly in line with their
portfolios. This factor, combined with the sharp contraction of the supply of dollar assets, seems to provide at least a partial explanation for the underlying strength of the dollar in 1989 and the first half of 1990.

IV. THE MEDIUM-TERM OUTLOOK

Few analysts expect the U.S. external deficit to disappear completely in the foreseeable future. Whether its financing will take place more or less spontaneously at around current interest differentials and exchange rates or whether it will prove more disruptive may depend, among other factors, on what this financing will imply for the share of dollar assets in non-U.S. portfolios and the risk premium. This, in turn, will depend on the size of the U.S. external deficit and the global supply of dollar assets relative to the spontaneous demand for such assets – which will reflect portfolio preferences and the growth of financial portfolios. This section will try to assess these questions using the analytical framework developed above and a few back of the envelope calculations. First, it will consider the likely future evolution of the global supply of dollar assets and the demand for new dollar assets that might be forthcoming if global investors were to keep the relevant composition of their portfolios unchanged. Second, it will briefly discuss the outlook for spontaneous portfolio diversification and its impact on the dollar.

A. The likely evolution of the global supply of dollar assets and the portfolio-related demand

Given present policies and exchange rates, and assuming that OECD economies grow at around their potential rates, the U.S. current-account deficit could widen again over the medium term – that is, over the next five years or so. As for U.S. capital inflows on account of foreign direct investment (net) it seems safe to assume that in the near future they will remain at around present record levels since many of the transactions included in this item react rather slowly to changes in economic conditions. But several considerations suggest that we might be close to the peak and that over the medium term net direct investment inflows may abate somewhat. These considerations include: i) a lagged reaction to the weakening of the U.S. cyclical position relative to the rest of the OECD area; ii) a reduced incentive for foreign companies to invest in the United States as a result of the recovery of the dollar; iii) a tapering off of the wave of inward investment related to trade imbalances and the threat of protectionism, and aiming at shifting foreign production to the United States (notably in the automobile industry); iv) the increased interest of U.S. companies for investing in EC countries in response to the single market, as well as in a number of developing countries which seem to
be relaxing their negative attitude toward foreign direct investment; vi) the possibility that events in central and eastern Europe may lead to significant direct investment by U.S. companies; and vii) the fact that foreign direct investment in the United States has reached a socially and politically sensitive level which may already create additional uncertainties and disincentives for a number of potential foreign investors.

The third component of the U.S. balance on non-financial transactions, official capital, has fallen to a trickle recently and while it may rebound somewhat it can hardly be expected to play a major role. Finally, compensatory finance has generally resulted in net repayments over the last couple of years. But reflecting the sharp decline in new borrowing since the debt crisis in the early-1980s, gross repayments will progressively abate and gross borrowing may pick up somewhat even though it does not seem to be poised for a major upturn. Within the OECD area current-account deficits are smoothly financed by private capital flows, and heavily indebted developing countries are unlikely to regain normal access to private financial markets in the foreseeable future. Only massive borrowing by eastern European countries could significantly change this picture. Hence, compensatory finance, on a net basis, may slowly improve and become positive within a few years, causing the global supply of dollar assets to exceed the U.S. balance on non-financial transactions.

On the demand side, in coming years the size and composition of global private portfolios will depend on a number of factors, including: i) the exchange rate of the dollar; ii) securities prices; and iii) the stream of private saving.

A depreciation of the dollar would reduce the value – expressed in foreign currencies – of dollar assets in foreign portfolios, thereby decreasing their share. At the same time, it would increase the value – expressed in dollars – of foreign-currency assets in U.S. portfolios. On both accounts a depreciation of the dollar would tend to increase the global demand for dollar assets if private investors wished to keep a constant portfolio composition. An appreciation of the dollar would tend to have the opposite effect. However, in the case of a major change in the exchange rate of the dollar, conditions could become unsettled and one would not expect investors to wish to retain constant portfolio shares. Hence, the figures in Table 4 are only relevant if one assumes no large changes in exchange rates.

A major, sustained increase in stock and bond prices world-wide could significantly raise the average annual rate of growth of private portfolios. Assuming again that private investors wished to keep a constant portfolio composition, the increased demand for dollar assets resulting from the capital gains recorded by non-U.S. portfolios would be accompanied by an increased demand for foreign-currency assets resulting from the capital gains recorded by U.S. portfolios. But the net effect could still be sizeable since the net dollar position of the non-U.S. private sector is some 12 times larger than the foreign-currency position of the U.S. private sector and a change of 1 percentage point in the rate of growth of global portfolios currently represent a potential net change in the “spontaneous” demand for dollar
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\[a/\text{Based on a net dollar position of the non-U.S. private sector of $626 billion at end 1988 (excluding direct investment in the United States) and a net foreign-currency position of the U.S. private sector of $53 billion (excluding U.S. direct investment abroad).}\]

| Source: OECD estimates. |

assets of some $6 billion (with a higher rate of growth of global portfolios leading to a stronger "spontaneous" demand, and vice versa). While the future evolution of stock and bond prices can hardly be predicted, at present these markets do not seem to be obviously out of line with underlying economic conditions, although an assessment of the Tokyo stock market is particularly difficult even after its recent correction. While cyclical fluctuations – even important ones – can obviously not be ruled out, the scope for a major and sustained movement in either direction would seem to be minor. A sharp desynchronisation between markets in the United
States and in the rest of the world over a period of several years would also appear an unlikely prospect.

Therefore, over the medium-term portfolio balance effects might reflect primarily the annual average growth rate of OECD economies and private saving. Given the improved prospect for inflation – compared to the last decade – the trend towards fiscal consolidation, and the aim of the authorities to curb external imbalances, an average growth rate of private portfolios of somewhat less than 10 per cent, with no major differences between the United States and the rest of the world would seem a reasonable assumption. However, given the much larger net dollar position of the non-U.S. private sector compared to the foreign-currency position of the U.S. private sector ($625 billion and a little over $50 billion at end-1988), portfolio balance effects, as noted above, can be rather sensitive to different growth rates of global portfolios. Table 4 shows the size of the constant portfolio composition demand with rates of growth of portfolios ranging from 6 to 12 per cent.

In conclusion, the global supply of dollar assets could widen again in coming years. But provided that private investors wished to keep a broadly constant portfolio composition, under seemingly reasonable assumptions concerning the future rate of growth of global portfolios the resulting spontaneous demand for new dollar assets could still assure a large proportion of the financing. In other words, on the condition that the U.S. external deficit did not get out of control, its financing would seem unlikely to cause a drastic increase in the share of dollar assets in non-U.S. private portfolios and, in principle, it could be accommodated with no major shocks, notably with respect to interest rates and exchange rates. Thus, on the basis of these mechanical effects the U.S. external deficit would appear to be broadly “sustainable”, since combined with compensatory finance its size may remain roughly equivalent to the net inflow of financial capital to the United States stemming from the desire of U.S. and foreign investors to keep a stable share of, respectively, dollar assets and foreign-currency assets in their portfolios.

These findings may seem relatively encouraging but they are subject to important qualifications:

- First, the margin of error of the calculations is high, in part because some of the estimates rest on rather crude assumptions;
- Second, while the assumption that desired portfolio composition is unrelated to the size of portfolios may be a useful and permissible simplification in the context of formal models of exchange-rate determination, it remains to be seen whether from a more practical point of view and over a sustained period of time this assumption represents a valid approximation to actual investment behaviour. This is essentially an empirical question which can hardly be settled a priori, especially since the ongoing process of global financial integration represents a quantum change and we are in largely uncharted waters. Nonetheless, it seems reasonable to assume that portfolio behaviour will remain heavily dependent on the evolution of and
prospect for the U.S. external deficit – that is, desired portfolio composition is essentially an endogenous, not exogenous variable. Investors might be willing to increase the demand for dollar assets in line with their expanding portfolios as long as the correction of the U.S. deficit seems to be under way – albeit at a slow and irregular pace. It is an open question how investors would react if the adjustment process were to stall or reverse and they faced the prospect of a seemingly endless stream of large U.S. deficits;

- Third, more generally, for private investors to wish to keep a broadly constant portfolio composition there must be a rather settled economic environment with subdued expectations and credible economic policies, particularly with respect to exchange rates – a rather restrictive set of conditions which can hardly be expected to be completely fulfilled at all times;
- Fourth, even without economic upheavals, spontaneous portfolio diversification, which is considered below, could considerably change the above conclusions.

B. The prospect for spontaneous portfolio diversification

Spontaneous portfolio diversification (or portfolio shift) refers to a change in desired portfolio composition due to a change in investors’ asset preferences. In the context of formal exchange-rate models, investors’ preferences are determined by the perceived statistical properties (variances and covariances) of returns on different assets. Since assets are generally assumed to be exactly comparable except for the currency of denomination, their statistical properties differ only because of exchange-rate uncertainty. In the real world, however, the situation is considerably more complex. Assets differ not only because of the currency of denomination but also because of a number of other considerations including: liquidity, riskiness, tax treatment, legal and prudential regulations, and of course exchange controls. Moreover, investors may not be equally familiar with financial markets and investment opportunities in different countries. For all these reasons, spontaneous portfolio diversification is a rather complex question which is not well understood. The views expressed below are therefore rather speculative.

The scope for portfolio diversification could be considerably smaller in coming years than over the last decade or so, possibly with the exception of U.S. portfolios. The quantum change in the international financial landscape recorded since 1980 seems unlikely to be repeated, and diversification of non-U.S. portfolios could become a more discrete process, reflecting the progressive evolution of markets, institutions and regulations. As for the direction of diversification and its impact on exchange rates, while for a few years, on balance, it could continue to raise the desired share of dollar assets and hence be favourable for the dollar, over the longer-run it could become more neutral and even turn against the dollar. On the
plus side, financial liberalisation and innovation – which in many countries could still have considerable scope for expansion – is presumably increasing the number of participants in international finance and, other things being equal, should further increase the desired share of dollar assets in non-U.S. private portfolios. Second, the recent abolition of practically all exchange controls in most EC countries should allow the actual share of dollar assets in portfolios, especially in Italy and France, to rise to the desired level.

But other factors could progressively work to reduce the desired share of dollar assets. Among the attractions of dollar investments is the liquidity and diversification of dollar markets and the fact that Japanese investors feel particularly comfortable in dealing in U.S. securities. As these investors become more familiar with non-U.S. markets, progress towards capital market liberalisation and integration in Europe should significantly enhance the relative attractiveness of investment in European currencies. The political and economic changes under way in central and eastern Europe could play a major role here, leading investors to focus on Europe in general and Germany in particular – a process which seems to have already started. Moreover, the growing importance of the ECU in financial transactions – notably bond issuance – combined with the creation of the EC single market and progress toward some form of monetary union in Europe, could result over the longer-term in a significant erosion of the status of the dollar as “the” international currency. Similarly, the further development and opening up of yen markets could make these a more attractive alternative to dollar investments, and lead non-U.S. investors to diversify more broadly their international portfolios.

These considerations could also work to boost the desired share of foreign-currency assets in U.S. private portfolios in coming years, thus further eroding the portfolio balance effects that are now underpinning the demand for dollars. As noted, the net foreign-currency position of the U.S. private sector as a percentage of GNP has remained remarkably stable over the last decade or so at around 1 per cent, while the dollar position of the non-U.S. private sector has increased from practically zero in 1978 to nearly 8 per cent of GDP in 1988 (Chart B). The much lower U.S. percentage can be interpreted as reflecting the limited attractiveness of international portfolio diversification for a very large economy. But the fact that this percentage seems to have been essentially unaffected by the wave of financial liberalisation and integration which has swept the developed world, as well as by the emergence of Asia and Europe as major financial and economic powers, is more surprising.

Hence, the potential for diversification of U.S. portfolios into assets denominated in foreign currencies, should markets outside the United States come to be seen as offering comparable depth and liquidity to dollar markets, might be very large. And the impact on the position of the dollar could also be important. For example, the proportion of foreign-currency assets in U.S. total pension funds is around 3 per cent; with these funds representing over $2 trillion, an increase of this
proportion by even only 1 percentage point a year would now represent a supply of dollar assets of over $20 billion a year.

In conclusion, the current confluence of underlying factors favourable to the dollar may prove only temporary as the U.S. balance on non-financial transactions and the global supply of dollar assets may increase again. In the next few years, a desire of investors to at least maintain the share of dollar assets in their portfolios might continue to provide some underpinning for the dollar, even if not sufficient to fully absorb the likely future supply of new dollar assets. This relatively favourable scenario requires conditions to remain essentially as they are at present, that is with confidence in U.S. economic policy and in the U.S. economy not being undermined, and the market not forming a negative view of the external adjustment process and its implications for exchange rates. Over the longer-run, as financial markets outside the United States increase their breadth and depth, portfolio considerations may become less supportive of the dollar.
NOTES

1. A notable exception is Dealy and Van't dack (1989) which essentially follows what is characterised below as a "gross approach". See also Marris (1985).

2. The OECD databank comprises gross issuance figures (collected by the Capital Market Division, Directorate for Financial, Fiscal and Enterprise Affairs) from which redemption figures were estimated. For a more detailed discussion of compensatory finance, see Barenco (1990), Annex B.

3. The exclusion of foreign direct investment from the analysis has the incidental but not negligible advantage of avoiding a difficult valuation problem. This problem is one of the points at the centre of the current debate on the measurement of the international investment position of the United States. See Ulan and Dewald (1989).


5. For a more detailed discussion of the computation, see Barenco (1990).

6. Strictly speaking, some of the excluded items, notably monetary gold, are not claims on any specific sector.

7. Another limitation of this analysis is that it considers only the spot foreign exchange position of the United States vis-à-vis the non-U.S. private sector, and hence, by implication, only the spot dollar position of the non-U.S. private sector. Largely because of the non-existence or unreliability of data, it does not cover positions in terms of forward/futures contracts, options and currency swaps, either between private and public sectors or between the U.S. and the non-U.S. private sector. To the extent that these net positions are large, the "dollar positions" defined and calculated here would not be a valid approximation of the overall exchange-rate exposure.

8. For the purposes of this paper, compensatory finance is defined as foreign-currency borrowing in private financial markets by the public sector – including the monetary authorities, central, local and state governments, and public enterprises.

9. Although in practice – and, to a certain extent, also conceptually – the distinction between direct investment positions and financial positions can be quite blurred, the latter should be a better proximate variable for an analysis relying on standard portfolio theory. While exchange-rate and interest-rate considerations, even short-term ones, may have a strong impact on private investors' decisions concerning financial assets, they normally have less impact on decisions concerning foreign direct investment which are generally determined by a larger number of variables, and longer-term considerations.

10. The net dollar position of the non-U.S. private sector seems to have been negative also in the early 1970s and may have been close to equilibrium in the late 1960s, but due to the lack of data it is difficult to be more precise.

11. Alternatively, the depreciation of the dollar has reduced the value, in local currencies, of a given stock of dollar assets, and hence reduced the share of dollar assets in portfolios expressed in local currencies.

12. See Dealtry and Van't dack (1989), Table 3, page 15.
13. For instance, Messe and Rogoff (1983) have shown that a simple random walk forecasts as well as most exchange-rate models. For a more recent survey of the empirical literature, see Goodhart (1988).

14. Strictly speaking, U.S. official capital outflows should be net of changes in holdings of dollar assets by the non-U.S. public sector, other than in the form of official reserves (which are considered below) and unrelated to the position of the dollar in exchange markets. Since this last point is very difficult to establish, for working purposes it has been assumed that all these holdings are somewhat sensitive to exchange-rate considerations and hence have been excluded from the computation of the exogenous supply of dollar assets.

15. The classification of direct investment as a non-financial flow is not without problems, especially in the case of the United States. U.S. historical data on direct investment include a significant financial component, reflecting primarily U.S. corporations’ borrowing abroad through their finance affiliates in the Netherlands Antilles in the late 1970s and early 1980s, and net repayments of these borrowings in subsequent years.

16. Strictly speaking, this is not true for U.S. direct investment since, contrary to standard accounting practice, U.S. balance-of-payments data include certain capital gains/losses on the stock of direct investment. Hence, the flow of U.S. direct investment abroad is affected by the exchange-rate valuation effect on such stocks. But since the same exchange-rate valuation effect is included (with the opposite sign) in the current account (direct investment income) the U.S. balance on non-financial transaction is not affected by this effect and accounting practice. (Since this article was finalised, the U.S. authorities have modified their accounting practice and have started publishing balance-of-payments data excluding capital gains/losses on the stock of direct investment.)

17. This assimilation would be invalidated if the U.S. net position in foreign currencies were to change significantly reflecting the decision of residents either to increase the share of assets denominated in foreign currencies in their portfolios, or to step up the issuance of liabilities denominated in foreign currencies, thereby ending the nearly exclusive dollar-financing aspect of the U.S. current-account deficit. In the first case, the flow of dollar assets to the rest of the world would be larger than the U.S. balance on non-financial transactions; in the second case, it would be smaller.

18. At times, countries may engage both in compensatory finance in dollars and in an accumulation of official dollar reserves, creating a kind of circular flow with offsetting impact on the net supply of dollar assets and the exchange rate. Hence, ideally, compensatory finance should be adjusted for such “induced” changes in official dollar reserves which in terms of this analysis represent exogenous transactions.


20. For an early example of this, see Branson and Haltrunen (1979). As for the rationale for including foreign assets at all in domestic portfolios, it rests on considerations of risk diversification. If investors are risk-averse utility maximisers, they care about both the mean and the variance of returns, and risk makes different assets imperfect substitutes. Since returns (in a common currency) on domestic and foreign assets are generally regarded as being negatively correlated, for a given level of expected returns the degree of risk can be minimised by including in portfolios a certain proportion of foreign assets. Imperfect asset substitutability is also the basis for the so-called “risk premium”, that is the difference in expected returns on domestic and foreign assets required to compensate investors for the difference in the perceived risk. The risk premium is directly related to relative asset supplies – other things being equal, it increases when the supply of one asset increases relative to the supply of other assets, and vice versa. If domestic and foreign assets are assumed to be equal except for the fact that they are denominated in different currencies – a typical assumption in formal exchange-rate models – then the variances of expected returns will reflect only exchange-rate uncertainty and the risk premium becomes a “currency risk premium”.
21. This rate is higher than the average annual rate of growth of nominal GNP/GDP for the OECD area (8.3 per cent from 1980 to 1988). But the sharp increase in equity prices in practically all countries since 1980, might perhaps have justified an even higher rate. The rise and fall of the dollar should have been reflected, first, in somewhat lower rates of growth and then in somewhat higher rates of growth of non-U.S. portfolios than indicated. On a net basis, the effective rate of the dollar did not change much over this period.

22. See note 20.

23. Of course, the outcome could be quite different and the U.S. current account could show a trend improvement if the U.S. economy were to grow below its potential growth rate for a sustained period while other OECD economies continued to grow at around their potential rates.

24. Witness the passage in 1988 of the Exxon-Florio amendment to the U.S. Trade Bill, which empowers the President of the United States to block foreign take-overs and mergers on national security grounds.

25. But the experience of Japan after its abolition of exchange controls in the early 1980s may not be a valid reference. Because of its special political and economic ties with the United States, Japan is probably an extreme case and few other OECD countries can be expected to aim for such a high share of dollar assets in their portfolios as Japan – even though they might have a higher overall share of foreign-currency assets.
BIBLIOGRAPHY


