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For discussion

Currency Composition of Foreign Exchange Reserves (COFER) Data: Improving the Analytical Usefulness

Currency Composition of Foreign Exchange Reserves (COFER) Data: Improving the Analytical Usefulness¹

IMF staff are considering estimating the currency composition of the “unallocated” portion of the Currency Composition of Foreign Exchange Reserves (COFER) dataset with a view to improving the analytical usefulness of the COFER global aggregates. BOPCOM’s guidance is being sought on the benefits, methodology, and risks of this initiative.

INTRODUCTION

1. The COFER dataset provides the currency composition of official foreign exchange reserves. COFER data for individual countries are strictly confidential. Only global totals are published, with no regional breakdowns. At present there are 149 reporters, consisting of member countries of the IMF, non-member countries/economies, and other foreign exchange reserve holding entities. The allocated portion of the dataset comes from reporters, while the unallocated portion is mainly collected from reports by countries and entities compiled in the International Finance Statistics (IFS). The dataset includes annual data from 1995–1998 and quarterly data from 1999 onward.

Table 1. World – Official Foreign Exchange Reserves by Currency

World - Official Foreign Exchange Reserves by Currency (US Dollars, Billions)					
	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024
▼ Total Foreign Exchange Reserves	12,050.50	11,845.68	12,347.16	12,383.61	12,347.42
▼ Allocated Reserves	11,176.21	10,977.44	11,453.21	11,498.25	11,465.52
Claims in U.S. dollars	6,640.39	6,496.75	6,690.71	6,774.82	6,675.45
Claims in euro	2,204.44	2,146.83	2,284.33	2,253.79	2,265.29
Claims in Chinese renminbi	273.38	260.61	262.17	247.10	245.17
Claims in Japanese yen	600.18	601.30	651.68	654.52	641.07
Claims in pounds sterling	532.63	527.92	557.13	562.48	565.92
Claims in Australian dollars	219.70	222.54	245.53	248.42	256.45
Claims in Canadian dollars	279.60	275.40	296.47	295.64	306.85
Claims in Swiss francs	21.17	19.79	22.27	21.93	22.43
Claims in other currencies	404.72	426.30	442.92	439.56	486.89
Unallocated Reserves	874.29	868.24	893.95	885.35	881.90

Ordering of the currencies follows SDR basket weights (SDR currencies) and alphabetical order (non-SDR currencies).

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2. In 2024Q2, the latest quarter for which data are available, the “unallocated” portion of the COFER dataset was \$881.9 million (i.e., 7 percent of the \$12.3 trillion in foreign exchange reserves held globally in that quarter), an amount which has been roughly unchanged since 2018. The unallocated portion is down considerably from the pre-2018 period, when reported data from countries accumulating large foreign exchange reserve holdings was either not provided, or still being phased into the COFER dataset to protect individual country data from residual disclosure.

Table 2. Currency Composition of Official Foreign Exchange Reserves, Unallocated Portion, 1995–2023

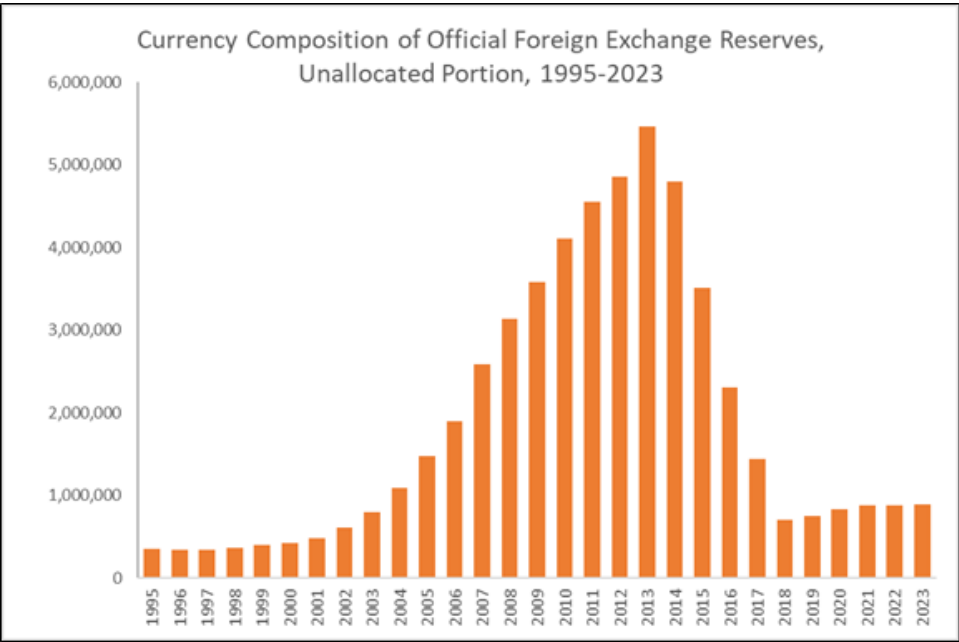
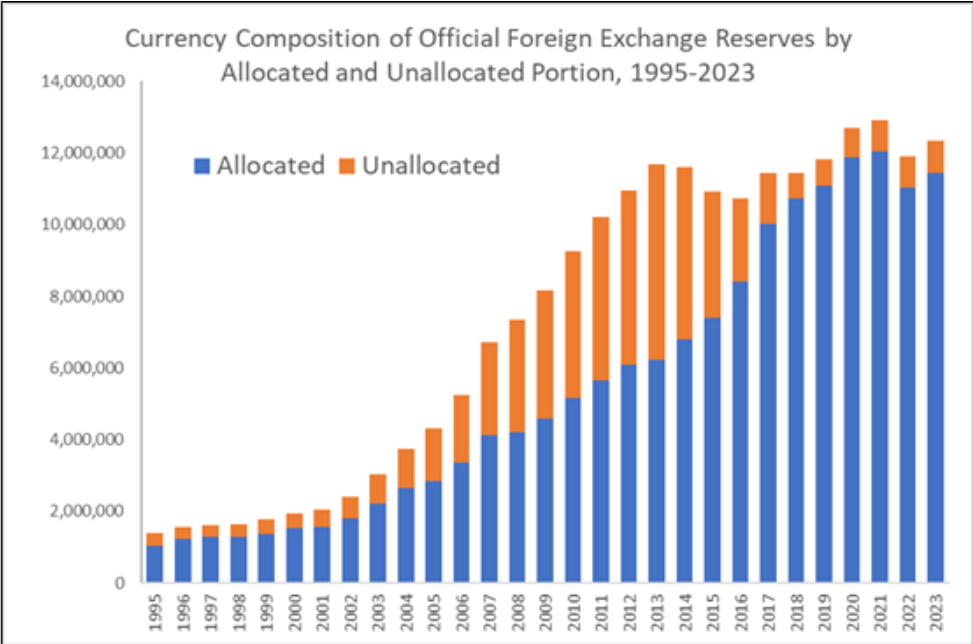


Table 3. Currency Composition of Official Foreign Exchange Reserves by Allocated and Unallocated Portion, 1995–2023



BACKGROUND

3. There has been increased analytical attention on the COFER dataset, particularly in the context of geoeconomic fragmentation. At the same time, existing and potential fluctuations in the unallocated portion of the dataset may make it challenging for COFER data users to draw accurate conclusions from the aggregated data. For example, the movement of countries from reporters to non-reporters and vice versa, and related statistical methods used to smooth these entries/exits and prevent residual disclosure of individual country data, may obscure underlying patterns in currency composition.

4. Now that the unallocated portion of the COFER dataset is down to only 7 percent of foreign exchange reserves held globally, IMF staff are considering the possibility of imputing the currency composition of the remaining country holdings to improve the analytical usefulness of the global aggregates presented in the COFER dataset.

5. Users of the COFER dataset either assume the allocated shares are the total or attempt to impute the unallocated shares in their analysis. IMF staff are well placed to carry out this imputation exercise and maximize the analytical usefulness of the data, as they are in a unique position to leverage the underlying country coverage of the dataset while maintaining the confidentiality of reporters and reported data.

ESTIMATING THE UNALLOCATED PORTION OF THE COFER DATASET

6. IMF staff are considering possible methods of estimating this “unallocated” portion, using the discernable patterns in the other 93 percent of the dataset and any other publicly available information, so that the published COFER dataset would provide complete coverage. Although the COFER dataset is based mostly on reporting, IMF staff already use estimation methods to allocate the foreign exchange reserves of countries who have occasional missing or late submissions taking advantage of the relatively stable currency composition of monetary authorities’ portfolios.

7. The imputation methods that are currently under consideration to estimate the unallocated portion of the COFER dataset would rely on carry-forward imputation², stratified mean imputation³, and/or a mixed method that is a combination of the two.

8. About 3 percent of the unallocated total (i.e., 0.21 percent of the COFER total) is attributable to countries that report the currency composition of their reserves as part of COFER, but whose total foreign exchange reserves do not fully coincide with those reported by the countries in their international liquidity reports and compiled in International Financial Statistics (IFS). For countries that report a different amount to COFER than is compiled in IFS, the difference is currently included in COFER as “unallocated”. For this part of the “unallocated” total, IMF staff can use each country’s reported allocation to estimate the unallocated portion of their reserves. This would be straightforward.

² The value at time t-1 replaces the missing value at time t. For non-reporting countries who were previous COFER reporters, the imputation of the currency composition of their reserves will be based on their last reported shares for the first four periods after they stop reporting.

³ A missing value is imputed with a value observed from the mean of a stratified subgroup. For the COFER dataset, the average currency shares of the group to which the non-reporting country is assigned will be utilized.

9. However, the largest part of the unallocated total is attributable to countries that haven't ever reported to COFER at all, or that have previously reported to COFER, but stopped at some stage. For these countries, the entire amount of their reserves as reported in IFS is currently included in COFER as "unallocated".

10. For countries that have never reported to COFER at all, besides all public information available, IMF staff are considering using a stratified mean imputation method. Countries that have never reported to COFER would potentially be assigned a grouping by IMF staff, using publicly available data on trade and financial linkages, geopolitical relationships, and judgment. IMF staff would then use the average currency shares from a grouping of similar countries in the COFER dataset to impute the country's currency shares.

11. For countries who have previously reported COFER data to the IMF and then stopped, or for countries with large holdings of foreign exchange reserves, a previously-reported unusual skew to their currency shares, or both, IMF staff are considering using a mixed method. IMF staff would use a combination of carry-forward and donor-based imputation in order to arrive at the most analytically useful estimate. Estimates could also be adjusted based on publicly available information.

MAINTAINING CONFIDENTIALITY AND PREVENTING RESIDUAL DISCLOSURE

12. Maintaining the confidentiality of the COFER dataset is of the utmost importance. Although there is no confidentiality concern about what could be revealed from these new estimates of the unallocated portion of the dataset, it is nonetheless important to keep in mind how outside observers may interpret the data. While publishing both the imputed and unimputed historical series bears little risk of residual disclosure, publishing both for the current period may reveal information for new respondents and non-respondents in the reporting population. Therefore, for current data, only publishing the percentage of total reserves that are imputed in each quarter would eliminate any residual disclosure risk.

13. The IMF used to publish a breakdown of the COFER dataset for advanced economies and emerging and developing economies up until 2015. However, starting in 2015Q2, this breakdown was no longer available. COFER is a strictly confidential dataset and the IMF is fully committed to safeguard the confidentiality of individual data submitted by participating economies. To remain confidential and to avoid possible residual disclosure of individual country data, with the release of a list of COFER participants, the IMF decided to terminate publication of this breakdown. In the context of this work on estimating the unallocated portion of the COFER dataset, IMF staff have revisited the issue of the breakdown, and have determined that it will still not be possible to provide it while maintaining the confidentiality of individual country data.

Questions for the Committee:

1. *Does the allocation of the unallocated portion improve the analytical usefulness of the COFER data?*
2. *Do Committee members have views on the proposed imputation methods?*
3. *Do Committee members have suggestions about how to impute potential non-reporters with unusually large reserve holdings or an unusual skew to their reserve holdings?*
4. *What accompanying metadata information/documentation should COFER users be provided with?*
5. *What kind of communication policy should be followed with COFER users, reporters, and non-reporters?*