

The changing composition of official reserves¹

The way in which official reserves are managed is changing. Data compiled by the BIS on deposits placed by monetary authorities with commercial banks confirm that reserve managers approach diversification cautiously. Nevertheless, they have steadily shifted into higher-yielding, higher-risk instruments. The currency composition of reserve holdings is still highly concentrated in US dollars and euros, but the shares of some other currencies have changed significantly over time.

JEL classification: E58, F31, G15.

Reserves held by monetary authorities worldwide totalled \$4.9 trillion at end-March 2006, equivalent to 11% of world GDP.² This makes monetary authorities, as a group, important players in foreign financial markets. Indeed, changes in reserve management policies have become a subject of great interest to market participants for their possible impact on demand for certain assets and therefore prices.³ This special feature examines shifts in the composition of official reserves over the past two decades, exploiting in particular data compiled by the BIS on the deposits of monetary authorities with commercial banks.

Following the Mexican and Asian financial crises in the mid-1990s, a concerted effort was made to improve the coverage, frequency and timeliness of data on official reserves. Some countries now publish extensive details about their reserves, but many still do not. The BIS international banking statistics can help to fill some of the remaining gaps, in particular by providing additional evidence about the currency composition of reserves.

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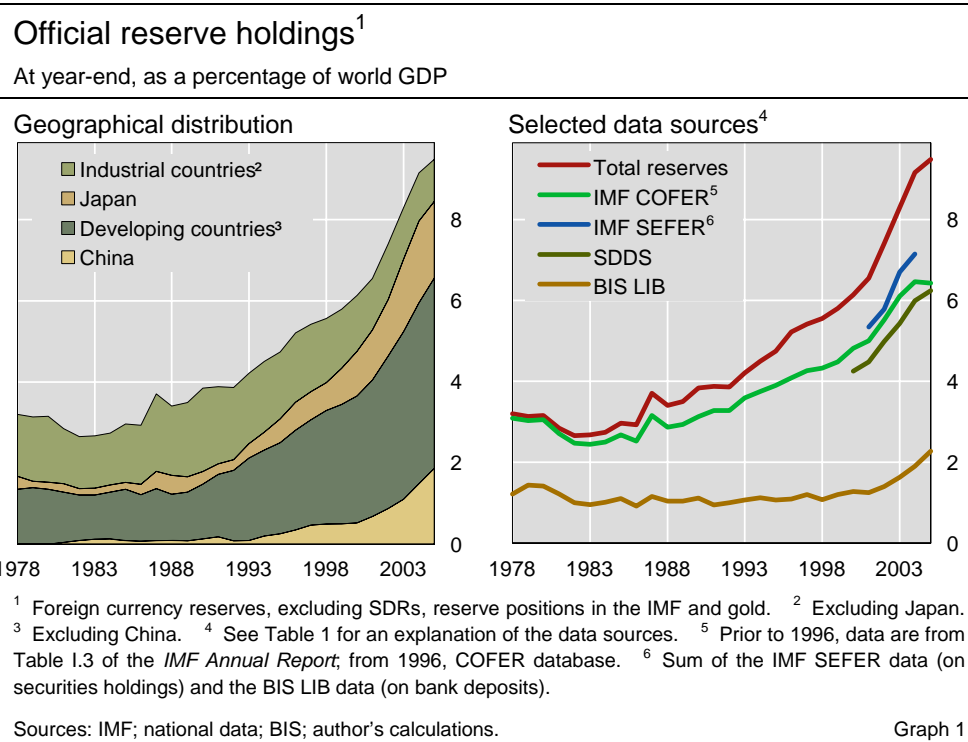
² IMF (1993, p 97) defines official reserves as “external assets that are readily available to and controlled by monetary authorities for direct financing of payments imbalances, for indirectly regulating the magnitudes of such imbalances through intervention in exchange markets to affect the currency exchange rate, and/or for other purposes”. Total reserves comprise gold, foreign currency assets, reserve positions in the IMF and Special Drawing Rights (SDRs).

³ In foreign exchange markets, reports of a reallocation of reserves away from US dollars have at times contributed to volatility while in bond markets purchases of US dollar securities by central banks were perceived by some to have contributed to the unusually low level of nominal dollar yields in 2004–05 (BIS (2005)).

Data sources

Almost all countries, save for Iran, Iraq and a few small states, regularly disseminate data on their total reserve holdings. However, details about the composition of reserves are not as readily available. There are three sources of detailed data – national sources, surveys and counterparty data – but all are incomplete. Differences between these sources are summarised in Table 1.

Selected sources of data on the composition of foreign currency reserves						
	World total	National data	Survey data		Counterparty data	
	IMF IFS ^{1,2}	SDDS template ²	IMF COFER ²	IMF SEFER ³	US TIC ⁴	BIS LIB ²
Identified holdings – in USD bn	4,347	2,832	2,911	2,145	1,938	1,079
– as % of total	100.0	65.2	67.0	57.2	49.1	24.8
Official institutions included						
Monetary authorities	✓	✓	✓	✓	✓	✓
Other national authorities ⁵	✓	✓	✓	✓	✓	✗
Government investment funds	✗	✗	✗	✗	✓	✗
International organisations	✗	✗	✗	✓	BIS	BIS
Countries included	184	65	114	?	184	184
Industrial countries	24	24	24	(23) ⁶	24	24
Japan	✓	✓	✓	✓	✓	(✗) ⁷
Developing countries	160	41	90	(45) ⁶	160+ ⁸	160+ ⁸
China	✓	✗	✗	✗	✓	(✗) ⁷
Taiwan, China	✓	✗	✗	✗	✓	✓
Instruments included						
Cash in vault	✓	✓	✓	✗	✗	✗
Deposits	✓	✓	✓	✗	✗	✓
including reverse repos	✗	✗	✗	✗	✗	✓
Debt securities	✓	✓	✓	✓	✓	(✗) ⁹
Equity securities	✓	✓	✓	✓	✓	(✗) ⁹
Financial derivatives	✓	✓	✓	✗	✗	(✗) ⁹
Other assets	✓ ¹⁰	✓ ¹⁰	✓ ¹⁰	✗	✗	✗
Disclosed breakdowns						
By instrument	✗	✓	✗	✓	✓	✓
By currency	✗	(✗) ¹¹	✓	✗	(✓) ¹²	✓
Frequency	Monthly	Monthly	Quarterly	Annually	Annually	Quarterly
Disclosure lag	1 week	1 month	3 months	1 year	1 year	4 months
<p>¹ IMF's International Financial Statistics. ² At end-March 2006. ³ Combined with SSIO; at end-December 2004. ⁴ Annual survey of foreign portfolio holdings of US securities; at end-June 2005. ⁵ National authorities, other than the monetary authority, which hold foreign currency reserves, eg finance ministries and exchange stabilisation funds. ⁶ Countries that participated in the 2004 CPIS. ⁷ Coverage is incomplete for those countries where reserves are not held by the monetary authority. ⁸ Includes Iran, Iraq and other countries not included in the IMF's world total. ⁹ Deposits and loans accounted for 99% of reported liabilities to official monetary authorities; securities and financial derivatives accounted for the remainder. ¹⁰ Includes securities borrowed under reverse repos. ¹¹ Currencies in the SDR basket (grouped together) and all other currencies. ¹² Available only for total foreign portfolio holdings (private and official holdings combined).</p>						
Sources: IMF; national data; BIS.						Table 1



National data

SDDS data capture
65% of world
reserves

The most comprehensive source of information about reserves is the Data Template on International Reserves and Foreign Currency Liquidity, jointly developed in 1999 by the IMF and the Committee on the Global Financial System. The template is part of the IMF's Special Data Dissemination Standard (SDDS). Subscribing countries publish details about the liquidity of reserves and potential drains on them.

An important limitation of these data is that not all countries subscribe. The SDDS template is published by 65 countries, accounting for 65% of world reserves (Graph 1). All 24 industrial countries publish the template, but only 41 out of 160 developing countries do so.⁴ Among those missing are China, which alone holds 20% of world reserves, and Taiwan (China), which holds 6%. The number of countries which publish a detailed currency breakdown is even smaller, at around 20, accounting for 13% of world reserves (Truman and Wong (2006)).

Survey data

A second source of data is surveys. Countries which do not disseminate detailed data about their reserves are sometimes willing to participate in confidential surveys, in which only aggregate data are published and no

⁴ This article follows the classification of countries used in the IMF's International Financial Statistics, so as to facilitate comparisons. The main difference between the IMF's classification and that used in the Statistical Annex of the *BIS Quarterly Review* is that the latter excludes offshore financial centres from developing countries.

individual central banks are identified. The country coverage is often higher than for the SDDS, but it is still incomplete.

The IMF collects data on the Currency Composition of Official Foreign Exchange Reserves (COFER). Reserve managers report the market value of investments denominated in US dollars, euros, Japanese yen, pounds sterling, Swiss francs and all other currencies. COFER data capture less than 70% of total reserves because the holdings of some important developing countries are missing (Graph 1). Between 1995 and 2005, all industrial countries reported to COFER but only 80–90 developing countries did, accounting for between 51 and 66% of total developing countries' reserves. The IMF does not identify the contributing countries but, considering the size of the gap, China appears to be among those missing. Furthermore, changes in reporting practices make comparisons over time difficult.⁵

IMF COFER data capture 70% of world reserves ...

Some IMF members also participate in the survey of Securities Held as Foreign Exchange Reserves (SEFER). This survey provides details about the different types of securities held by reserve managers – equities, money market instruments and bonds – and about the residency of the issuer. SEFER data capture at most 75% of total securities held by monetary authorities. The IMF does not identify either the names or the number of contributing countries. Furthermore, the published data overestimate reserves held as securities because SEFER data are combined with data on international organisations' portfolio investments to ensure confidentiality.⁶

... and IMF SEFER data 75% of securities holdings

In addition to the IMF, investment banks and other market participants survey reserve managers on occasion. Their questionnaires are typically more qualitative in nature than IMF surveys and cover a broader range of topics. As such, they provide complementary information.

Counterparty data

The third and final source of data on the composition of reserves is counterparties. For every asset held as part of reserves there is a corresponding liability on the balance sheet of the issuer, and so counterparty data are a close proxy for reserve assets. They are, however, an imperfect proxy because the definition of liabilities to official institutions is often different from the conventional definition of reserves.

Counterparties' liabilities are a close proxy for reserve assets

A number of countries publish details about residents' liabilities to foreign official institutions. The most prominent source is the US Treasury International Capital (TIC) system. It distinguishes between cross-border holdings of US

⁵ Truman and Wong (2006) identify three breaks in series: first, in 1979 following the establishment of the European monetary system; second, in 1995 when the methodology underlying the compilation of COFER data was improved; and third, in 1999 when euro area countries excluded from official reserves any assets denominated in euros and euro legacy currencies. Also in 1999, countries outside the euro area began reporting their euro-denominated holdings and stopped reporting their holdings in Deutsche marks, French francs and Dutch guilders.

⁶ The IMF combines SEFER data with the Survey of Geographical Distribution of Securities Held by International Organisations (SSIO). The combined holdings are disseminated as part of the Coordinated Portfolio Investment Survey (CPIS).

securities by official institutions and those by private investors. Included with official institutions are many bodies which hold foreign currency assets not defined in IMF (1993) as reserves, such as the Kuwait Investment Authority, Norway's Government Pension Fund and other commodity funds. But excluded from the TIC data are US securities resold to monetary authorities through foreign brokers and held by foreign custodians. Also excluded are US dollar-denominated securities issued abroad, such as dollar bonds issued in London by foreign sovereigns. On balance, the TIC data appear to understate US dollar securities held as reserve assets (McCauley and Fung (2003)).

BIS LIB data
capture reserves
deposited with
banks ...

The locational international banking (LIB) statistics compiled by the BIS capture reserve assets placed with commercial banks in the form of deposits or repurchase agreements.⁷ Commercial banks in all important financial centres report their cross-border assets and liabilities, broken down by instrument, currency, sector and residency of the borrower or depositor. The reporting population has expanded over time, but the impact of changes in reporting practices is less important than for the IMF COFER data.⁸ Positions vis-à-vis so-called "official monetary authorities" are identified separately, albeit only in aggregate; no information about the nationality of the authority is provided.

Liabilities to official monetary authorities include some instruments not usually classified as reserves. In particular, the BIS LIB data include cross-border deposits denominated in domestic currencies. This concerns mainly euro-denominated repo transactions by Eurosystem central banks with banks outside the reporting country.

... but exclude
Japan and China

Nevertheless, because of differences in the institutions included, the BIS LIB statistics underestimate reserves placed in the form of deposits. Excluded from the definition of official monetary authorities are treasuries and government agencies, most notably the Japanese Ministry of Finance and the Chinese State Administration of Foreign Exchange (SAFE). This is significant because Japan and China are the largest holders of reserves and the Ministry of Finance and SAFE hold the bulk of their respective country's reserves. Therefore, even though banks report all cross-border and foreign currency positions, in practice the country coverage of the LIB data is incomplete. Also excluded from the LIB data are deposits placed by reserve managers with the BIS itself, or at least those deposits reinvested by the BIS in securities.⁹

⁷ A repurchase agreement, or repo, is essentially a collateralised loan: participants exchange securities for cash and agree to reverse the transaction at a prespecified date and price. In the BIS LIB statistics, reverse repos are reported together with bank deposits. By contrast, IMF (1993) recommends that monetary authorities classify reverse repos separately from bank deposits, as "other foreign currency assets".

⁸ The reporting population has expanded from 15 jurisdictions in 1977 to 39 in 2006. The largest expansion occurred in 1983, when offshore financial centres joined the reporting population. In 1999, the reporting of positions denominated in Deutsche marks, Dutch guilders, French francs, Italian lire and European Currency Units was discontinued and euro-denominated positions were reported instead.

⁹ The BIS accepts deposits from monetary authorities and then invests these funds in deposits, reverse repos and securities. The BIS is classified as an official monetary authority and so the LIB statistics indirectly capture the portion of funds deposited with the BIS and reinvested in bank deposits and reverse repos.

Compositional changes and reserve management

While the above-mentioned sources of data shed light on the composition of official reserves, care needs to be taken when using these data to make inferences about the management of reserves. Compositional changes are not necessarily synonymous with asset allocation decisions.

First, most of the available data, with the exception of the SDDS template, refer to gross reserves and do not take into account associated liabilities. Central banks have in recent years given greater consideration to the integrated management of their assets and liabilities (Cardon and Coche (2004)). This approach would tend to weaken the link between compositional changes in reserve assets and reserve management decisions.

Potentially weak link between changes in the composition of reserve assets ...

Second, risk exposures can be very different from the composition of assets. Portfolio managers sometimes use derivatives to manage different risks. Derivatives positions are typically recorded separately from the transaction to which they may be linked as hedges, and therefore balance sheet data can give an incomplete picture of managers' risk exposures. For example, central banks might use foreign exchange derivatives to increase their exposure to currencies other than the US dollar. If this were the case, data on the composition of assets might overstate central banks' exposure to the US dollar. While many central banks are not yet authorised to engage in such currency overlay strategies, a few are known to do so (Fels (2005)).

Finally, in aggregated data, such as the IMF COFER and BIS LIB data, compositional changes reflect both shifts in the allocation of assets (for a portfolio of a given size) and variations in the size of individual countries' reserves. For example, moves by some countries to diversify the allocation of their reserves could be masked by the growth of other countries' reserves.

... and reserve management decisions

Instrument composition

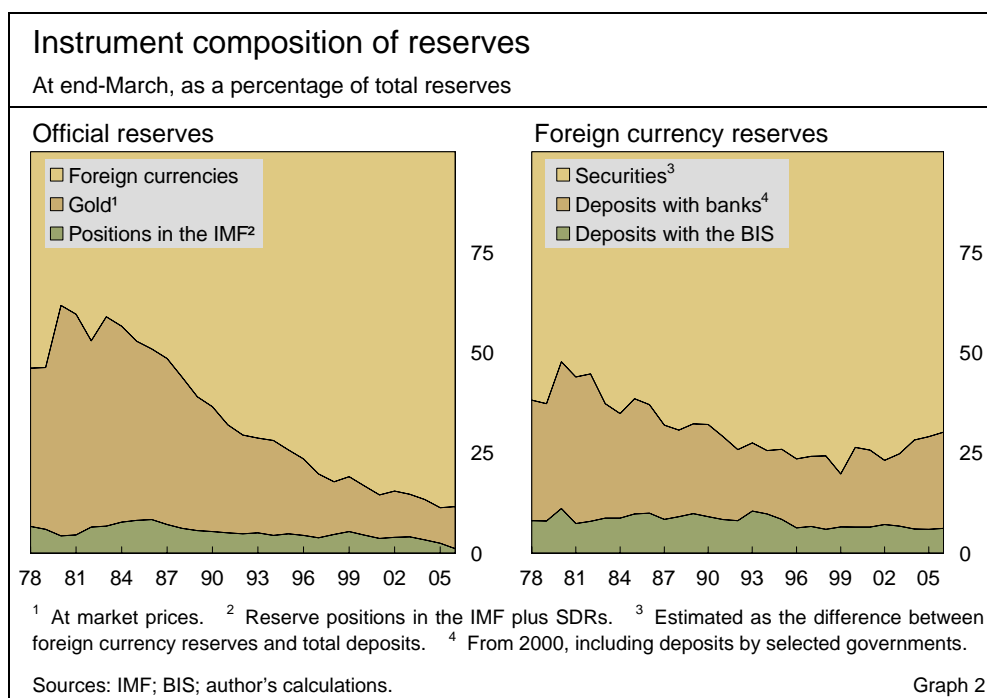
Monetary authorities have since the 1970s gradually diversified into higher-yielding, higher-risk instruments. Nevertheless, official reserves are still invested mostly in very liquid assets, with limited credit risk. After falling markedly, the proportion invested in bank deposits has increased slightly in recent years. This is mainly because of the rapid accumulation of reserves by developing countries, which tend to place a larger share of their reserves with banks than do industrial countries.

Gold holdings

Historically, the bulk of reserves were held in gold. That has changed radically over the past three decades. Gold holdings, valued at market prices, fell from about 60% of total reserves in 1980 to a low of 9% in 2005 (Graph 2). Today, the vast majority of reserves are invested in foreign currency assets, mainly deposits and securities. Whereas foreign currency assets totalled \$4.3 trillion at end-March 2006, gold holdings totalled only \$0.5 trillion (at market prices).¹⁰

Foreign currencies replace gold as the main reserve asset

¹⁰ Reserve positions in the IMF and SDRs added a further \$57 billion to total reserves.



The management of gold reserves has changed over time. Initially they were segregated from other reserve assets, and physical holdings of gold were left unchanged even as prices fluctuated and reserves accumulated. Then starting in the late 1980s, some central banks sold part or even all of their gold. The sharp rise in the price of gold in 2005–06 helped to boost gold's share of reserves above 10% in early 2006. Nevertheless, physical holdings of gold fell further, continuing to contract at a rate of about 2% per year.

Bank deposits

The shift from gold to foreign currency assets was part of a broader reallocation towards assets perceived to offer more attractive risk-adjusted returns. Starting in the mid-1970s, reserve managers began to diversify out of US Treasury bills and into bank deposits, at least in their US dollar portfolios (McCauley and Fung (2003)). During the 1980s and into the 1990s, they extended the maturity of their reserves significantly, investing in longer-dated securities and reducing their allocation to deposits.

The changing importance of deposits can be seen in the BIS LIB statistics. As discussed above, for a closer approximation of reserves held as deposits, deposits by selected governments and deposits placed by monetary authorities with the BIS should be added to the LIB statistics, and deposits placed by the BIS with commercial banks subtracted. At end-March 2006, these three adjustments boosted estimated deposits by over 20%, from \$1.1 trillion to \$1.3 trillion (Table 2).

Deposits are no longer as important as they once were, but they still account for a sizeable proportion of reserves. The share of foreign currency reserves (ie excluding gold and IMF positions) allocated to bank deposits peaked in 1980 at almost 50% and then gradually declined over the following two decades (Graph 2). Between 1996 and 2002, the proportion of reserves

Adjustments to BIS
LIB data boost
deposits by 20%

invested in deposits fluctuated around 23%, even as the absolute amount of reserves soared. The allocation to deposits then edged upwards to 30% at end-March 2006.

Developing countries allocate a much larger proportion of their reserves to deposits than industrial countries (Table 2). The SDDS and LIB data suggest that, in recent years, developing countries held about one third of their foreign currency reserves in deposits. Some developing countries placed the majority of their reserves with banks. For example, at end-March 2006, India had 76% of its \$145 billion of reserves invested in bank deposits and reverse repos, and Russia 69% of its \$198 billion. By contrast, industrial countries allocated only 21% of their reserves to deposits. Industrial countries' deposits were temporarily boosted by Japan's sharp accumulation of reserves in 2003–04, when the authorities were intervening actively in foreign exchange markets to slow the appreciation of the yen. Industrial countries' deposits subsequently declined, after Japan had shifted funds into securities (McCauley (2005)).

Deposits account for a large share of developing countries' reserves

Securities holdings

The bulk of global foreign currency reserves are invested in securities: about 70% at end-March 2006 (Graph 2). As reserve managers became more comfortable managing market risk, the allocation of their securities portfolios shifted towards longer-term instruments. Long-term debt securities accounted for 73% of total securities holdings at end-December 2004 according to SEFER data, and money market instruments only 25%. To be sure, a sizeable

Significant extension of maturities

Reserves placed with banks		
Outstanding bank deposits and reverse repos, at end-March 2006		
	Billions of US dollars	Percentage of reserves
All countries	1,308.0	30.1
BIS LIB statistics	1,078.8	24.8
+ Deposits by governments ^{1, 2}	116.0	2.7
+ Deposits with the BIS ³	268.0	6.2
– Deposits by the BIS ⁴	154.8	3.6
Industrial countries ¹	267.4	20.7
Japan	122.4	14.7
Developing countries ⁵	1,033.7	33.8
Identified deposits ¹	506.9	32.9
India	109.9	75.8
Russia	136.4	68.7
Unidentified deposits ⁶	526.8	34.8

¹ Identified holdings of cash, deposits and other assets (mainly reverse repos), as reported by national authorities subscribing to the SDDS. ² Holdings reported by Japan and the UK government, excluding deposits placed with the BIS, the IMF and national central banks. ³ Deposits placed by central banks with the BIS, including funds invested in Medium-Term Instruments but excluding gold deposits. ⁴ Funds placed by the BIS with commercial banks, comprising time deposits, advances and securities purchased under resale agreements. ⁵ Calculated as total deposits of all countries less identified deposits of industrial countries. ⁶ Calculated as total deposits of developing countries less identified deposits of developing countries.

Sources: IMF; national data; BIS; author's calculations.

Table 2

Foreign official institutions' holdings of US securities						
	In billions of US dollars			As a percentage of total holdings		
	Dec 1989	Mar 2000	Jun 2005	Dec 1989	Mar 2000	Jun 2005
Long-term debt securities ¹	197	565	1,439	100.0	100.0	100.0
US Treasury debt	188	465	1,054	95.4	82.3	73.2
US agency debt ²	7	88	324	3.6	15.6	22.5
of which: ABSs ³	...	...	63	...	...	4.4
Corporate and other debt	2	12	61	1.0	2.1	4.2
of which: ABSs ³	...	...	17	...	...	1.2
<i>Memo: Bonds / all securities⁴</i>	...	...	...	59.5	62.4	74.3

¹ Market value of debt securities with an original maturity of greater than one year or an undefined maturity; based on benchmark surveys of foreign portfolio holdings of US securities. ² Debt securities issued by US housing agencies, mainly Fannie Mae and Freddie Mac. ³ Asset-backed securities; agency ABSs are backed mainly by home mortgages. ⁴ Long-term debt securities as a percentage of foreign official institutions' holdings of all US securities (short-term plus long-term, equity plus debt).

Sources: National data; McCauley and Fung (2003). Table 3

proportion of monetary authorities' bond holdings have a short remaining term to maturity, especially their US Treasury bond holdings. Still, reserve managers' willingness to take on market risk has certainly increased. The duration of their US agency and corporate bond holdings is significantly higher than that of their Treasury holdings, and the former account for a fast rising proportion of total holdings (Table 3).

Government bonds are the largest portfolio investment ...

Reserve managers continue to invest mainly in instruments with low credit and liquidity risk. Government securities are still the single largest portfolio investment. In 2005, Treasury securities accounted for 73% of official institutions' holdings of US bonds (Table 3). While this was down from 95% in 1989, agency securities – rated AAA and the most actively traded securities after Treasuries – made up most of the difference. Furthermore, reserve managers exhibited little appetite for equity risk: according to SEFER data, equities accounted for less than 2% of securities holdings at end-2004.

... but appetite for credit risk is slowly rising

Nevertheless, reserve managers' appetite for credit and liquidity risk has been increasing. About half of the 56 respondents to Central Banking Publications' 2006 survey of reserve managers reported an increase in the amount invested in non-traditional higher-risk assets (Carver (2006)). A sizeable minority of respondents held asset- and mortgage-backed securities and corporate bonds. The US TIC data confirm that in recent years official institutions have increased their exposure to mortgage- and asset-backed securities and corporate bonds. Together, they accounted for almost 9% of official institutions' holdings of US debt securities in 2005 (Table 3).

Currency composition

The massive accumulation of official reserves and gradual diversification into higher-risk securities have not been accompanied by a shift out of US dollars. The currency composition of reserve holdings is as concentrated today as it was in the 1980s, indeed more so if euro legacy currencies are not grouped

together. The most significant change, in recent years, has been the replacement of the yen by sterling as the third largest reserve currency.

The following discussion and accompanying Graphs 3 and 4 focus on the IMF COFER data and the BIS LIB data. Although the coverage of the latter is limited to deposits, they provide a cross-check to the COFER data, which, as previously mentioned, exclude some key developing countries and have important breaks in series. That being said, all of the available data de facto exclude China's reserves (see the box on page 37).

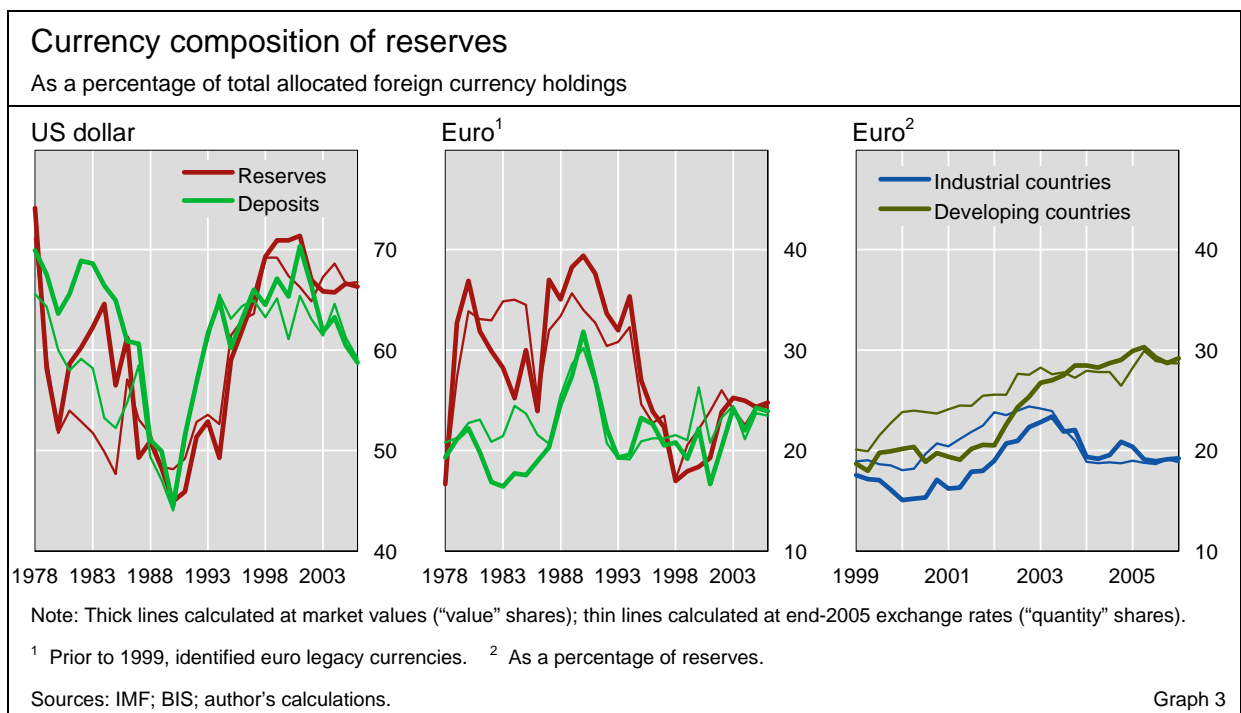
BIS LIB data as a cross-check to IMF COFER data

The currency composition of the COFER data loosely tracks that of the LIB data. Unexpected changes in reserves are likely to have a more immediate impact on deposits than on securities, and so the composition of deposits should in principle be more volatile than that of reserves. Yet the US dollar and euro shares of the LIB data are in fact less volatile than their shares of the COFER data. This may be because series breaks exaggerate the volatility of the latter dataset.

US dollar's value and quantity shares

The US dollar has, since the end of the Second World War, been the pre-eminent reserve currency, although its share of official reserves has been volatile. The thick lines in Graphs 3 and 4 plot currency shares at market values. In the 1970s, more than 70% of foreign currency reserves were invested in US dollar-denominated instruments (Graph 3, left-hand panel). During the 1980s, reserve managers diversified into Japanese yen and Deutsche marks, and the dollar's share declined to less than 50% by the end of the decade. The US dollar regained lost ground in the 1990s, peaking in 2001 at about 70% of holdings. Its share subsequently declined to 66% of reserves and 59% of deposits at end-March 2006.

US dollar's share is high but volatile



Currency shares are influenced by exchange rate movements ...

One factor contributing to fluctuations in the dollar's share of reserves and deposits is exchange rate movements. The thin lines in Graph 3 plot "quantity" shares, in which exchange rate movements are controlled for by redenominating all assets at constant (end-2005) exchange rates. During periods of pronounced dollar depreciation, such as 1985–87 and 2002–04, the US dollar's market value share declined even though its quantity share tended to rise. Similarly, during periods of pronounced dollar appreciation, such as 1981–84 and 1999–2001, the US dollar's value share rose even though its quantity share tended to fall. This suggests that, over these periods, reserve managers did not fully offset the impact of exchange rate movements. In other words, they did not continuously rebalance their portfolios to maintain a constant proportion in US dollars.

... changes in asset allocation ...

A second factor influencing fluctuations in the dollar's share is changes in reserve management. This includes adjustments to the strategic allocation of assets as well as decisions about deviations from the benchmark. In the 1980s, central banks participating in the European monetary system (EMS) switched to using Deutsche marks instead of US dollars to maintain parities within the EMS. This led to a large accumulation of Deutsche mark-denominated reserves by EMS members and a decline in the US dollar's share of global reserves and deposits (Deutsche Bundesbank (1997)). Following European monetary union on 1 January 1999, some developing countries reallocated their reserves towards euros. As a result, the proportion of developing countries' reserves denominated in euros rose from 20% in 1999 to almost 30% in 2006, after controlling for exchange rate movements (Graph 3, right-hand panel). The dollar's quantity share fell commensurately. This reallocation was most pronounced among countries with close trade or financial ties to the euro area, and less significant in Asia and the Americas (Lim (2006)).

... and the pace of reserve accumulation

Finally, differing paces of reserve accumulation across countries also contributed to fluctuations in the currency composition. The COFER data suggest that, during the 1990s, developing countries allocated a larger proportion of their official reserve holdings to US dollar instruments than did industrial countries. Therefore, the fast growth of developing countries' reserves, and consequent rise in their share of global reserves from 40% in 1990 to 60% 10 years later, helped to boost the US dollar's share of global reserves and deposits in the 1990s. Similarly, Japan appears to allocate a much larger proportion of its reserves to US dollar instruments than do other industrial countries. Thus Japan's rapid accumulation of reserves in 2003–04 helped to support the position of the US dollar in global reserve holdings.

Other currencies' shares

The euro share peaked in 1990 ...

For much of the past two decades, fluctuations in the dollar's share of reserves have been mirrored by fluctuations in the euro's share. The share of euro legacy currencies peaked in 1990 at 39% of reserves and 32% of deposits (Graph 3). Most of these funds were invested in Deutsche mark-denominated assets, with smaller amounts in French francs and European currency units. The share of euro legacy currencies then declined to around 20% on the eve of European monetary union.

Although the euro's share of reserves and deposits rebounded after monetary union, by early 2006 it was not much higher than it had been in the mid-1990s. COFER data suggest that the proportion of reserves allocated to euro-denominated instruments levelled off after 2003 at about 25%. While 25% is similar to the share of euro legacy currencies in the mid-1990s, this comparison is misleading because, prior to 1998, euro area countries' holdings of assets denominated in euro legacy currencies accounted for a substantial portion of total euro-denominated reserves. These assets were excluded from global reserves after monetary union. There is no break in the LIB data because banks continued to report their euro-denominated liabilities to euro area central banks even after 1998. These data confirm that the proportion of deposits denominated in euros was higher in 2005–06 than in 1994–96, but only slightly: 24%, compared to 22% for euro legacy currencies.

... and was only slightly higher after monetary union than in the mid-1990s

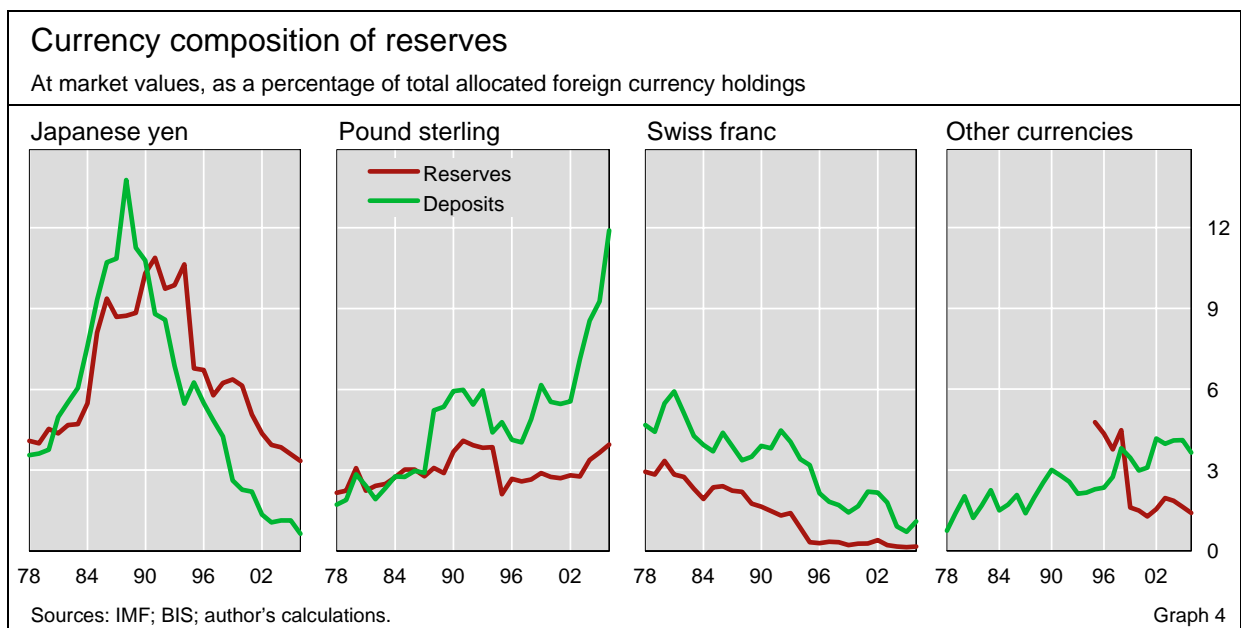
The Japanese yen's share of reserves has steadily declined since the early 1990s. In the 1980s the yen had begun to erode the US dollar's share, and at its peak the yen accounted for over 10% of reserves (Graph 4). By 2006, it accounted for less than 5%. The decline in Japanese asset prices and the subsequent long period of low relative returns on yen assets appear to have contributed to the shift out of yen reserves.

Sterling has replaced the yen as the third largest reserve currency

As a result of the decline in the yen's share, the pound sterling has replaced the yen as the third largest currency in reserve portfolios. According to the BIS LIB data, the share of sterling doubled between 1995 and 2006, from 5% of deposits to almost 12%. The IMF COFER data show a more modest increase, from 2% of reserves to 4%. The COFER data suggest that developing countries have diversified into sterling at a faster pace than industrial countries.

The Swiss franc, once a leading reserve currency exceeded in importance by only the US dollar and the Deutsche mark, has fallen out of favour since the 1970s. From a peak of 6% of deposits in 1981, the Swiss franc's share fell steadily to 1% in 2006. Movements in the Swiss franc/US dollar exchange rate

Swiss franc has fallen out of favour



Composition of China's reserves

An important caveat regarding the above discussion is that it does not take into account the composition of China's reserves. China's reserves are so large that small changes in their composition could have a significant impact on conclusions about trends in aggregate data. Only a small proportion of Chinese reserves appear to be deposited with banks in the BIS reporting area, and so the BIS LIB statistics do not provide much additional information. Deposits placed with banks abroad by Chinese residents totalled \$123 billion at end-March 2006. Of this amount, 72% was denominated in US dollars. However, interbank and inter-office positions accounted for the bulk of these liabilities. Placements by non-bank entities, including SAFE, equalled only \$26 billion. By comparison, China's foreign currency reserves totalled \$875 billion at end-March 2006. This suggests that China holds a much smaller proportion of its reserves in deposits than most other countries. The LIB data, though, exclude any reserves placed onshore with Chinese banks.

have for the past decade very closely tracked those of the euro/dollar (Galati and Wooldridge (2006)). This, coupled with a yield differential in favour of euro assets, may have reduced the attractiveness of the Swiss franc as a reserve currency.

The BIS LIB data suggest that, at the margin, reserve managers have increased their holdings of Australian and Hong Kong dollars, Danish kroner and other currencies in recent years. The share of currencies other than the major five rose to 4% of deposits in 2005–06. However, this increase is not confirmed by the IMF COFER data.

Conclusions

Reserve managers have so far approached diversification cautiously ...

The available data on the composition of official reserves indicate that reserve managers have approached diversification cautiously. The bulk of foreign currency reserves are still invested in bank deposits and government securities, and the US dollar has maintained its place as the dominant reserve currency. This is not too surprising. The primary reason to hold reserves is to be prepared for contingencies and, given the tendency for liquidity to concentrate, the range of investments available to satisfy this need is limited.

That being said, the management of reserves has been changing. Continuing a trend that began in the 1970s, when reserves were first reallocated from US Treasury bills to bank deposits, reserve managers have been gradually shifting into higher-yielding, higher-risk instruments. They seem most comfortable managing market risk but are beginning to take on more credit and liquidity risk too. The currency composition of their portfolios, while volatile, has not changed as much as the instrument composition. Nevertheless, there is some evidence that reserve managers have shifted into sterling-denominated assets over the past decade. Furthermore, aggregate data veil important shifts in individual countries and, by construction, give greater weight to the largest reserve holders rather than the most sophisticated. Therefore, they perhaps overstate the degree of inertia in reserve holdings. Likewise, moves by some countries, including Korea and Russia, to transfer part of their official reserves to government investment funds mask the extent to which foreign currency assets have been diversified.

Reserve diversification might possibly proceed more rapidly in the future. First, reserves are now commonly perceived to be greater than needed for intervention purposes. As a result, the focus of reserve management is likely to shift even further towards the maximisation of returns for a given level of risk and away from the preservation of liquidity and capital. Second, the liquidity and sophistication of euro financial markets are fast approaching those of US dollar markets (Galati and Wooldridge (2006)). This helps to strengthen the position of the euro as a possible alternative to the US dollar in official reserves.

... but might proceed more rapidly in the future

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