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For discussion

## **C.3 International Trade Classified by Currency (Including for Trade Linked to Long-term Trade Credits and Advances)**

Prepared by the Current Account Task Team (CATT)

INTERNATIONAL MONETARY FUND



## **C.3 International Trade Classified by Currency (Including for Trade Linked to Long-term Trade Credits and Advances)<sup>1</sup>**

*Currency composition for external sector statistics is of great interest to assess cross-border risks at both country and global levels. International institutions have developed some related initiatives which focus mainly on cross-border position or the foreign exchange market. This Guidance Note recognizes the analytical value of the currency composition of international trade and proposes improvements to be considered in the update of the Manual. It recommends the development of an encouraged (voluntary) data collection template that introduces a disaggregation of international trade by currency.*

### **SECTION I: THE ISSUE**

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#### BACKGROUND

1. **Currently, none of the international standards (i.e., the IMF's *Balance of Payments and International Investment Position Manual*, sixth edition (*BPM6*), the *System of National Accounts 2008 (2008 SNA)*, and the *International Merchandise Trade Statistics 2010 (2010 IMTS)*) include the currency composition of international trade in goods and services accounts.** However, the *BPM6* recommends the compilation by currency composition of derivatives and debt claims and liabilities on/to nonresidents.<sup>2</sup>
  
2. **Guidelines and initiatives coordinated by international organizations are primarily covering currency composition of positions.** For example, the Currency Composition of Official Foreign Exchange Reserves (COFER) is managed by the IMF and contains quarterly positions statistics on reserve assets, split by currency composition.<sup>3</sup> The Coordinated Portfolio Investment Survey (CPIS) is also managed by the IMF and has a table for [Currency breakdown of portfolio investment assets](#). The International Investment Position (IIP) currency composition is collected by the IMF as memorandum presentations of the IIP and a recommendation by the G-20 Data Gaps Initiative to support the analysis of currency mismatches and liquidity risks in the external position of a country.<sup>4,5</sup> The World Bank's Quarterly External Debt Statistics (QEDS) dataset includes two tables with a breakdown of external debt

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<sup>1</sup> Prepared by Thiago Vieira (Banco Central Do Brasil), Bedri Zymeri (in his previous capacity at the Central Bank of the Republic of Kosovo), Angela Gherman-Cernei (National Bank of Moldova), Mounir Rhandi (Morocco Foreign Exchange Office) with input from Renan Sousa, Rafael Monastier, Bruno Tiberto, and Tulio Brant (Banco Central do Brasil), Fatiha Talbi (Morocco Foreign Exchange Office), and Angela Moraru (National Bank of Moldova).

<sup>2</sup> Institutional sectors and instruments are also covered by these suggested tables. In the *BPM6*, see Appendix 9, Section C "Additional Analytical Position Data," item (a) "Currency Composition."

<sup>3</sup> Official foreign exchange reserves are presented by currency at world level. Individual country data is strictly confidential. In December 2020, there were 149 reporting countries. <https://data.imf.org/?sk=E6A5F467-C14B-4AA8-9F6D-5A09EC4E62A4>

<sup>4</sup> "Recommendation II.10: IIP: The G-20 economies to provide quarterly IIP data to the IMF, consistent with the *BPM6*, and including the enhancements such as the currency composition and separate identification of other (non-bank) financial corporations, introduced in that Manual." [www.imf.org/external/np/g20/pdf/2016/090216.pdf](http://www.imf.org/external/np/g20/pdf/2016/090216.pdf)

<sup>5</sup> In response to a request from the G-20 Finance Ministers and Central Bank Governors, data gaps involving foreign currency exposures were discussed by the IMF at [www.imf.org/external/np/g20/pdf/2015/foreigncurrency.pdf](http://www.imf.org/external/np/g20/pdf/2015/foreigncurrency.pdf).

by currency.<sup>6</sup> The Bank for International Settlements (BIS) undertakes the “Triennial Central Bank Survey of Foreign Exchange and Over-the-counter (OTC) Derivatives Markets”,<sup>7</sup> providing data on foreign exchange market by currency since 1989 (includes all foreign exchange operations, with no separate identification for transactions related to international trade in goods and services). The BIS also coordinates quarterly data collection on locational banking statistics, which provides information about the [geographical and currency composition of banks' assets and liabilities](#). Annex II.3 presents figures on some of these currency composition initiatives.

3. **According to the IMF’s 2020 BOPSY dataset—World and Regional Aggregates, and measuring by the exports side, the 2019 international transactions in goods and services accounted for US\$24.7 trillion, representing about 28.2 percent of global GDP.** The World and Regional Aggregates section in the BOPSY presents aggregated country and global data, including imports and exports from more than 180 countries.<sup>8</sup>

4. **Currency composition of international trade has an important analytical value.** Several efforts are ongoing to collect data on currency composition of international trade and build up cross-country datasets. For example, the European Central Bank (ECB) has worked on developing [a database on trade in goods and services by currency](#) and Eurostat is collecting trade by invoicing currency data for Extrastat.<sup>9</sup> These databases provide useful information, supporting analyses of euro vis-à-vis other currencies used in trade invoicing, and are also used by financial market segments and foreign investors.<sup>10</sup> In addition, several academic attempts to build cross-country datasets related to international trade classified by currency are summarized in Annex II.2.

5. **Ongoing statistical initiatives and research, which have the potential to provide policymakers and the statistical community with key insights, could benefit from recommended international standards and guidance on this topic.** Kamps (2006) showed the currency in which the international trade is invoiced has micro- and macroeconomic implications. At the firm level, the profit maximization of firms engaged in international trade is affected by their choice of currency. At the macroeconomic level, it affects business cycle correlations between countries and the transmission mechanism of monetary policy. Goldberg and Tille (2008) claimed industry features and country size are the determinants to choose invoice currency while Ito and Chinn (2014) revealed the countries with more open capital accounts tend to invoice in either the euro or their domestic currency and less in the U.S. dollar. In addition, Boz et al (2020) showed the role of vehicle currency invoicing for exchange rate pass-through to import prices and trade volumes, and Adler et al (2020) revealed that invoicing exports in US dollars, instead of in domestic currencies as assumed by traditional models, dampens exports response to exchange rates depreciation, especially in the short term.

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<sup>6</sup> See Tables 2 and 2.1 at <https://datatopics.worldbank.org/debt/qeds>.

<sup>7</sup> This survey use data reported every three years by dealers in more than 42 additional jurisdictions. [www.bis.org/statistics/rfx19.htm?m=6%7C32%7C617](http://www.bis.org/statistics/rfx19.htm?m=6%7C32%7C617).

<sup>8</sup> Where data are not reported by countries, estimates are made to gap-fill mainly based on World Economic Outlook data. However, the impact of the non-reporters is negligible.

<sup>9</sup> Eurostat is collecting and publishing trade in goods data by currency for the EU Member States whenever the trading partner is a non-EU country. These data are collected via customs declarations or a dedicated survey and released every two years.

<sup>10</sup> [https://ec.europa.eu/eurostat/cache/metadata/en/ext\\_lt\\_invcur\\_sims.htm#contact1612774190381](https://ec.europa.eu/eurostat/cache/metadata/en/ext_lt_invcur_sims.htm#contact1612774190381)

6. **Currency composition of international trade is of high interest for a wide range of stakeholders, including** (a) **policymakers and academic researchers** (fostering the assessment of external sector vulnerabilities, sustainability analysis, monetary unions, regional integration, trade policy, and exchange rate pass-through);<sup>11</sup> (b) **Analysts and foreign exchange market participants** (providing information to analyze developments and trends of the local foreign exchange markets and to better forecast foreign exchange rate dynamics); and (c) **IMF research and assessments** (helping to define composition and weight of the Special Drawing Rights (SDR) currency basket, as well as to [assess reserves adequacy](#) and determine whether a currency meets the concept of being "freely usable for settlements of international transactions" to be included in reserves definition).

## ISSUES FOR DISCUSSION

### *Scope*

7. **International trade classification by currency can be appended either onto the goods and services account or their corresponding entries in the financial account.**<sup>12</sup> The change of ownership of goods and the rendering/consumption of services are recorded in the current account. The corresponding entry in the financial account can be spread over several financial instruments, such as trade credit and advances, currency and deposits, or loans. Except for trade credit and advances, these accounts cover entries that may or may not be related to international trade.

8. **Appending the currency breakdown onto the goods and services accounts would emphasize the consistency with the standard balance of payments components and enable the links with other datasets.** The totals in the trade by currency composition table would equal the totals in the goods and services accounts. This option would make the statistics easy to interpret and increase their usefulness since the analysis and the research undertaken on international trade are generally based on the "real" side of international trade. For example, breakdowns by product, type of service and partner country are all based on the concepts of change of economic ownership (goods) and rendering/consumption (of services), and not linked to their respective payments.

9. **The collection of international trade data broken down by currency could start with a template applicable to goods only or by introducing separate templates for both goods and services on a voluntary basis.** Some authors argued that the heterogeneity of various types of services and the use of hybrid data sources and models for their compilation might reduce the quality of trade in services by currency, as compared with trade in goods by currency. Nevertheless, not covering services would mean leaving out a relevant current account item, given that they have an increasing share in global international trade. According to the IMF's 2020 BOPSY dataset, world exports of services have increased by 52 percent between 2008–2019, reaching US\$6.1 trillion in 2019. During the same period, the share of services in global exports increased from 20.2 percent to 24.6 percent. Additionally, international trade in services may follow distinct patterns of currency composition, justifying a separate breakdown.

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<sup>11</sup> Some countries are highly dependent on a larger regional neighbor for their international trade activities (see the *BPM6*, paragraph 6.73).

<sup>12</sup> Two exceptions are barter trade and donations, which have counterpart entries in the current account and capital account instead of the financial account.

10. **Adding further breakdowns to the template, such as by product (in the case of goods) or by type of service, would enrich the information<sup>13</sup> but at the same time increase the compilation burden.** While the breakdown of goods by product is currently outside of the external sector statistics (ESS) scope, an additional breakdown of the 12 categories of services<sup>14</sup> by currency is considered as one of the reporting options on the recommendations section.

### **Currency Concept**

11. **One key issue when providing guidance on currency composition of international trade is to determine whether to use the currency of denomination or the currency of settlement.** This choice is closely related to the decision to append the classification by currency onto the goods and services account or to their corresponding entries in the financial account. According to *BPM6*, paragraph 3.98, “*the currency of denomination is determined by the currency in which the value of flows and positions is fixed as specified in the contract between the parties... and allows the possibility to distinguish the transaction values and holding gains and losses*”. Paragraph 3.99 recognizes that the currency of settlement may be different from the currency of denomination, in which case “*(...) a currency conversion is involved each time a settlement occurs... and is related to liquidity and potential foreign exchange drains*”. The currency of denomination allows the assessment of exchange rate vulnerabilities. The currency of settlement could be used as an input for strategic asset and liability allocation, risk management of international reserves or monitoring flows in the foreign exchange market. The currency of settlement is related to the corresponding financial flows and not with trade itself.

12. **Conceptually, the currency of denomination seems to be the best option for the currency composition of international trade.** In the context of international trade, the currency of denomination is the one in which the price and consequently the value of the goods and services is fixed, therefore influencing the terms of trade. It is also more aligned with the principle of change of ownership. In terms of time of recording, the currency of denomination is known at the same time or close to the time when the change of ownership of goods occurs or when the service is rendered/consumed. If the currency of settlement were used instead, the dissociation between the trade flows and their settlements could pose compilation difficulties, especially when long-term assets and liabilities are involved.<sup>15</sup>

### **Data Sources**

13. **The currency of denomination is closely related to invoices.** Invoices show the currency in which the cross-border trade transaction is denominated. The *BPM6 Compilation Guide* states in paragraph A7.43 (emphasis added): “This concept [currency of denomination] identifies the currency of denomination of the financial instrument **or of the invoice of goods and services**. For balance of payments and IIP data, the concept is usually recorded as all currency of denomination.” Invoices have been generally used as source data in academic studies of currency composition of international trade, as

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<sup>13</sup> For example, a study by the Australia Bureau of Statistics in 2016 has shown that invoice currency in Australian exports vary by type of product. While the U.S. dollar is largely dominant among petroleum, metals and other commodities, the Australian dollar is more important for manufactured goods.

<sup>14</sup> GN C.6 (Trade in services classifications) proposes to increase the number of main service categories.

<sup>15</sup> In Brazil, large exporting enterprises in mining and oil industries commonly undertake trade credit and advances with more than 10 years of financing.

listed in the Annex II.2. Besides, it could be obtained from customs declarations for most countries that rely on this data source to compile trade in goods statistics. Nevertheless, the GZTT/CATT consultation to date for Guidance Note (GN) G.1/C.11 “Valuation of Imports and Exports of Goods in International Standards (CIF to FOB Adjustment)” shows that access to invoice data might be challenging to the agencies responsible for compiling balance of payments.<sup>16</sup> The GN G.1/C.11 proposal to use trade invoicing is currently in the testing phase by both balance of payments and national accounts communities.<sup>17</sup> The outcome of this exercise could also serve as indicator to assess the feasibility of using trade invoices in compiling currency composition.

14. **Nevertheless, the use of invoices is not the only feasible source for the currency of denomination.** Alternative sources should also be considered. Depending on the trade finance structure and regulation specificities, a combination of data sources for the goods and services account, such as surveys, settlements data from an International Transactions Reporting System (ITRS) and/or other administrative data (including value-added tax systems) could be used to obtain the best proxy for the currency of denomination. Annex II.4 provides a collection of data sources other than invoices that are available in some countries represented by the drafting team. Annex II.5 presents the exploratory exercises undertaken by some of the authors of this GN to compile the international trade classified by currency. There may be a need to modify the already existing source data or add new data collection forms. Surveys may have to be created or modified to account for the currency breakdown of international trade. The ITRS may also contain information from banking records on the settlement currency of payments related to international trade.

#### ***List of Currencies***

15. **The first level breakdown for currency composition is distinguishing domestic currency from foreign currency.** The use of domestic currency is important to understand the role of the country's own currency from the trade perspective, as well as to assess the external sector vulnerabilities.

16. **Beyond the domestic/foreign currency breakdown, the template should specify the most used currencies worldwide.** In this context, it seems appropriate to use the SDR basket<sup>18</sup> as reference. The SDR basket is reviewed every five years, and it could be used as a starting point to define the currencies to identify in the currency composition on the international trade. A common set of currencies is important for cross-country comparison and in the analysis of global and regional trends.

17. **In addition, foreign currencies other than those in the SDR basket may be explicitly reported depending on their importance for the reporting economies.** Many economies have a significant share of their international trade with neighboring countries. In some cases, local currencies used for trade are very important in the region, even though not widely traded at global level (e.g., Indian rupees for neighboring countries). In these cases, the information on these regional currencies is certainly useful.

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<sup>16</sup> GN G.1/C.11, paragraph 28, at <https://www.imf.org/-/media/Files/Data/Statistics/BPM6/GZTT/q1-valuation-of-imports-and-exports-of-goods-in-the-international-standards-cif-to-fob-adjustment.ashx>.

<sup>17</sup> This testing exercise and the final version of the GN are expected to be available in June 2021 and August 2021, respectively.

<sup>18</sup> The SDR basket is currently composed of pounds Sterling, Chinese yuan, euro, Japanese yen, and the U.S. dollar.

18. **Currency composition of international trade should also have an unallocated item in the template.** The unallocated item already figures in other currency composition initiatives, such as the *BPM6* A.9.I and QEDS tables. The unallocated component could be used as a buffer to address currency allocation difficulties associated to some categories of goods/services whose estimation depends on less reliable information or on modelling techniques (e.g., travel and FISIM). Besides filling in the gap for the unavailable information, the unallocated item is necessary because not all changes of ownership (goods) or consumption/production of services are expressed in a specific currency. Two examples would be barter trade and in-kind transfers.

### **Periodicity**

19. **The periodicity should consider both the users' analytical needs and the compilers' capabilities to produce the currency composition of international trade statistics.** A quarterly reporting would maintain the current reporting standards for the ESS, but the currency composition of international trade is not expected to show frequent sudden changes. Boz et al (2020) use an annual frequency for invoicing currency in global trade and seem to appropriately capture data trends even in the presence of major historical events, such as the creation of a monetary union. Thus, an annual compilation can reduce compilation burden without greatly reducing the analytical value of the data.

## **SECTION II: OUTCOMES**

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### RECOMMENDATIONS

20. **This GN is proposing the development of an encouraged data collection template that introduces further breakdown of the imports and exports of goods, or goods and services, by currency as part of the reporting of the balance of payments statistics, as presented in Annex I.**<sup>19</sup> These statistics have an important analytical value for a wide variety of users, including analysts, policymakers, academic researchers, and foreign exchange market participants.

21. **Proposed breakdown: The proposal is for the currency breakdown to be appended onto the total values of the goods and services accounts.**<sup>20</sup> Three out of four authors agreed with this recommendation. This should ensure consistency within the current ESS framework. The total values of the goods and services accounts serve as a benchmark for the currency breakdown. Alternatively, one author suggested a phased approach,<sup>21</sup> starting with the reporting of the currency composition of merchandise trade statistics partly adjusted (see for example the methodological note for the Table 7 in Annex II.5), followed by assessing user needs and developing the data sources needed to compile the currency composition of all adjustment categories, as proposed in the reconciliation between IMTS and goods on a BOP basis (see *BPM6* Table 10.2). This approach could generate inconsistency initially between the currency breakdown and the totals of goods in balance of payments, however, it also has some benefits, such as a higher reporting frequency and less compilation and respondent burden. The same author suggests that the consultations on the issue of currency composition of trade in goods

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<sup>19</sup> One CATT member disagreed with this recommendation.

<sup>20</sup> Two CATT members disagreed with this recommendation.

<sup>21</sup> One CATT member also suggested a phased approach.



be continued as part of the update of IMTS and *Manual on Statistics of International Trade in Services (MSITS)* in order to promote the reconciliation among different statistical approaches in methodologies.<sup>22</sup>

22. **The currency of denomination is proposed to be used to develop statistics of international trade by currency.**<sup>23</sup> Compared to the currency of settlement, the currency of denomination concept is more aligned with the ESS principles, including the change of ownership, time of recording and valuation. Additionally, the currency of denomination allows to measure the risk exposures arising from exchange rates changes.

23. **Source data: Invoices are proposed to be the main data source for compiling the currency composition of international trade in goods.** However, the currency of settlement could be acceptable for reporting if data on currency of denomination are not available or are not of sufficient quality. For some countries, developing and using invoice-based data sources can be burdensome. Even for those countries that have access to invoice data, it is likely that not all transactions are covered. Using a mix of these two data sources could raise issues of comparability and bilateral asymmetries, but, on the other hand, it will enhance the coverage and could increase the number of reporting economies.

24. **The drafting team considered three options for the reporting templates as presented in Annex I, and within the CATT, a majority of members supported Option 2:**

- Option 1: Report the currency composition only for the gross totals of the imports and exports of international trade in goods. This option considers the fact that the breakdown of trade in services by currency would have more source data issues that could reduce data quality.
- Option 2: Report the currency composition for the gross totals of the imports and exports of both goods and services. This option underscores the increasing importance of services in global trade; countries may still choose to report only the goods breakdown if services data are of poor quality or not available.
- Option 3: Report more detailed currency breakdowns according to the balance of payments standard components of goods and services.

25. **Periodicity: The proposal is for the reporting of currency breakdown of international trade with an annual periodicity, with which CATT members unanimously agreed.**<sup>24</sup> A quarterly reporting proposal, while favouring the availability of data with increased frequency, may unnecessarily increase the compilation burden. If countries with advanced collection system can provide this information with a higher frequency (quarterly and/or monthly), they are strongly encouraged to do so.

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<sup>22</sup> During CATT review, one member also suggested to consult on this issue with the international organizations responsible for the IMTS and the MSITS. Another member affirmed that this issue should be dealt with in foreign trade statistics and MSITS, not in the *BPM6* update.

<sup>23</sup> All CATT members agreed with this recommendation.

<sup>24</sup> This is consistent with the periodicity proposed by the GN "C.2 Goods, Services, and Investment Income Accounts by Enterprise Characteristics" template, which is also proposing the collection of additional dimensions of the transactions in the goods and services accounts.

26. **List of currencies: The majority of CATT members agreed with having domestic and foreign currencies, with a further breakdown of the latter according to the SDR basket.**<sup>25</sup>

Depending on the importance of non-SDR basket currencies to the international trade of each economy, these currencies could also be reported on a voluntary basis. An unallocated item is also proposed.

**Questions for Discussion:**

1. *Does the Committee support the need to develop a voluntary data collection template for international trade classified by currency?*

*If the answer to Q1 is “Yes”, please answer the following questions:*

2. *Does the Committee agree that international trade classified by currency should be appended onto the balance of payments’ goods and services account?*
3. *Does the Committee agree that the classification used to compile international trade by currency should be based on the currency of denomination?*
4. *Does the Committee support Option 2 for the reporting template of international trade classified by currency?*
5. *Does the Committee support an annual collection of international trade classified by currency?*
6. *Does the Committee agree with the proposed currency breakdown to be included in the template?*

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<sup>25</sup> One CATT member disagreed with this recommendation.

## Annex I. Proposed Templates for a Voluntary Collection of Currency Composition of International Trade

### Option 1: Currency Composition of International Trade Covering Goods

Year	Goods	
	Credits	Debits
Total <sup>1</sup>		
Domestic currency		
Foreign currency		
SDR basket currencies		
U.S. dollar		
Euro		
Chinese yuan		
Japanese yen		
Pounds sterling		
Other currencies		
of which <sup>2</sup> : Currency A		
of which <sup>2</sup> : Currency B		
of which <sup>2</sup> : Currency C		
Unallocated		

<sup>1</sup> Should be equal to balance of payments goods account.

<sup>2</sup> Report if a non-SDR currency is deemed important for the international trade of the country.

### Option 2: Currency Composition of International Trade Covering Goods and Services

Year	Goods		Services	
	Credits	Debits	Credits	Debits
Total <sup>1</sup>				
Domestic currency				
Foreign currency				
SDR basket currencies				
U.S. dollar				
Euro				
Chinese yuan				
Japanese yen				
Pounds sterling				
Other currencies				
of which <sup>2</sup> : Currency A				
of which <sup>2</sup> : Currency B				
of which <sup>2</sup> : Currency C				
Unallocated				

<sup>1</sup> Should be equal to balance of payments goods and services account.

<sup>2</sup> Report if a non-SDR currency is deemed important for the international trade of the country.

### Option 3: Currency Composition of International Trade Covering the Standard Components of Goods and Services

Credit											
Year	Total	Domestic currency	Foreign currencies								Unallocated
			SDR currencies					Other currencies			
			U.S. dollar	Euro	Chinese yuan	Japan yen	Pounds sterling	Currency A <sup>2</sup>	Currency B <sup>2</sup>	Currency C <sup>2</sup>	
<b>Total Goods and Services<sup>1</sup></b>											
<b>Goods</b>											
General merchandise on a BOP basis											
Net exports of goods under merchandising											
Nonmonetary gold											
<b>Services</b>											
Manufacturing services on physical inputs owned by others											
Maintenance and repair services n.i.e.											
Transport											
Travel											
Construction											
Insurance and pension services											
Financial services											
Charges for the use of intellectual property n.i.e.											
Telecommunications, computer, and information services											
Other business services <sup>1</sup>											
Personal, cultural, and recreational services											
Government goods and services n.i.e.											

<sup>1</sup> Should be equal to the balance of payments goods and services account.

<sup>2</sup> Report if a non-SDR currency is deemed important for the international trade of the country.

<b>Debit</b>												
Year	<b>Total</b>	Domestic currency	Foreign currencies									Unallocated
			SDR currencies					Other currencies				
			U.S. dollar	Euro	Chinese yuan	Japan yen	Pounds sterling	Currency A <sup>2</sup>	Currency B <sup>2</sup>	Currency C <sup>2</sup>		
<b>Total Goods and Services<sup>1</sup></b>												
<b>Goods</b>												
General merchandise on a BOP basis												
Nonmonetary gold												
<b>Services</b>												
Manufacturing services on physical inputs owned by others												
Maintenance and repair services n.i.e.												
Transport												
Travel												
Construction												
Insurance and pension services												
Financial services												
Charges for the use of intellectual property n.i.e.												
Telecommunications, computer, and information services												
Other business services <sup>1</sup>												
Personal, cultural, and recreational services												
Government goods and services n.i.e.												

<sup>1</sup> Should be equal to the balance of payments goods and services account.

<sup>2</sup> Report if a non-SDR currency is deemed important for the international trade of the country.

## Annex II. Supplementary Information

### II.1 REFERENCED DOCUMENTS

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## II.2 STUDIES—DATASETS RELATED TO CURRENCY COMPOSITION ON INTERNATIONAL TRADE

**Table 1. Studies Related to Currency Composition on International Trade of Goods**

Study	Sample	Dataset information	Currency concept/source	Findings
Boz et. al (2020)	102 countries	The dataset provides information on the share of trade invoiced primarily in dollars and in euros, but in many cases also in domestic currency. The country coverage of dataset changes over time.	mostly invoicing; settlement only for countries for which information on invoicing is not available.	The U.S. dollar has a globally dominant role in invoicing. Both the U.S. dollar and the euro have been increasingly used for invoicing, even as the share of global trade accounted for by the United States and the Euro Area has declined. Moreover, the euro is used as a vehicle currency in parts of Africa, and some European countries have seen significant shifts toward euro invoicing. Countries invoicing more in U.S. dollars (euros) tend to experience greater U.S. dollar (euro) exchange rate pass-through to their import prices.
Ito and Chinn (2014)	50 countries	Updates and expands the dataset constructed by Goldberg and Tille (2008) and Kamps (2006), producing longer and more complete series.	invoicing	Countries with more developed financial markets tend to invoice less in the U.S. dollar and countries with more open capital accounts tend to invoice in either the euro or their domestic currency.
Goldberg and Tille (2008)	24 countries	The available information varies across countries and, in some cases, it is not possible to state whether the data refers to invoicing or settlement. The United Kingdom and Australia have detailed information on currency invoicing for different commodities and partners countries. Within Asia, detailed data is available for Japan and Korea. Data for the United States is drawn from Customs. Within Europe, ECB efforts have made available comparable data across many countries.	invoicing	The determinants of invoice currency choice are industry features and country size, with some role for foreign exchange bid–ask spreads. The “coalescing” effect, where exporters minimize the movements of their prices relative to their competitors', helps to explain the dominance of the dollar. The U.S. dollar is important in the invoicing of world trade both because the United States is an important consumer and producer in world markets, and various countries peg their currencies to the dollar.
Kamps (2006)	42 countries	Most data concerning EU countries have been collected by the European System of Central Banks (ECSB). Early data for EU countries and data on non-EU countries was assembled from different national sources.	invoicing	The currency in which the international trade is invoiced has micro and macroeconomic implications. At the firm level, the profit maximization of firms engaged in international trade is affected by their choice of currency. At the macroeconomic level, it affects business cycle correlations between countries and the transmission mechanism of monetary policy.

## II.3 DATA ALREADY EXISTENT FOR CURRENCY COMPOSITION

**Table 2. BIS Triennial Central Bank Survey of Foreign Exchange and Over-the-counter (OTC) Derivatives Markets in 2019**

Source: <https://www.bis.org/statistics/rfx19.htm>

### Currency distribution of OTC foreign exchange turnover

Net-net basis,<sup>1</sup> percentage shares of average daily turnover in April<sup>2</sup>

Table 2

Currency	2004		2007		2010		2013		2016		2019	
	Share	Rank	Share	Rank	Share	Rank	Share	Rank	Share	Rank	Share	Rank
USD	88,0	1	85,6	1	84,9	1	87,0	1	87,6	1	<b>88,3</b>	<b>1</b>
EUR	37,4	2	37,0	2	39,0	2	33,4	2	31,4	2	<b>32,3</b>	<b>2</b>
JPY	20,8	3	17,2	3	19,0	3	23,0	3	21,6	3	<b>16,8</b>	<b>3</b>
GBP	16,5	4	14,9	4	12,9	4	11,8	4	12,8	4	<b>12,8</b>	<b>4</b>
AUD	6,0	6	6,6	6	7,6	5	8,6	5	6,9	5	<b>6,8</b>	<b>5</b>
CAD	4,2	7	4,3	7	5,3	7	4,6	7	5,1	6	<b>5,0</b>	<b>6</b>
CHF	6,0	5	6,8	5	6,3	6	5,2	6	4,8	7	<b>5,0</b>	<b>7</b>
CNY <sup>3</sup>	0,1	29	0,5	20	0,9	17	2,2	9	4,0	8	<b>4,3</b>	<b>8</b>
HKD <sup>3</sup>	1,8	9	2,7	8	2,4	8	1,4	13	1,7	13	<b>3,5</b>	<b>9</b>
NZD <sup>3</sup>	1,1	13	1,9	11	1,6	10	2,0	10	2,1	10	<b>2,1</b>	<b>10</b>
SEK	2,2	8	2,7	9	2,2	9	1,8	11	2,2	9	<b>2,0</b>	<b>11</b>
KRW <sup>3</sup>	1,1	11	1,2	14	1,5	11	1,2	17	1,7	15	<b>2,0</b>	<b>12</b>
SGD <sup>3</sup>	0,9	14	1,2	13	1,4	12	1,4	15	1,8	12	<b>1,8</b>	<b>13</b>
NOK <sup>3</sup>	1,4	10	2,1	10	1,3	13	1,4	14	1,7	14	<b>1,8</b>	<b>14</b>
MXN <sup>3</sup>	1,1	12	1,3	12	1,3	14	2,5	8	1,9	11	<b>1,7</b>	<b>15</b>
INR <sup>3</sup>	0,3	20	0,7	19	0,9	15	1,0	20	1,1	18	<b>1,7</b>	<b>16</b>
RUB <sup>3</sup>	0,6	17	0,7	18	0,9	16	1,6	12	1,1	17	<b>1,1</b>	<b>17</b>
ZAR <sup>3</sup>	0,7	16	0,9	15	0,7	20	1,1	18	1,0	20	<b>1,1</b>	<b>18</b>
TRY <sup>3</sup>	0,1	28	0,2	26	0,7	19	1,3	16	1,4	16	<b>1,1</b>	<b>19</b>
BRL <sup>3</sup>	0,3	21	0,4	21	0,7	21	1,1	19	1,0	19	<b>1,1</b>	<b>20</b>
TWD <sup>3</sup>	0,4	18	0,4	22	0,5	23	0,5	23	0,6	23	<b>0,9</b>	<b>21</b>
DKK <sup>3</sup>	0,9	15	0,8	16	0,6	22	0,8	21	0,8	21	<b>0,6</b>	<b>22</b>
PLN <sup>3</sup>	0,4	19	0,8	17	0,8	18	0,7	22	0,7	22	<b>0,6</b>	<b>23</b>
THB <sup>4</sup>	0,2	22	0,2	25	0,2	26	0,3	27	0,4	24	<b>0,5</b>	<b>24</b>
IDR <sup>4</sup>	0,1	27	0,1	29	0,2	30	0,2	30	0,2	31	<b>0,4</b>	<b>25</b>
HUF <sup>3</sup>	0,2	23	0,3	23	0,4	24	0,4	24	0,3	27	<b>0,4</b>	<b>26</b>
CZK <sup>4</sup>	0,2	24	0,2	24	0,2	27	0,4	26	0,3	28	<b>0,4</b>	<b>27</b>
ILS <sup>4</sup>	0,1	26	0,2	27	0,2	31	0,2	29	0,3	29	<b>0,3</b>	<b>28</b>
CLP <sup>4</sup>	0,1	25	0,1	30	0,2	29	0,3	28	0,2	30	<b>0,3</b>	<b>29</b>
PHP <sup>4</sup>	0,0	32	0,1	31	0,2	28	0,1	31	0,1	33	<b>0,3</b>	<b>30</b>
AED	...	55	...	57	...	57	...	41	...	39	<b>0,2</b>	<b>31</b>
COP <sup>4</sup>	0,0	34	0,1	34	0,1	32	0,1	33	0,2	32	<b>0,2</b>	<b>32</b>
SAR <sup>4</sup>	0,0	33	0,1	33	0,1	33	0,1	34	0,3	26	<b>0,2</b>	<b>33</b>
MYR <sup>4</sup>	0,1	30	0,1	28	0,3	25	0,4	25	0,4	25	<b>0,1</b>	<b>34</b>
RON <sup>4</sup>	...	56	0,0	35	0,1	34	0,1	32	0,1	34	<b>0,1</b>	<b>35</b>
OTH	6,6		7,7		4,7		1,7		2,2		<b>2,2</b>	
<b>Total</b>	<b>200,0</b>		<b>200,0</b>		<b>200,0</b>		<b>200,0</b>		<b>200,0</b>		<b>200,0</b>	

<sup>1</sup> Adjusted for local and cross-border inter-dealer double-counting (ie "net-net" basis).

<sup>2</sup> Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%.

<sup>3</sup> Turnover for years prior to 2013 may be underestimated owing to incomplete reporting of offshore trading in previous surveys. Methodological changes in the 2013 survey ensured more complete coverage of activity in EME and other currencies.

<sup>4</sup> Turnover may be underestimated owing to incomplete reporting of offshore trading.



## CURRENCY COMPOSITION OF OFFICIAL FOREIGN EXCHANGE RESERVES (COFER)

Source: <https://data.imf.org/?sk=E6A5F467-C14B-4AA8-9F6D-5A09EC4E62A4>

The IMF collects data on member countries and publishes data on reserve assets positions. According to Currency Composition of Official Foreign Exchange Reserves (COFER), as of the third quarter of 2020, 60 percent of international reserves are in U.S. dollar, around 21 percent are in euro, 6 percent in Japanese yen, followed by 4 percent in Pounds sterling.

**Table 3. Brazil—Debt Claims on/to Nonresidents by Currency Composition**

Source: <https://www.bcb.gov.br/en/statistics/externalsectorstatistics>

Position: September 2020								US\$ million
Itemization	Central Bank	General Government	Banks <sup>1/</sup>	Other sectors			Intercompany lending	Total
				Total	Other financial corporations	Others		
<b>Total<sup>2/</sup></b>	<b>35</b>	<b>942</b>	<b>14 156</b>	<b>59 631</b>	<b>12 597</b>	<b>47 033</b>	<b>30 592</b>	<b>105 356</b>
Domestic currency	-	-	135	1 062	435	627	1 834	3 031
Foreign currency	35	942	14 020	58 569	12 162	46 407	28 759	102 325
U.S. dollar	35	942	10 965	52 319	11 814	40 505	27 006	91 267
Euro	-	-	1 726	4 340	76	4 264	1 484	7 550
Yen	-	-	27	184	1	183	35	245
Sterling pound	-	-	76	356	75	281	29	461
Renminbi	-	-	20	39	0	39	2	61
Other currencies	-	-	1 206	1 331	196	1 135	203	2 740
<b>Of which one year or less</b>	<b>35</b>	<b>33</b>	<b>13 262</b>	<b>30 070</b>	<b>3 589</b>	<b>26 480</b>	<b>21 566</b>	<b>64 966</b>
Domestic currency	-	-	135	114	8	106	637	886
Foreign currency	35	33	13 127	29 955	3 581	26 374	20 929	64 079
U.S. dollar	35	33	10 337	26 503	3 514	22 989	19 769	56 678
Euro	-	-	1 722	2 617	50	2 567	978	5 318
Yen	-	-	27	176	1	175	29	232
Sterling pound	-	-	76	174	6	167	27	277
Renminbi	-	-	20	38	0	37	2	59
Other currencies	-	-	945	448	10	438	123	1 516
<b>Reserve assets</b>								<b>356 606</b>
In SDR basket								356 601
Not in SDR basket								4

<sup>1/</sup> Deposit-taking corporations, except the central bank.

<sup>2/</sup> Excluding reserve assets.

**Table 4. Brazil—Debt Liabilities on/to Nonresidents by Currency Composition**

Source: <https://www.bcb.gov.br/en/statistics/externalsectorstatistics>

Position: September 2020								US\$ million
Itemization	Central Bank	General Government	Banks <sup>1/</sup>	Other sectors			Intercompany lending	Total
				Total	Other financial corporations	Others		
<b>Total</b>	<b>4 085</b>	<b>145 651</b>	<b>115 553</b>	<b>112 142</b>	<b>14 901</b>	<b>97 241</b>	<b>244 131</b>	<b>621 561</b>
Domestic currency	-	68 149	550	12 008	554	11 454	21 182	101 889
Foreign currency	4 085	77 502	115 003	78 876	14 347	64 529	79 921	355 387
U.S. dollar	21	72 176	113 089	67 029	11 994	55 035	59 010	311 324
Euro	-	3 327	637	8 611	540	8 072	16 394	28 969
Yen	-	203	554	989	-	989	282	2 028
Sterling pound	-	0	396	8	-	8	224	627
Renminbi	-	-	-	3	-	3	-	3
Other currencies	4 064	1 796	328	2 236	1 813	423	4 011	12 435
Goods	-	-	-	21 258	0	21 258	143 028	164 286
<b>Of which one year or less<sup>2/</sup></b>	<b>21</b>	<b>7</b>	<b>62 711</b>	<b>12 939</b>	<b>4 515</b>	<b>8 424</b>	<b>16 495</b>	<b>92 172</b>
Domestic currency	-	-	126	2 918	95	2 823	5 331	8 375
Foreign currency	21	7	62 585	10 021	4 420	5 601	11 163	83 797
U.S. dollar	21	0	61 847	6 998	2 583	4 415	6 323	75 190
Euro	-	7	222	989	44	945	4 574	5 791
Yen	-	-	189	73	-	73	165	427
Sterling pound	-	-	-	0	-	0	81	81
Renminbi	-	-	-	-	-	-	-	-
Other currencies	-	-	328	1 960	1 793	167	20	2 308

1/ Deposit-taking corporations, except the central bank.

2/ Excludes debt securities traded in the domestic market and held by nonresidents.

**Table 5. Republic of Moldova—Structure of Gross External Debt by Currencies and Institutional Sectors at Period-end (US\$ million)**

Source: <https://www.bnm.md/en/content/statistical-yearbook-international-accounts-republic-moldova-2019>

Institutional Sector	Currency	2019	2018	2017
General government	Euro	659,39	544,33	518,31
	U.S. dollar	69,1	170,97	170,85
	Special Drawing Rights	931	932,05	973,85
	Other	58,47	59,01	59,54
Central Bank	Special Drawing Rights	180,51	217,8	264,29
Deposit-taking corporations	Euro	198,14	188,42	185,98
	U.S. dollar	91,63	124,33	157,91
	Other	17,20	66,69	79,25
Other sectors	Euro	1554,24	1437,26	703,2
	U.S. dollar	1641,49	1648,94	1895,48
	Other	111,86	83,58	70,3
Direct investment: intercompany lending	Euro	661,56	613,69	496,92
	U.S. dollar	1162,61	1163,67	1185,13
	Other	78,88	70,91	72,63

## II.4 COMPILATION METHODS AND DATA SOURCES

The main data sources for the authors' compilation of currency composition of international trade on goods and services are:

(1) *Direct reporting* is accurate and is used more for collecting data on services than on goods. Surveys usage is limited for Central Banks and are mostly implemented by Statistical Offices. Surveys are expensive and usually financed from national budget. Including currencies in surveys will significantly increase reporters' burden and may not be supported by national authorities, producers' associations and economic agents in general. Only a limited number of currencies can be included, and each one should be important for the national authorities.

(2) The data on invoice currencies for goods can often be collected from *customs declarations*. These administrative data are generally accurate, and do not impose much burden on reporters. The information on countries and groups of goods shall also be available. However, the coverage of data can be highly different from balance of payments, both because of coverage issues, as shown on *BPM6* Table 10.2, and valuation issues, related to the CIF/FOB terms of delivery treatment (for more details, see Annex E of *2010 IMTS*). Data on all currencies used can be collected. These data do not cover services.

(3) The settlement currency is available from the *ITRS*. These data cover goods and services, and information on countries distribution as well. Limited details on goods or types of services may be available. Data on all currencies used can be collected. However, the coverage of data can be highly different from the balance of payments methodology, considering the discussion in paragraphs 11–13.

Considering the statistical adjustments needed for goods, including those done to obtain from *IMTS* data the balance of payments goods and other coverage adjustments, the inherent burden on using surveys and the methodological issues of using settlement data, the compilation of international trade classified by currency composition should be further treated in the update of the *BPM6 Compilation Guide*.

**Table 6. Data Sources Availability for Currency Composition on International Trade**

Data presentation	Brazil		Moldova		Morocco	
	Frequency availability	Source	Frequency availability	Source	Frequency availability	Source
Goods/BoP	Monthly	Invoice, Settlement	-	-	-	-
Goods/IMTS	Monthly	Invoice	Monthly	Invoice	Monthly	Invoice
Other coverage of goods	-	-	Monthly	Settlement	Monthly	Settlement
Services/BOP	Monthly	Settlement, Survey	-	-	-	-
Other coverage of services	-	-	Monthly	Settlement	Monthly	Settlement

## II.5 COMPARING INVOICE DATA AND SETTLEMENT DATA

Acknowledgment: all figures presented in this section were elaborated on exploratory basis for the purpose of the current testing exercise. It encompasses calculations based on assumptions where the detailed data were not available without significantly affecting the quality of the estimates.

### Exploratory Exercise—Republic of Moldova

The Republic of Moldova has compared data from custom declaration (invoice) with ITRS and found quite big differences. For goods exports the difference of currencies shares is higher than 10 percentage points, and the amounts are not comparable for both imports and exports.

**Table 7. Currency Distribution, Invoice Versus Settlements, Share in Respective Totals (%)**

	Invoice (IMTS data with some recalculations)*				Settlements (ITRS)**				Difference (p. p.)			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
<b>Exports of goods</b>												
Euro	47	51	54	56	41	40	41	53	6	11	13	3
U.S. dollar	50	46	43	41	55	57	53	41	-5	-11	-10	0
Russian rouble	2	2	2	2	2	2	2	2	0	0	0	0
Other	1	1	1	1	1	1	4	4	0	0	-3	-3
<b>Imports of goods</b>												
Euro	46	47	47	48	43	43	43	46	3	4	4	2
U.S. dollar	48	49	49	46	52	52	52	48	-4	-3	-3	-2
Russian rouble	4	3	3	3	5	4	4	3	-1	-1	-1	0
Other	1	1	1	2	1	1	1	2	0	0	0	0
<b>Methodological note:</b>												
* <b>Invoice</b> —IMTS data (Customs)												
Were excluded: (1) goods in kind, (2) goods involved in construction projects, (3) different types of transactions supplementary to the main transaction (exchange in goods under guarantee), (4) goods included in international aid programs (or grants), (5) processing, (6) other goods from governmental programs (NP)												
No other BOP adjustments were included (e.g. no CIF-FOB, no merchanting, etc.)												
** <b>Settlements</b> —ITRS												
Were excluded: (1) e-trade, (2) payments in cash												
Were included: (1) proc. in ports.												

### Exploratory Exercise—Brazil

Brazil did an exercise comparing invoice data and settlement data for exports of goods of 2019. The data source for invoice was Customs registers while the settlement data was extracted from an ITRS. The results, in the next table, show a very large share of U.S. dollar and a better coverage for the invoice source:

**Table 8. Brazil Currency Composition on International Trade of Goods (Invoice x Settlement)**

Year: 2019	USD million	
	Exports of goods	
	Invoice	Settlement
Total	225 383	192 087
Domestic currency	4 858	4
Foreign currency	220 120	189 392
SDR basket currencies	220 086	189 240
British pound	694	592
Chinese renminbi	-	1
Euro	8 159	7 751
Japanese yen	116	193
U.S. dollar	211 118	180 702
Other currencies	34	152
Unallocated	405	2 691

### Exploratory Exercise—Morocco

Morocco conducted the same exploratory exercise comparing currencies shares for international trade in goods on both imports and exports sides during past two years (2019 and 2020) as resulting from customs declarations and settlements (ITRS). The table below show results for the USD and EUR as both covers by far the largest shares of total transactions:

**Table 9. Differences in Estimates**

Currency	2019		2020	
	Export	Import	Export	Import
Euro	6,6%	1,3%	5,7%	-1,1%
U.S. dollar	-8,6%	-3,3%	-6,9%	-1,3%

The difference is calculated as currency of denomination (%)—currency of settlement (%). The exercise reveals an average difference of 7 percent for the two main currencies from export side while the currency structure seems to be closer for imports.