

An hourglass-shaped graphic with a globe inside. The top bulb is dark blue, and the bottom bulb is light blue. The globe is centered in the narrow neck of the hourglass. The top bulb has a dark blue cap, and the bottom bulb has a light blue cap.

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Report RL34083

*The Dollar's Future as the World's Reserve Currency: The Challenge of the Euro*

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July 10, 2007

**Abstract.** The euro is seen by some as poised to challenge the dollar in the store of value function of a reserve currency. The sheer magnitude of dollar assets in the official reserves of foreign central banks and the realistic prospect of continued, and perhaps disorderly, depreciation of the dollar against most currencies, place central banks at considerable risk of incurring large capital losses on their dollar asset holding. With more than enough dollar reserves to meet liquidity needs, prudent asset management would seem to dictate some diversification away from the dollar and toward the euro.

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# The Dollar's Future as the World's Reserve Currency: The Challenge of the Euro

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July 10, 2007

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## Summary

Globally, central bank holdings of reserve currency assets have risen sharply in recent years. These “official holdings” have nearly tripled since 1999 to reach \$5 trillion by the end of 2006. Nearly \$3 trillion has been amassed by developing Asia and Japan. China, in particular, now has official reserves that exceed \$1 trillion. In addition, the oil-exporting countries have increased their official reserves by about \$700 billion. The dollar’s status as the dominant international currency has meant that as much 70% of this large accumulation of official reserves are of some form of dollar asset.

There are significant advantages for the United States in having the dominant reserve currency. These advantages include reduced exchange rate risk and lower borrowing costs. However, these large accumulations of dollar assets in foreign official holdings also means that foreign central banks have become important participants in and influences on U.S. financial markets and the wider U.S. economy.

Four factors—share of world output and trade, macroeconomic stability, degree of financial market development, and network externalities—combine to influence the choice of a reserve currency. The euro has improved its standing in all four areas but the dollar retains significant advantages. Available data show only modest diversification from dollar assets by foreign central banks from the time of the euro’s introduction in 1999 through the end of 2006. The dollar’s share of total official reserves rose through the 1990s, reaching a peak value of about 72% global reserves in 2001. By 2003 that share fell to about 66% and remained near that level through 2006. The euro’s share of global official reserves rose from about 18% in 1999 to 25% in 2003, but has remained near this level through 2006.

Looking to the future, the dollar’s status as the dominant reserve currency may be challenged by the euro because it increasingly offers many of the advantages of the dollar but fewer of the risks. The dollar’s most important advantage is the size, quality, and stability of dollar asset markets, particularly the short-term government securities market where central banks tend to be most active. The high liquidity of these financial markets makes the dollar an excellent medium of exchange. A further advantage is the power of “incumbency” conferred by the “network-externalities” that accrue to the currency that is dominant. Together these factors make it unlikely there will be a large or abrupt change in the dollar’s reserve currency status.

However, the euro is seen by some as poised to challenge the dollar in the store of value function of a reserve currency. The sheer magnitude of dollar assets in the official reserves of foreign central banks and the realistic prospect of continued, and perhaps disorderly, depreciation of the dollar against most currencies, place central banks at considerable risk of incurring large capital losses on their dollar asset holding. With more than enough dollar reserves to meet liquidity needs, prudent asset management would seem to dictate some diversification away from the dollar and toward the euro. This report will be updated as events warrant.

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## The Rising International Importance of “Official Holdings”

Central bank holdings of reserve currency assets have risen sharply in recent years. These “official holdings” have nearly tripled since 1999 to reach \$5 trillion by the end of 2006. These large accumulations of reserves have been concentrated among countries with large global current account surpluses. Nearly \$3 trillion has been amassed by developing Asia and Japan. China, in particular, now has official reserves that exceed \$1 trillion. In addition, the oil-exporting countries have increased their official reserves by about \$700 billion.<sup>1</sup>

The dollar's status as the dominant international currency has meant that as much as 70% of this large accumulation of official reserves is held in some form of dollar asset. The U.S. Treasury reports that through mid-2005, 34% of the more than \$3 trillion outstanding marketable Treasury securities was being held in foreign official reserves. (All foreign holdings, official and private, amount to 52% of all outstanding Treasury securities.)<sup>2</sup> These large accumulations of dollar assets in foreign official holdings mean that foreign central banks have become important participants in U.S. financial markets, as well as in the wider U.S. economy.<sup>3</sup>

For the United States, there are significant benefits to being the world's reserve currency. Central banks' demand for the reserve currency tends not to be as volatile as that of private investors. This stabilizes the demand for dollars and reduces the foreign exchange risk faced by U.S. companies in their international transactions. Exchange rate risk is also reduced because the United States borrows in its own currency so that the appreciation of foreign currencies against the dollar cannot increase debt service cost or raise default risk.

Another major benefit of being the primary international reserve currency is that it enables the United States to borrow abroad at a lower cost than it otherwise could. This cost advantage occurs because there will be a willingness of foreign central banks to pay a liquidity premium to hold dollar assets.

Also, the dollar's status as the world's reserve currency raises the likelihood of foreigners using U.S. asset markets. This added foreign involvement increases the breadth and depth of these markets, which then tends to attract even more investors, which then continually magnifies the benefits of being the reserve currency.

Since 2003, sharply rising capital inflows from foreign central banks have financed on average about 50% of the U.S. current account deficit, increasing the sustainability of the trade deficit by compensating for a sizable weakening of private capital inflows.<sup>4</sup> It is estimated that these recent

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<sup>1</sup> International Monetary Fund, *Global Financial Stability Report*, World Economic and Financial Surveys, April 2007, pp. 74-76.

<sup>2</sup> U.S. Department of the Treasury, *Treasury Bulletin* (Washington: April 2007), p. 56.

<sup>3</sup> See CRS Report RL32462, *Foreign Investment in U.S. Securities*, by James K. Jackson.

<sup>4</sup> See CRS Report RS21951, *The U.S. Trade Deficit: Role of Foreign Governments*, by Marc Labonte and Gail E. Makinen.

official reserve accumulations have kept U.S. long-term interest rates from 0.5 to 1.0 percentage points lower than otherwise.<sup>5</sup>

Historically, a single currency has been the dominant reserve currency. In the 19<sup>th</sup> century sterling played this role, succeeded by the dollar in the 20<sup>th</sup> century. As the 21<sup>st</sup> century has begun to unfold the dollar has remained the dominant international currency. But the euro, created in 1999 as part of the European monetary union (EMU), has been seen by some economists as a potential challenger to the dollar's dominant position as an international currency in the 21<sup>st</sup> century.<sup>6</sup>

To the degree that the euro displaces the dollar in the official holdings of central banks, the benefits to the United States of the dollar as a reserve currency will be reduced. The viability of the euro as a substitute for the dollar will hinge on several factors that determine how well it can perform the necessary roles of a reserve currency for a central bank

## The Roles of a Reserve Currency

An international currency is one used by non-residents to accomplish the three standard roles of any currency: be a medium of exchange, a unit of value, and a store of value. However, for central banks these three roles serve different needs than those of the private investor:

- The *medium of exchange* function serves the need for foreign exchange intervention as central banks attempt to counter unwelcome changes in the value of their domestic currency caused by private inflows and outflows of capital.
- The *store of value* function serves the need for reserve accumulation as self-insurance against periodic balance of payments crisis and as a public demonstration of commitment to exchange rate stability.
- The *unit of account* function serves the need of some countries for a monetary anchor to bolster domestic monetary policy in combating inflation.

Typically, the currency used as the medium of exchange will also serve as the main store of value. Also, because of the large scale of recent reserve holdings, some central banks may turn more attention to the currency's ability to also provide the store of value function of concern to private investors—steadiness of asset value and rate of return.

The already large holdings of dollar assets and the prospect of continued depreciation of the dollar's exchange rate are likely to be seen by foreign central banks as major disincentives for using dollars as their principal reserve currency. In contrast, the appreciation of the euro exchange rate and the substantial increase in the liquidity of the euro caused by the improvement in the breadth and depth of euro financial markets since 1999 raises the attractiveness of the euro as a reserve currency.

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<sup>5</sup> See Mathew Higgins and Thomas Klitgaard, "Reserve Accumulation: Implications for Global Capital Flows," Federal Reserve Bank of New York, *Current Issues in Economics and Finance*, vol. 10, no. 10, October 2004.

<sup>6</sup> Barry Eichengreen, *Sterling's Past, Dollar's Future: Historical Perspectives on Reserve Currency Competition*, National Bureau of Economic Research, Working Paper no. 11336, April 2005.

## Four Factors Influencing Choice of a Reserve Currency

Economists have identified four factors that will jointly influence how well a currency can serve central banks as a medium of exchange, as a store of value, and as a unit of account.

First, the larger a country's share of world output and trade the more likely it is that other countries will use it as a monetary anchor or in external transactions. This factor tends to raise the likelihood that other countries will hold liabilities denominated in its currency and therefore tends to also hold more of its assets in the same currency. The euro is probably not at any sizable disadvantage relative to the dollar in this category.

Second, macroeconomic stability, particularly price stability, is needed to establish confidence in the currency's value. Without this confidence a currency's ability to play its role as a unit of account and as a store of value is undermined. The dollar's status in this category may be eroded by the prospect of long-term exchange rate depreciation.

Third, a high degree of financial market development, offering large size and high liquidity, makes it more likely that a country's currency will be used by foreign central banks as the medium of exchange for currency intervention. Also, a broad and deep financial sector tends to reinforce overall economic stability. In this area, the dollar has been singularly attractive. But the development of euro area financial markets has advanced steadily since its 1999 introduction.

Fourth, network externalities create a self-generating demand for a dominant currency. The more often a currency is used as a medium of exchange, the more liquid it becomes and the lower are the costs of transacting in it, leading, in turn, to it becoming even more attractive to new users. Network externalities create a tendency toward having one dominant currency and confer a substantial *incumbency advantage* to the dollar over the euro.<sup>7</sup>

None of these influences on the choice of a reserve currency is likely to change quickly, acting to make any shift in the status of the dominant reserve currency a slow process, with substantial changes most often emerging over decades.<sup>8</sup>

## The Current Currency Composition of Official Reserves

Data on the currency composition of official reserves is imperfect. The most comprehensive source is the International Monetary Fund's (IMF) currency composition of foreign exchange reserves (COFER) database.<sup>9</sup> Included in this series are monetary authorities' claims on non-

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<sup>7</sup> See B.J. Cohen, *Life at the Top: International Currencies in the 21<sup>st</sup> Century*, Princeton Essays in International Finance No. 221 (Princeton: December 2000).

<sup>8</sup> A fuller discussion of these four considerations can be found in Barry Eichengreen and Donald Mathieson, *The Currency Composition of Foreign Exchange Reserves - Retrospect and Prospect*, IMF Working Paper no. 00/131, July 2000.

<sup>9</sup> IMF Statistics Department, COFER database.

residents in the form of banknotes, bank deposits, treasury bills, short-term and long-term government securities, and other claims usable to meet balance of payments needs. However, COFER data do not include the holdings of currency by the issuing country. Also, the COFER data only provides national currency specific information for about 70% of total global reserves because the reserves of many emerging economies are missing from the tally. Despite these limitations, the COFER data will most likely reveal basic trends in holdings of the dollar and euro in global official reserves.

The COFER data show only modest diversification from dollar assets by foreign central banks from the time of the euro's introduction in 1999 through the end of 2006. The dollar's share of total official reserves was at its lowest point in the early 1990s at about 45%. Through the 1990s that share rose, in large measure because of accumulation of dollar reserves by emerging economies, reaching a peak value of about 72% global reserves in 2001. By 2003, that share fell to about 66% and has remained near this level through 2006. The euro's share of global official reserves rose from about 18% in 1999 to 25% in 2003, but has remained near this level through 2006.

Again, the source of much of the change in both the level of official reserves and their distribution among currencies was central banks in developing countries, accounting for 58% of the growth of total foreign exchange holdings in this period, and also decreasing their share of dollar holdings from 70% to 60%, and increasing their share of euro holdings from 19% to 30%. In contrast, among industrial economies the dollar share of holdings held steady and the share of euro holdings increased modestly.

Another interesting change in the 1999-2006 period was a fall in the share of yen assets in official reserves (down from 6% to 3%) and a rise in the share of pounds sterling (up from 2.7% to 4.4%). This relatively small increase in the international status of the pound may be insignificant by itself, but could very significant for the status of the euro if the United Kingdom were to join the EMU.

## **Euro vs. Dollar**

In the framework of the three functions of a reserve currency: being a medium of exchange, a store of value, and a unit of account, how does the euro stack-up against the dollar?<sup>10</sup>

### **As a Medium of Exchange**

This is typically the most important one to be fulfilled by any well functioning currency. For central banks, this role will revolve around use of the currency for intervention in foreign exchange markets. Intervention is a task that places a premium on liquidity, the capability—on short notice, possibly in adverse conditions—of turning assets quickly into cash with little or no impact on the asset's price. The liquidity of a currency in both foreign exchange markets and asset markets is important.

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<sup>10</sup> This discussion in this section closely follows the analysis in a recent BIS study. See Gabriele Galati and Phillip Woodbridge, *The Euro as a Reserve Currency: The Challenge to the Pre-Eminence of the U.S. Dollar*, Bank for International Settlements, BIS Working Papers no. 218, October 2006.



In foreign exchange markets, the Bank of International Settlements' (BIS) most recent *Triennial Survey of Foreign Exchange and Derivatives Markets* shows that on April of 2004 the euro entered on one-side of 37% of all foreign exchange transactions. The dollar's share of transactions on foreign exchange markets fell from 94% in 1998 to 89% in 2004.<sup>11</sup>

In asset markets, central banks invest in instruments with limited risk, making conditions in the country's government security markets the most relevant for the choice of an intervention currency. The attractiveness of the euro has been increased by the formation of the EMU, creating the world's second largest government securities market. In 2005, the outstanding stock of government securities of the several euro area governments totaled \$4.7 trillion. This compares to \$4.2 trillion of outstanding U.S. treasury securities. Suggesting that more than size may matter, the largest government securities market is Japan, but the holding of yen-denominated reserves has declined in recent years.

Despite the greater size and rising attractiveness of the euro area's government securities market, the U.S. Treasury market has several advantages that continue to enhance its attractiveness to foreign central banks. First, the short-term segment of the U.S. Treasury market, composed of about \$950 billion U.S. Treasury bills with terms of three months to one year, is about twice as large as the euro area counterpart. Treasury bills are a low risk and highly liquid instrument that are well suited to the reserve currency needs of central banks.

Second, U.S. Treasury securities have a single issuer and the euro area has twelve. The several issuers of euro assets are not of uniform credit worthiness. U.S. Treasury securities carry a AAA credit rating but some euro area economies government securities have a lower credit rating.

Third, the U.S. Treasury market appears to offer far greater liquidity than the euro area government securities markets. One indicator of this is a daily turnover in U.S. government securities markets of nearly \$500 billion. Japan is second largest at \$150 billion per day. Turnover is an indicator of how easily a market can absorb large transactions without changing the asset's price. The superior (small) bid-ask spreads found in the U.S. government securities market are further evidence of their very high liquidity.

## **As a Unit of Account**

In official use this role is largely linked to the selection of an exchange rate as a monetary anchor. In recent years, the euro has increased in importance in fulfilling this role. In 2004, the IMF reported that out of 150 pegged currencies, 40 used the euro as an anchor currency. However, because of incomplete reporting, this type of tally may understate the true degree of attachment—"gravitational pull"—of one currency to another.

An alternative approach is to examine the actual co-movements of currencies to determine how closely currency's track the euro and the dollar. This currency sensitivity evidence suggests that the euro's gravitational importance is rising. European countries outside of the EMU, such as Switzerland, Sweden, Norway, as well as eastern and central Europe move very closely with the euro. In Latin America, as well, there is evidence of the increasing gravitational pull of the euro, particularly in Brazil and Chile. One other very notable change has been for the traditional dollar-

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<sup>11</sup> BIS, *Central Bank Survey of Foreign Exchange and Derivatives Markets Activity* (Basel: March 2005).

influenced currencies of Australia, Canada, and New Zealand mirroring from one-half to two-thirds of the euro's movement. In contrast, the currencies of emerging economies in Asia generally follow the dollar quite closely.

Thus, while the dollar is still the most important currency as a monetary anchor, the euro has become a viable international competitor to the dollar in its role as a unit of account for central banks. However, some caution in judging the degree of convergence is called for because the depreciation of the dollar since 2002 makes it difficult to separate temporary changes from permanent changes. Have central banks moved away from the dollar as a monetary anchor only until the dollar stabilizes again or has the structure of demand for the currency changed permanently?

## **As a Store of Value**

The critical criterion for a currency to be a good store of value is the ability to maintain real purchasing power over time. That ability will be closely tied to a country pursuing stable and sustainable macroeconomic policies. Although the United States has in recent years consistently maintained vigorous economic growth and relatively low inflation, large current account deficits and the prospect of substantial and, perhaps, disorderly depreciation of the dollar's exchange value may erode the dollar's ability to serve as an international store of value.

Since early 2002, the dollar has fallen in value by about 30% or about 5% per year. That depreciation more or less erases any positive yield on treasury securities held by foreign central banks. The bilateral comparison shows even greater depreciation against certain currencies, with the dollar down 11% against the euro in 2006 alone. The ultra-high liquidity of U.S. asset markets has perhaps provided sufficient advantage to compensate for the eroding effect of the depreciating dollar on the rate of return on dollar assets.

But, because the large scale of worldwide official holding seems to exceed the amount needed for intervention purposes, central banks may begin to focus more on expected rate of return and less on liquidity in managing their holdings. Nominal rates of return have been generally higher on dollar assets than euro assets, however, expected depreciation of the dollar relative to the euro likely erases this advantage. Therefore, with the steady growth in the depth and breadth of euro area asset markets providing investment alternatives to the dollar, there is likely to be a rising incentive for central banks to use a greater share of the more stable euro to meet their store of value objectives.

However, diversification away from the dollar by central banks may be constrained by the need to maintain a balance between the currency composition of their assets and its countries' external liabilities because many countries borrow in dollars. Asset-liability currency balance, particularly for emerging economies, tends to reduce the prospect for balance sheet mismatches in times of crisis and improves the foreign investors evaluation of the country's credit worthiness. Data for emerging market economies for the 2003-2005 period show the dollar's share of external liabilities to be about 66% and its share of reserves assets to be only 59%. In contrast, the euro's share of external liabilities was 24% and share of reserves was 31%. Therefore, by this criterion the dollar is under represented in official reserves and the euro is over represented.

In addition, it is possible to diversify across asset types within a particular currency so as to improve likely risk adjusted returns. There has been an increase in foreign official holdings of U.S. agency bonds, particularly mortgage backed securities issued by Fannie Mae and Freddie

Mac, and U.S. corporate bonds, according to the New York Fed. Given the typically conservative investment behavior of most central banks, there is likely only limited scope for this type of diversification.

## Conclusion

The dollar's status as the dominant reserve currency may be challenged by the euro because it increasingly offers many of the advantages of the dollar but fewer of the risks. Nevertheless, the dollar retains significant advantages. The most important advantage is the size, quality, and stability of dollar asset markets, particularly the short-term government securities market where central banks tend to be most active. The high liquidity of these financial markets makes the dollar an excellent medium of exchange for foreign central banks.

A further advantage is the power of "incumbency" conferred by the important "network-externalities" that accrue to the currency that is currently dominant. Together these factors make it unlikely there will be a large or abrupt change in the dollar's reserve currency status.

However, the euro does seem poised to challenge the dollar in the store of value function of a reserve currency. The sheer magnitude of dollar assets in the official reserves of foreign central banks, and the prospect of continued sizable, and perhaps disorderly, depreciation of the dollar against most currencies, places central banks at considerable risk of incurring large capital losses on their dollar asset holding. With more than enough dollar reserves to meet liquidity needs, prudent asset management would seem to dictate some diversification away from the dollar and toward the euro.

Any sizable weakening in the demand for dollar assets by foreign central banks would tend to push down their price and push up U.S. interest rates. This can be expected to have a dampening effect on interest sensitive activities such as business investment, housing, and consumer durables. On the other hand, the selling off of dollar assets would tend to depreciate the dollar's exchange rate and provide a boost to exchange rate sensitive activities of exporting and import-competing industries. From the standpoint of the global economy the efficiency advantages of primarily using dollar reserves may be offset by the enhanced stability of more diversified official holdings.<sup>12</sup>

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<sup>12</sup> Many economists argue that it would be preferable to have one international currency rather than a national currency playing that role. Special Drawing Rights (SDR) is a currency created by the IMF in 1969 as a substitute for the dollar and gold (or any other national currency) as a reserve currency. It has never assumed a major role in international finance, however.