Challenges for US Dollar Dominance in the Era of Hegemonic Competition

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Abstract:

In this paper, we investigate how dominant the U.S. dollar is in various aspects of financial transactions and instruments. First, we graphically illustrate that to date, no credible currency has emerged as a competitor to the U.S. dollar. We then conduct formal regression analysis of the factors affecting the share of use of international currencies in various types of financial transactions. The regression estimations show that there is commonality in the factors for the currency shares among different financial aspects. Economic size contributes positively to the currency share, so does the level of economic development. Furthermore, we confirm that commitment to a free-flowing but relatively stable currency, and open, thick, and liquid financial markets are positive factors. We also find that institutional transparency and a strong and predictable legal system contribute to promoting the establishment of better-developed and open financial markets, which help increase the use of an international currency of interest.

Keywords: Anchor currency, exchange rate stability, major currency zones, determinants of major currency weights

JEL codes: F 15, F 21, F31, F36, F41, O24

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1. Introduction

In recent years, market participants and monetary policy makers not only in the U.S. but around the world have been paying close attention to developments in U.S. monetary policy. This is not so surprising given that the U.S. economy is the largest in the world, accounting for 16% of global GDP (in current international dollars based on the purchasing power parity (PPP)).

Financial shocks originating in the U.S., such as the outbreak of the Global Financial Crisis (GFC) in 2008, and changes in U.S. monetary policy can spill over to other economies through asset markets, bank lending, and the business cycle. Developing and emerging economies (EMDEs) find it difficult to resist the shocks with their own stabilization measures unless they implement capital controls or macroprudential policies (the so-called “Global Financial Cycles” (Rey, 2015)).

The influence of the U.S. derives not only from the size of its economy, but also from the fact that the U.S. dollar is the most dominant international currency in the world. In the post-World War II international monetary system, the U.S. dollar has held the largest share of international trade, investment and financial transactions, and foreign exchange market transactions as we will review in the next section.

While benefiting from a liquid and deep U.S. dollar market that enables international risk sharing, reduced transaction costs, and regional economic and financial integration, EMDEs are increasingly frustrated with the dominance of the U.S. dollar.

In general, the more dependent on the U.S. dollar for external financing, the more susceptible to shocks arising from the U.S. and changes in its policies, which can be a source of turbulence for many EMDEs. In particular, after the GFC, many advanced economies eased their monetary policies to stimulate demand, which led to massive capital inflows into emerging financial markets, sowing seeds for bubbles and financial instability.

EMDEs often raise funds in hard currencies such as dollars because their own financial markets are underdeveloped and illiquid. When they experience massive capital inflows, they borrow in short-term funds in dollars and invest inward in their own currencies. However, if advanced economies tighten their monetary policy, capital may flow out of emerging economies, possibly creating a mismatch between assets and liabilities, and also in terms of duration and currency. (the “original sin”; (Calvo and Reinhart 2002; Eichengreen, Hausmann, and Panizza 2002; Hausmann and Panizza 2003, 2010; Ize and Levy-Yeyati 2003; Chang and Velasco 2006).).

Recently, another characteristic of the U.S. dollar has led many researchers to revoke discussions on the dollar dominance. That is, the U.S. efforts of “weaponizing” its currency by imposing financial sanctions on the dollar-denominated financial assets held by Iran, Russia, and other adversaries.

Since the Russian invasion of Ukraine in 2022, the U.S. is no longer shy about restricting the use of the dollar as a means to force sanctioned countries to change their policies. This “weaponization of the dollar” is provoking opposition not only from Russia, Iran, and North Korea, which are directly sanctioned, but also from countries in the Global South such as China.

To mitigate spillovers from the U.S. and escape the influence of the weaponized dollar, BRICS countries, including China, Russia, India, and Brazil, have begun promoting the use of their currencies outside borders, increasing their currencies for cross-border payments, invoicing, and settlements. This movement inevitably has led scholars and policymakers to ponder under what conditions a given currency could become an international currency.

With all these backgrounds, we review how dominant the U.S. dollar is in various aspects of financial transactions and instruments in the following section. We find that to date, no credible currency has emerged as a competitor to the U.S. dollar. In section 3, we formally conduct regression analysis. The estimation results confirm that the size of currency issuers, their commitment to a flexible, but relatively stable currency, open, thick, and liquid financial markets. In section 4, we find and argue that institutional transparency and a strong and predictable legal system contribute to promoting the establishment of better-developed and open financial markets, which helps increase the use of an international currency of interest. In section 5, we make some remarks on our findings and conclude.

2. Evidence of Dollar Dominance

Table 1 summarizes the use of major currencies for international purposes in 2022-23 as compared with those in around 2000. In 2022-23, 88% of the world's foreign exchange market transactions are conducted with the US dollar, 59% of official foreign exchange reserves are held in the US dollar, 48% of international trade settlements are done in the dollar, and 47-48% of outstanding international financial assets are denominated in the US dollar. These shares of US dollar use and holdings are much larger than the US share in global GDP (26% in 2023). Also, the share of U.S. GDP has been in a moderately declining trend and surpassed by China in 2017 (in

terms of PPP-based international dollars (Figure 1). As of 2023, China accounts for 19% of world GDP in PPP terms while the U.S. for 16%, followed by the euro area (12%), India (7%), and Japan (4%).

Clearly, even if China and Russia decided to rely solely on their own currencies, the RMB and the ruble, the markets for these currencies are far smaller than those for the US dollar or euro. The RMB was recognized as a reserve currency in 2016 after its inclusion in the IMF's Special Drawing Rights (SDR) basket. Having accounted for 1% of global foreign exchange reserves in 2016, the share of the RMB rose to 2% in 2023, a level comparable to the Canadian and Australian dollars. Realistically speaking, it is difficult for most economies to shift their reliance on the dollar to the RMB or ruble.

Table 1: International use of major currencies (%) for 2022-23 compared with around 2000

	Foreign exchange market turnover		Foreign exchange reserves		International settlements		Cross-border bank liabilities		International debt securities issued		GDP	
Currency	Apr. 2001	Apr. 2022	Dec. 2000	Sep. 2023	Dec. 2012	Dec. 2023	Dec. 2000	Jun. 2023	Dec. 2000	Sep. 2023	2000	2023
US dollar	89.9	88.4	71.1	59.2	33.3	47.5	54.9	47.8	45.6	47.2	30.1	25.8
Euro	37.9	30.5	18.3	19.6	39.8	22.4	24.4	31.7	29.7	38.9	18.4	14.8
Japanese yen	23.5	16.7	6.1	5.5	2.5	3.8	9.2	3.8	9.3	1.1	14.6	4.1
UK pound	3.0	12.9	2.8	4.8	8.7	6.9	5.3	4.8	8.9	7.7	4.9	3.2
Chinese RMB	0.0	7.0	0.0	2.4	0.6	4.1	--	--	0.0	0.7	3.5	16.9
Canadian dollar	4.5	6.2	--	2.5	2.1	2.5	--	--	0.9	0.5	2.2	2.0
Australian dollar	4.3	6.4	--	2.0	2.0	1.6	--	--	0.6	0.9	1.2	1.6
Swiss franc	6.0	5.2	0.3	0.2	1.9	1.0	2.4	1.2	2.5	0.7	0.8	0.9

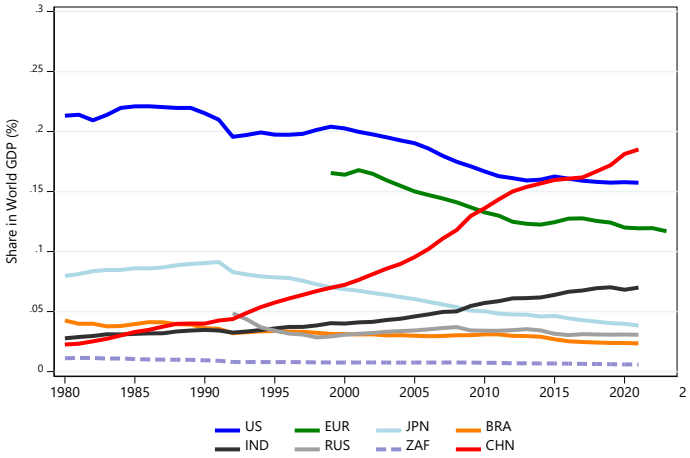
Note: Data for foreign exchange market turnover sum up to 200% as two currencies appear for market transactions. Data for GDP in 2023 is the IMF's estimate.
Source: Compiled by authors from data obtained from BIS, IMF, and SWIFT.

The most prominent role of the US dollar is for trade invoicing or settlement. Gopinath (2015) points out the dollar's outsized role in invoicing half or more of international trade. Figure 1a illustrates the shares of the dollar in export invoicing or settlement for individual countries compared to the shares of their total exports that are destined for the United States. The figure demonstrates how economies rely more on the dollar for international trade than their trade relationships with the United States might suggest. If the dollar did not play a dominant role, one would expect its invoicing/settlement share in export transactions of economies to be proportional to the share of the United States as a destination for an economy's exports.[1] The figure clearly

[1] A comparable figure for the euro, which presents the euro shares in export invoicing against the shares of countries' exports to the Euro Area, would show that many observation points are scattered around the 45-

indicates that economies invoice or settle their exports in the dollar much more than proportionally in line with the share of their exports to the United States.

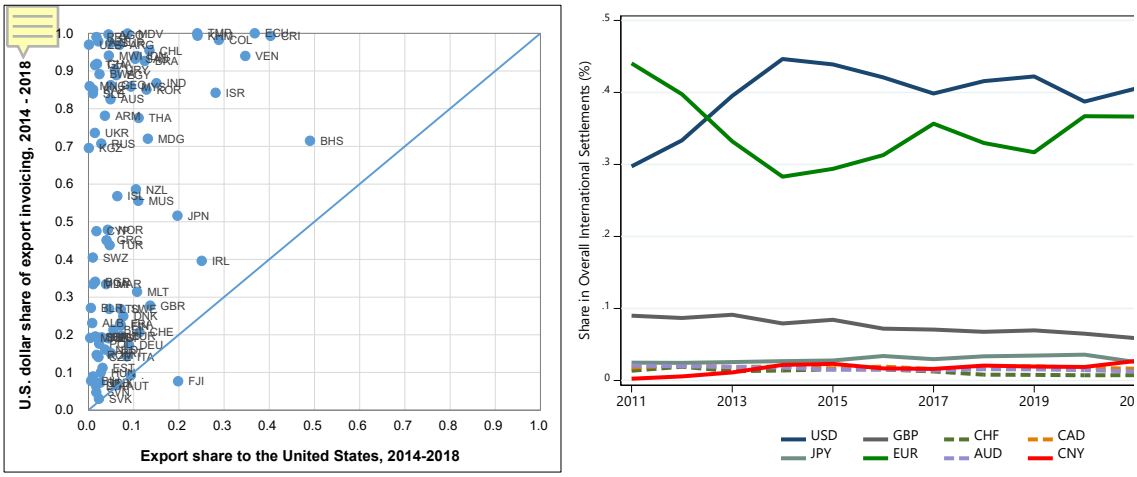
Figure 1: Shares of Major Currency Issuers in World GDP in PPP



Note: The share of each major currency issuer is calculated using international dollars based on the purchasing power parity.
Source: Author compilation, IMF World Economic Outlook April 2024.

Figure 2: Currency Composition of Trade and Overall International Settlements (%)

a. Trade invoicing or settlement **b. Overall international settlements**



Note: In panel a, the horizontal axis is each economy's average share of export to the United States in total export, and the vertical axis is the economy's average share of US dollar invoicing/settlement in total export, both in 2014–18. Panel b reports currency shares in customer initiated and institutional payments, based on values.
Source: Author compilation, using data from Boz et al. (2020) for panel a, and from SWIFT, *RMB Tracker*, various issues, for panel b.
https://www.imf.org/en/Publications/WP/Issues/2020/07/17/Patterns-in-Invoicing-Currency-in-Global-Trade-49574 .

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degree line. This suggests that countries tend to use the euro for export invoicing in a way proportional to their exports to the Euro Area (Ito and Kawai 2016).

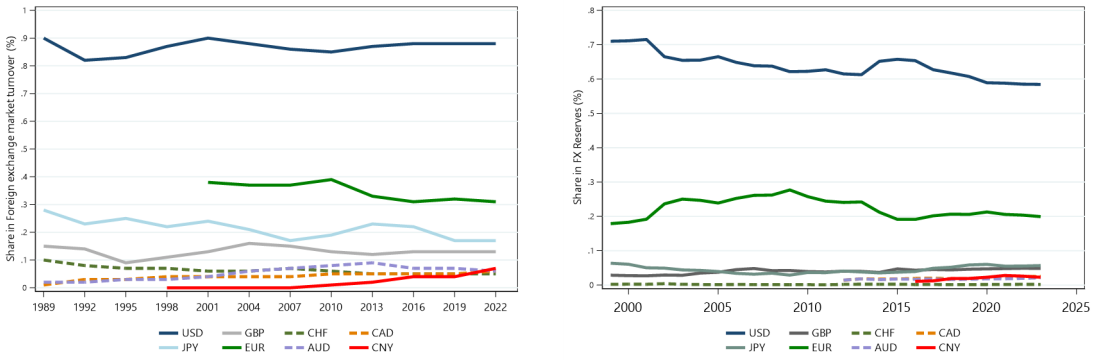
Figure 2b shows the currency composition of all international settlements reported by Society for Worldwide Interbank Financial Telecommunication SC (SWIFT). It is clear that the dollar has the biggest use for international settlements, followed by the euro, while other major currencies, such as the UK's pound sterling and the Japanese yen, are far less important. Although the dollar is the most important international settlement currency, it is not so dominant and was actually less important than the euro in the early 2010s. Since then, the euro has been a strong second most important international settlement currency.

International Currencies in Foreign Exchange Trading and as Foreign Reserves

Figure 3a summarizes the currency composition of foreign exchange trading in the world's major markets from 1989 to 2022, based on the triennial survey of the Bank for International Settlements (BIS). The figure indicates the US dollar is used in 80–90% of foreign exchange trading over the past 30 years, recording 88% in 2022. The euro share has slipped from 38% in 2001 to 31% in 2022, perhaps due to the Euro Area debt and banking crisis in 2011–2015. The share of the yen also fell from 27% in 1989 to 17% in 2019, a level below the previous trough in 2007. That share is still higher than for pound sterling, which was 13% in 2022. The share of the renminbi in the global currency markets has risen since the mid-2000s, and recorded 4% in 2019, and 7% in 2022.

Figure 3: Currency Compositions of Forex Market Turnover and Reserves (%)

a. Foreign exchange market turnover **b. Official foreign exchange reserves**



Note: The sum of the percentage shares of individual currencies totals 200% instead of 100% in panel a, because two currencies are involved in a single transaction. Data become available in 1989 and published every three years. Data for the euro before its introduction are obtained as the sum of ECU and legacy currencies that are now the euro.
Source: Author compilation from BIS, *Triennial Central Bank Survey: Foreign Exchange Turnover* (Various issues) for panel a, and from IMF, Currency Composition of Official Foreign Exchange Reserves (COFFER) for panel b.

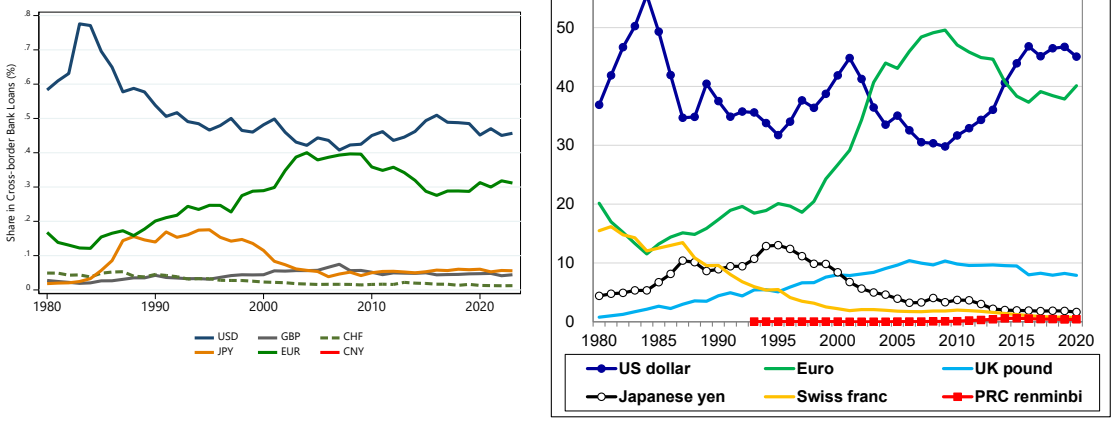
Figure 3b reports the currency composition of foreign exchange reserves held by all International Monetary Fund (IMF) reporting member countries. It shows that the share of the U.S dollar has been relatively high at 50-70 % as the dominant reserve currency, recording 58% in 2023. The share of the euro has been in the range of 20-30% and registered 20% in 2023. The shares of other reserve currencies have been very low in comparison to those of the dollar and the euro. The share of the yen has been at the 4–9% range and recorded 6% in 2023, but the yen still occupies the third position. The pound sterling continues to play a role as a reserve currency, accounting for 5% in 2023. The renminbi was recognized as a reserve currency from 2016 after its inclusion in the IMF's special drawing rights basket. Having accounted for 1% of global foreign exchange reserves in 2016 the share of the renminbi rose to 2% in 2023. Therefore, it is not yet one of the most heavily held global reserve currencies, although its share is now higher than those of the Canadian dollar, Australian dollar, and Swiss franc.

International Currencies for Cross-Border Bank Loans and Debt Securities

Figure 4a presents the currency composition of cross-border bank liabilities based on BIS locational banking statistics. It shows that the share of the US dollar was in excess of 60% in the early 1980s, and while this began to decline in the latter half of the 1980s, it has still maintained a 45–55% share over the last 30 years (recording 46% in 2023). The euro share is the second highest and appears to have risen over time, registering 31% in 2023. The share of the yen was low in the early 1980s, began to rise in the second half of that decade, maintained moderately high use at more than 10% in the 1990s but has declined since then, falling to 6% in 2023, which was slightly less than the pound sterling share. No data are reported for the renminbi.

Figure 4: Currency Composition of Cross-Border Bank Liabilities and Debt Securities (%)

a. Cross-border bank liabilities **b. International debt securities issued**



Note: Data for the euro refer to legacy currencies now included in the euro before euro data appear. In the case of international debt securities, data for the euro refer to EU1, i.e., the sum of ECU, euro, and legacy currencies now included in the euro, up to 2015 and EUR from 2016.
Source: Author compilation using data from the Bank for International Settlements, *Locational Banking Statistics* (LBS_D_PUB) for panel a, and from BIS, *Debt Securities Statistics* (DEBT_SEC2) for panel b.
https://stats.bis.org/statx/srs/tseries/LBS_D_PUB/Q:S:L:A:USD:A:5J:A:5A:B:5J:N?t=A6.1&c=5J&m=S&p=20144&i=9.4&x=L_DENOM.4.CL_CURRENCY_3POS&o=s:line (accessed August 2021).
http://stats.bis.org/statx/srs/tseries/DEBT_SEC2/Q:3P:3P:1:1:C:A:A:TO1:A:A:A:A:A:I?t=C3&p=&c=3P&x=ISSUE_CUR.8.CL_ISSUE_CUR.EUR:GBP:USD:JPY&o=w:19624.20203,s:line,z:3,t:Issue%20currency (Accessed August 2021).

Figure 4b presents the currency composition of the stock of international debt securities issued. It shows that the share of debt issued in euros was higher than for the dollar between the early 2000s and he early 2010s and overtaken by the dollar in the mid-2010s. In recent years, the dollar share recorded as high, but not dominant, as 46% while the euro share was 39% in 2023. The share of the yen was moderately high in the mid-1990s, at close to 15%, but declined to a mere 1% in 2023. The pound sterling share has been higher than the yen share since the early 2000s, registering 8% in 2023. The renminbi share has remained low at less than 1%, recording 14% in 2023.

3. Determinants of the Estimated Major Currency Weights

Now, we examine the determinants of the shares of major currencies in various types of financial transactions and instruments for the period 1999-2021 for the currencies of 36 economies and areas.[2]

3.1 Estimation model and theoretical predictions

We assume that economies' structural characteristics determine the shares of use of international currencies in different types of cross-border financial transactions. We examine what factors affect the choice of currencies of invoicing, settlements, and denomination, namely, the shares of international currencies in central banks' foreign exchange reserves; international debt securities; foreign exchange market turnovers; cross-border bank loans; and international settlements.

Using the estimation model defined below, we conduct a regression analysis with the financial transactions of interest as the explained variables one by one.

$$y_{k,t_{\square}}^{\square} = \alpha_{\square}^{\square} + \beta_{ES}^{\square} EconShare_{k,t}^{\square} + \beta_{FD}^{\square} FD_{k,t}^{\square} + \beta_{FO}^{\square} FO_{k,t}^{\square} + \beta_{ES_{FD}}^{\square} \left(EconShare_{k,t}^{\square} \times + FD_{k,t}^{\square}\right) +$$

[2] The number of economies included in the estimations varies depending upon the data availability. For more details, see Appendix 1.

$\beta_{ES_{FO}}^{\square}(EconShare_{k,t}^{\square} \times +FO_{k,t}^{\square}) + X_i'\Gamma_{k,t}^{\square} + u_{t_{\square}}^{\square} + v_{k,t_{\square}}^{\square}$ (1)

The left-hand side variable, $y_{k,t_{\square}}^{c}$, is the share of currency *k* in a type of financial assets or transactions *c* in year *t*. More specifically, *c* represents central banks' reserve assets (whose data are extracted from the IMF-COFER); international debt securities (whose data are extracted from the BIS-Debt securities database); exchange rates' turnovers (from the BIS Triennial Central Bank Survey); bilateral cross-border bank loans international debt securities (from the BIS- Locational Banking Statistics database); or international settlements from the SWIFT database.[3]

FD represents the extent of financial development for which we use the IMF's Financial Development Index.[4] FO is a measure of de facto financial openness, based on the average of the ratios of external assets plus liabilities to GDP and trade (obtained from Ito and Kawai, 2024).

The vector $X_{i,t}^{\square}$ represents the characteristics of an economy that issues currency *k* which we predict possibly affects the share of the use of major currency $y_{k,t_{\square}}^{c}$, including the following:

- Share of an economy of concern in world GDP, calculated with PPP. In a larger economy, its currency can be traded on a larger scale and benefit from greater scale effects and externalities, thereby reducing transaction costs..
- Per capita income level (in PPP). It is a common measure for economic development. It is expected to have a positive impact on the use of an international currency because it can promote institutional and legal development.
- Exchange rate volatility. Investors may avoid holding a reserve currency if its value is volatile. Its high volatility reduces predictability and increase risk. We use the annual standard deviations of the monthly percent change of the nominal effective exchange rate (NEER). The expected sign of this variable is negative.

Furthermore, we also assume that the impacts of economic share, financial development, and financial openness can be nonlinear. As equation (1) shows, we include $\beta_{ES_{FD}}^{\square}(EconShare_{k,t}^{\square} \times +FD_{k,t}^{\square})$ and $\beta_{ES_{FO}}^{\square}(EconShare_{k,t}^{\square} \times +FO_{k,t}^{\square})$ in the estimation, which will allow us to see how the effect of FD of financial openness would be depending on the level of economic share as well as how the effect of economic share would be depending on the level of FD or financial openness.

Lastly, yearly dummies are included in the estimation model to capture the effects of global shocks. The sample includes at most 37 economies (including both advanced economies and EMDEs)

[3] More details of the dependent and explanatory variables are presented in Appendix 2.
[4] It is available at https://data.imf.org/?sk=F8032E80-B36C-43B1-AC26-493C5B1CD33B&sId=1480712464593 .

from the period 1999 through 2021.[5] Table 2 reports the results of the estimations for five different dependent variables.

3.2 Estimation results and discussions

Model (1) of Table 2-1 reports the results of the estimation on the determinants of currency shares in central banks' foreign exchange reserves for eight reserve currencies.[6]

According to the table, the larger the issuer of a major reserve currency, the higher its share in the foreign exchange reserves tends to be, as expected. If the issuer of a major reserve currency is large, the share of the currency tends to be higher as we ll. The scale impact can be seen as the significantly positive estimate of the economic share variable in models (1) and (2). For the other models, the estimate on the economic share becomes significantly negative, but we need to focus on the total impact of economic share along with financial development and financial openness which we will do later this section.

The higher per capita income, the higher its reserve currency's share tends to be. However, the estimate becomes statistical insignificance Models (2) and (3). A currency whose value tends to be volatile seems to be shunned as a reserve currency.

Including the variables for financial openness and financial development increases the goodness of fit, indicating that both factors contribute positively to higher shares in foreign exchange reserves. The regression results also show interaction effects. The larger the economy of the reserve currency issuing country, the larger the positive impact of financial development and financial openness. The positive impact of financial openness or financial development is greater when the currency issuer's economic size is greater than the threshold of 9.9%.[7]

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[5] The COFER database contains currency share data for only eight reserve currencies (USD, EUR, GBP, JPY, CHF, AUD, CAD, and CNY) while the share data for international bonds are available for 36 economies. Data on foreign exchange market turnover are available for 37 economies while data on cross-border bank lending are available for only 5 economies (USD, EUR, GBP, JPY, CHF, and no CNY). SWIFT data are available for 21 economies.

[6] AUD and CAD are available since 2012, and CNY since 2016.

[7] In order for the total effect of financial openness to be positive, we need to solve $\beta_{FO}^{\square} + \beta_{ES_{FO}}^{\square}\left(EconShare_{k,t}^{\square} \times +FO_{k,t}^{\square}\right) > 0$. That means $EconShare_{k,t}^{\square} \geq -\frac{\beta_{FO}^{\square}}{\beta_{ES_{FO}}^{\square}}$. When we use the estimates from Modl (3), the threshold is found to be 9.9%.

Table 3-1 reports the total effects of financial openness or financial development given the sample average of economic share, and the total effects of economic share given the sample averages of financial development or financial openness. The results in the first column of Table 3-1 are calculated using the results of model (3) of Table 3-1. For example, the sample average of economic share is 7.4%, but lower than the threshold of (9.9%). That suggests that the total impact of financial openness to be negative. Because the beta estimates involve statistical uncertainty, we statistically test whether or not the total impact of financial openness is greater than zero. The test result indicates that the null hypothesis that the total impact of financial openness is greater than zero is not rejected. Statistically, we can say the total impact of financial openness is neither zero or positive.

Column (4) of Table 3-1 shows that the total impact of financial development is statistically significantly positive (which is indicated in bold). Model (5) of Table 2-1 includes both interaction terms, and column Model (5) in Table 3-1 shows that only the total impact of financial development is significantly positive.

Columns (3) through (5) of Table 3-1 show that for the average level of financial development or financial openness, the total impact of economic size is positive.

In sum, the share of a reserve currency in a central bank's foreign exchange reserves tends to increase with the economic size and per capita income level of the country issuing the currency. There is also evidence that the greater the volatility of the reserve currency's exchange value, the lower the degree to which the reserve currency is used. The share of the reserve currency tends to be higher when the financial markets of the currency-issuing country are more developed. These is some evidence is that the more open the financial markets of the currency-issuing country are, the higher the share of the reserve currency, but they are less statistically significant compared to the level of financial development.

Table 2-1: Currency Shares in Central Banks' Reserves Holding

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Econ share	3.175	3.664	-3.227	-6.064	-6.324
	(0.618)***	(0.261)***	(2.344)	(0.400)***	(1.003)***
P.C. income in PPP	0.388	0.054	0.026	0.125	0.122
	(0.087)***	(0.077)	(0.061)	(0.044)**	(0.044)**
NEER vol.	0.013	0.074	-0.016	-0.096	-0.099
	(0.086)	(0.037)*	(0.034)	(0.036)**	(0.041)**
Fin. openness (IK)		0.452	-0.691	-0.005	-0.065
		(0.121)***	(0.479)	(0.073)	(0.237)
Fin. development		0.884	1.006	-0.105	-0.084
		(0.342)**	(0.332)**	(0.048)*	(0.111)
Share x Fin. Opn.			6.988		0.404
			(2.448)**		(1.521)
Share x Fin. Dev.				10.876	10.722
				(0.480)***	(0.845)***
N	142	141	141	141	141
Adj. R2	0.86	0.94	0.95	0.98	0.98
# of countries	8	8	8	8	8
Years covered	1999 - 2022	1999 - 2021	1999 - 2021	1999 - 2021	1999 - 2021

Notes: * p<0.1; ** p<0.05; *** p<0.01. The COFER data is available only for eight reserve currencies: USD, EUR, GBP, JPY, CHF, AUD, CAD, and CNY. Yearly dummies are included.

Table 2-2 reports the regression results when we investigate the determinants of currency shares in international debt securities.

Overall, while the statistical significance of the model and estimated coefficients is generally lower, the results of the regressions are qualitatively (i.e. in terms of the signs of the estimates), similar to those of the regressions on the currency shares of foreign exchange reserves. One exception is that although both interaction terms are found to be positive contributors, when both of them are included in the estimation, the sign of the interaction term between economic size and financial development becomes negative. That may be due to high correlation between financial development and financial openness. In Table 3-2, we see that financial openness has a positive impact whether it is included in the estimation alone or jointly with financial development. Financial development is a positive factor only when it is included alone, suggesting that the statistical significance is greater for financial openness. The total impact of economic size is consistently positive.

Table 2-2: Currency Shares in International Debt Securities

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Econ share	1.844	1.898	-1.040	-1.801	0.788
	(0.515)***	(0.494)***	(0.154)***	(1.528)	(0.677)
P.C. income in PPP	0.033	0.019	-0.001	0.005	0.002
	(0.013)**	(0.010)*	(0.004)	(0.008)	(0.004)
NEER vol.	0.019	0.007	-0.030	-0.008	-0.036
	(0.034)	(0.031)	(0.013)**	(0.012)	(0.014)**
Fin. openness (IK)		0.087	-0.004	0.053	-0.020
		(0.037)**	(0.009)	(0.033)	(0.011)*
Fin. development		-0.042	-0.017	-0.077	0.027
		(0.039)	(0.025)	(0.036)**	(0.024)
Share x Fin. Opn.			3.653		5.570
			(0.444)***		(0.761)***
Share x Fin. Dev.				4.814	-4.385
				(1.603)***	(1.513)***
N	746	710	710	710	710
Adj. R2	0.67	0.70	0.90	0.79	0.92
# of countries	36	34	34	34	34
Years covered	1999 - 2022	1999 - 2021	1999 - 2021	1999 - 2021	1999 - 2021

Notes: * p<0.1; ** p<0.05; *** p<0.01. Yearly dummies are included. The sample economies are listed in Appendix 1.

The estimation results of the determinants of currency shares in foreign exchange turnovers are reported in Table 2-3. Since the data on foreign exchange turnover are available every three years since 1989, the estimation is conducted for a panel sampled every three years since 2001 (not 1999).

Table 2-3: Currency Shares in FX Turnovers

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Econ share	2.991	2.971	-1.885	-6.432	-5.636
	(1.049)***	(1.030)***	(0.369)***	(0.585)***	(1.145)***
P.C. income in PPP	0.061	0.031	-0.002	-0.007	-0.008
	(0.023)**	(0.020)	(0.005)	(0.009)	(0.008)
NEER vol.	0.044	0.028	-0.011	0.012	0.004
	(0.042)	(0.036)	(0.015)	(0.009)	(0.014)
Fin. openness (IK)		0.109	-0.031	0.022	0.000
		(0.044)**	(0.020)	(0.026)	(0.021)
Fin. development		0.012	0.072	-0.039	-0.008
		(0.042)	(0.032)**	(0.030)	(0.033)
Share x Fin. Opn.			6.037		1.849
			(1.074)***		(1.481)
Share x Fin. Dev.				12.239	9.266
				(0.780)***	(2.911)***
N	245	234	234	234	234
Adj. R2	0.68	0.70	0.92	0.95	0.96
# of countries	37	35	35	35	35
Years covered	2001 - 2022	2001 - 2019	2001 - 2019	2001 - 2019	2001 - 2019

Notes: * p<0.1; ** p<0.05; *** p<0.01. Yearly dummies are included. The sample economies are listed in Appendix 1. The estimation is conducted for a panel sampled every three years since 2001.

The patterns of statistically significance are similar to those of the estimations for official reserves reported in Table 2-1 although the statistical significance of the estimated coefficients tends to be lower. Exchange rate volatility is no longer a significant factor, however. According

to Table 3-3, the total impacts of financial development and financial openness are statistically significant, but when both interaction terms are included in the estimation, only the impact of financial development remains significant. The total effect of economic size is statistically positive.

As for the estimation for currency shares in cross-border bank loans (Table 2-4), although the goodness of fit is high, only the variables for economic share and exchange rate volatility are found to be significant with expected signs. Except for these two variables, statistical significance is low for the estimation model. This estimation's sample only includes five major reserve currencies (i.e., USD, EUR, GBP, JPY, and CHF), which contributes to small data variations and thereby statistical weakness. Neither financial development nor financial openness matters for the currency shares in cross-border bank loans (Table 3-4)

Table 2-4: Currency Shares in Bank Loans

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Econ share	2.636	2.663	3.009	3.585	3.279
	(0.075)***	(0.058)***	(0.913)**	(1.082)**	(1.111)**
P.C. income in PPP	0.104	0.099	0.100	0.092	0.090
	(0.043)*	(0.056)	(0.056)	(0.060)	(0.057)
NEER vol.	-0.139	-0.093	-0.089	-0.076	-0.078
	(0.037)**	(0.031)**	(0.036)*	(0.041)	(0.041)
Fin. openness (IK)		0.244	0.296	0.283	0.222
		(0.116)	(0.241)	(0.153)	(0.254)
Fin. development		-0.037	-0.040	0.061	0.080
		(0.071)	(0.069)	(0.127)	(0.149)
Share x Fin. Opn.			-0.349		0.446
			(0.910)		(1.316)
Share x Fin. Dev.				-1.030	-1.181
				(1.178)	(1.456)
N	116	115	115	115	115
Adj. R2	0.95	0.96	0.96	0.96	0.96
# of countries	5	5	5	5	5
Years covered	1999 - 2022	1999 - 2021	1999 - 2021	1999 - 2021	1999 - 2021

Notes: * p<0.1; ** p<0.05; *** p<0.01. Yearly dummies are included. The currency share data are available only for USD, EUR, GBP, JPY, and CHF.

Lastly, Table 2-5 presents another case where the patterns of statistical significance and the signs of the estimates qualitatively similar patterns to the cases when we conducted the estimations for the currency shares of FX reserves. Table 3-5 illustrates for the sample average economic size, the total impact of financial development and financial openness is significantly positive when both are included, but the total impact of financial openness becomes insignificant when only financial openness is included.

Table 2-5: Currency Shares in International settlements using SWIFT Data

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Econ share	1.745	1.804	-1.216	-3.083	-0.462
	(0.559)***	(0.543)***	(0.095)***	(1.606)*	(0.337)
P.C. income in PPP	0.079	0.043	0.007	0.021	0.007
	(0.042)*	(0.035)	(0.008)	(0.016)	(0.008)
NEER vol.	0.087	0.047	-0.045	-0.004	-0.046
	(0.104)	(0.079)	(0.018)**	(0.031)	(0.016)***
Fin. openness (IK)		0.132	-0.008	0.079	-0.015
		(0.089)	(0.015)	(0.077)	(0.014)
Fin. development		-0.074	-0.044	-0.161	-0.018
		(0.119)	(0.037)	(0.089)*	(0.035)
Share x Fin. Opn.			3.800		4.341
			(0.171)***		(0.229)***
Share x Fin. Dev.				6.373	-1.545
				(1.679)***	(0.640)**
N	209	208	208	208	208
Adj. R2	0.65	0.67	0.95	0.82	0.95
# of countries	21	21	21	21	21
Years covered	2011 - 2022	2011 - 2021	2011 - 2021	2011 - 2021	2011 - 2021

Notes: * p<0.1; ** p<0.05; *** p<0.01. Yearly dummies are included. The estimation data are sampled every three years because the currency share data in foreign exchange turnover are available every three years. The sample economies are listed in Appendix 1.

Table 3: Summary of the estimated total coefficients

Table 3-1: FX Reserves			
	(3)	(4)	(5)
$(1+Share)\hat{\beta}_{FO}$	$(1+\overline{Share})\hat{\beta}_{FO}$ = (1 + 0.074) *F(1, 7) = 0.33* *Prob > F = 0.5816*		$(1+\overline{Share})\hat{\beta}_{FO}$ = (1 + 0.074) *F(1, 7) = 0.07* *Prob > F = 0.8012*
$(1+Share)\hat{\beta}_{FD}$		$\mathbf{(1+\overline{Share})\hat{\beta}_{FD}}$ **= (1 + 0.074)** ***F(1, 7) = 285.76*** ***Prob > F = 0.000***	$\mathbf{(1+\overline{Share})\hat{\beta}_{FD}}$ **= (1 + 0.074)** ***F(1, 7) = 122.54*** ***Prob > F = 0.000***
$(1+\overline{FO}+\overline{FD})\hat{\beta}_{Share}$	$\mathbf{\hat{\beta}_{Share}(1+\overline{FO})}$ **= (1 + 0.955)** ***F(1, 7) = 303.43*** ***Prob > F = 0.0000***	$\mathbf{\hat{\beta}_{Share}(1+\overline{FD})}$ **= (1 + 0.855)** ***F(1, 7) = 6381.02*** ***Prob > F = 0.000***	$\mathbf{\hat{\beta}_{Share}(1+\overline{FO}+\overline{FD})}$ **= (1 + 0.955+ 0.855)** ***F(1, 19) = 6813.35*** ***Prob > F = 0.000***
Adjusted R^2	0.95	0.98	0.98

Table 3-2: International debt securities			
	(3)	(4)	(5)
$(1+\overline{Share})\hat{\beta}_{FO}$	$\mathbf{(1+\overline{Share})\hat{\beta}_{FO}}$ **= (1 + 0.026** ***F(1, 33) = 29.10*** ***Prob > F = 0.000***		$\mathbf{(1+\overline{Share})\hat{\beta}_{FO}}$ **= (1 + 0.026)** ***F(1, 33) = 36.01*** ***Prob > F = 0.0000***
$(1+\overline{Share})\hat{\beta}_{FD}$		$(1+\overline{Share})\hat{\beta}_{FD}$ = (1 + 0.026) *F(1, 33) = 0.79* *Prob > F = 0.38*	$\mathbf{(1+\overline{Share})\hat{\beta}_{FO}}$ **= (1 + 0.0264)** ***F(1, 33) = 5.95*** ***Prob > F = 0.02***
$(1+\overline{FO}+\overline{FD})\hat{\beta}_{Share}$	$\mathbf{(1+\overline{FO})\hat{\beta}_{Share}}$ **= (1 + 0.702)** ***F(1, 33) = 45.58*** ***Prob > F = 0.0000***	$\mathbf{(1+\overline{FO})\hat{\beta}_{Share}}$ **= (1 + 0.603)** ***F(1, 33) = 3.06*** ***Prob > F = 0.09***	$\mathbf{(1+\overline{FO}+\overline{FD})\hat{\beta}_{Share}}$ **= (1 + 0.702+ 0.603)** ***F(1, 33) = 47.92*** ***Prob > F = 0.000***
Adjusted R^2	0.90	0.80	0.92

Table 3-3: Turnovers			
	(3)	(4)	(5)
$(1+\overline{Share})\hat{\beta}_{FO}$	$\mathbf{(1+\overline{Share})\hat{\beta}_{FO}}$ **= (1 + 0.025)** $\mathbf{\hat{\beta}_{FO}}$ ***F(1, 34) = 17.08*** ***Prob > F = 0.000***		$(1+\overline{Share})\hat{\beta}_{FO}$ = (1 + 0.025) $\hat{\beta}_{FO}$ *F(1, 34) = 1.47* *Prob > F = 0.234*
$(1+\overline{Share})\hat{\beta}_{FD}$		$\mathbf{(1+\overline{Share})\hat{\beta}_{FD}}$ **= (1 + 0.025)** $\mathbf{\hat{\beta}_{FD}}$ ***F(1, 34) = 59.33*** ***Prob > F = 0.000***	$\mathbf{(1+\overline{Share})\hat{\beta}_{FD}}$ **= (1 + 0.025)** $\mathbf{\hat{\beta}_{FD}}$ ***F(1, 34) = 13.38*** ***Prob > F = 0.000***
$(1+\overline{FO}+\overline{FD})\hat{\beta}_{Share}$	$\mathbf{(1+\overline{FO})\hat{\beta}_{Share}}$ **= (1 + 0.689)** $\mathbf{\hat{\beta}_{Share}}$ ***F(1, 34) = 31.58*** ***Prob > F = 0.0000***	$\mathbf{(1+\overline{FD})\hat{\beta}_{Share}}$ **= (1 + 0.584)** $\mathbf{\overline{FD}}$ ***F(1, 34) = 12.57*** ***Prob > F = 0.001***	$\mathbf{(1+\overline{FO}+\overline{FD})\hat{\beta}_{Share}}$ **= (1 + 0.689+ 0.584)** $\mathbf{\overline{FD}}$ ***F(1, 34) = 5.94*** ***Prob > F = 0.020***
Adjusted R^2	0.91	0.95	0.96

Table 3-4: Cross-border bank loans			
	(3)	(4)	(5)
$(1+\overline{Share})\hat{\beta}_{FO}$	$(1+\overline{Share})\hat{\beta}_{FO}$ = (1 + 0.08) $\hat{\beta}_{FO}$ *F(1, 4) = 2.42* *Prob > F = 0.195*		$(1+\overline{Share})\hat{\beta}_{FO}$ = (1 + 0.08) $\hat{\beta}_{FO}$ *F(1, 4) = 2.03* *Prob > F = 0.227*
$(1+\overline{Share})\hat{\beta}_{FD}$		$(1+\overline{Share})\hat{\beta}_{FD}$ = (1 + 0.08) $\hat{\beta}_{FD}$ *F(1, 4) = 0.07* *Prob > F = 0.807*	$(1+\overline{Share})\hat{\beta}_{FD}$ = (1 + 0.08) $\hat{\beta}_{FD}$ *F(1, 4) = 0.03* *Prob > F = 0.864*
$(1+\overline{FO}+\overline{FD})\hat{\beta}_{Share}$	$\mathbf{(1+\overline{FO})\hat{\beta}_{Share}}$ **= (1 + 0.976)** $\mathbf{\hat{\beta}_{Share}}$ ***F(1, 4) = 2704.05*** ***Prob > F = 0.0000***	$\mathbf{(1+\overline{FO})\hat{\beta}_{Share}}$ **= (1 + 0.857)** $\mathbf{\overline{FD}}$ ***F(1, 4) = 1122.44*** ***Prob > F = 0.000***	$\mathbf{(1+\overline{FO}+\overline{FD})\hat{\beta}_{Share}}$ **= (1 + 0.976 + 0.857)** $\mathbf{\overline{FD}}$ ***F(1, 4) = 1021.72*** ***Prob > F = 0.000***
Adjusted R^2	*0.96*	*0.96*	*0.96*

Table 3-5: SWIFT			
	(3)	(4)	(5)
$(1+\ Share)\hat{\beta}_{FO}$	$\mathbf{(1+\ \overline{Share})\hat{\beta}_{FO}}$ **= (1 + 0.033)** $\hat{\boldsymbol{\beta}}_{\boldsymbol{FO}}$ ***F(1, 20) = 45.68*** ***Prob > F = 0.0000***		$\mathbf{(1+\ \overline{Share})\hat{\beta}_{FO}}$ **= (1 + 0.033)** $\hat{\boldsymbol{\beta}}_{\boldsymbol{FO}}$ ***F(1, 20) = 67.27*** ***Prob > F = 0.0000***
$(1+\ Share)\hat{\beta}_{FD}$		$(1+\ \overline{Share})\hat{\beta}_{FD}$ = (1 + 0.033) $\hat{\beta}_{FD}$ *F(1, 20) = 0.19* *Prob > F = 0.672*	$\mathbf{(1+\ \overline{Share})\hat{\beta}_{FD}}$ **= (1 + 0.033)** $\hat{\boldsymbol{\beta}}_{\boldsymbol{FD}}$ ***F(1, 20) = 3.85*** ***Prob > F = 0.063***
$(1 + \overline{FO} + \overline{FD})\hat{\beta}_{Share}$	$\mathbf{(1 + \overline{FO})\hat{\beta}_{Share}}$ **= (1 + 0.842)** $\hat{\boldsymbol{\beta}}_{\boldsymbol{Share}}$ ***F(1, 20) = 575.05*** ***Prob > F = 0.0000***	$\mathbf{(1 + \overline{FD})\hat{\beta}_{Share}}$ **= (1 + 0.717)** $\boldsymbol{\overline{FD}}$ ***F(1, 20) = 101.48*** ***Prob > F = 0.004***	$\mathbf{(1 + \overline{FO} + \overline{FD})\hat{\beta}_{Share}}$ **= (1 + 0.849+ 0.724)** $\boldsymbol{\overline{FD}}$ ***F(1, 20) = 1418.0485*** ***Prob > F = 0.000***
Adjusted R^2	0.94	0.82	0.95

3.3 Observed Currency Shares vs. Model Predictions

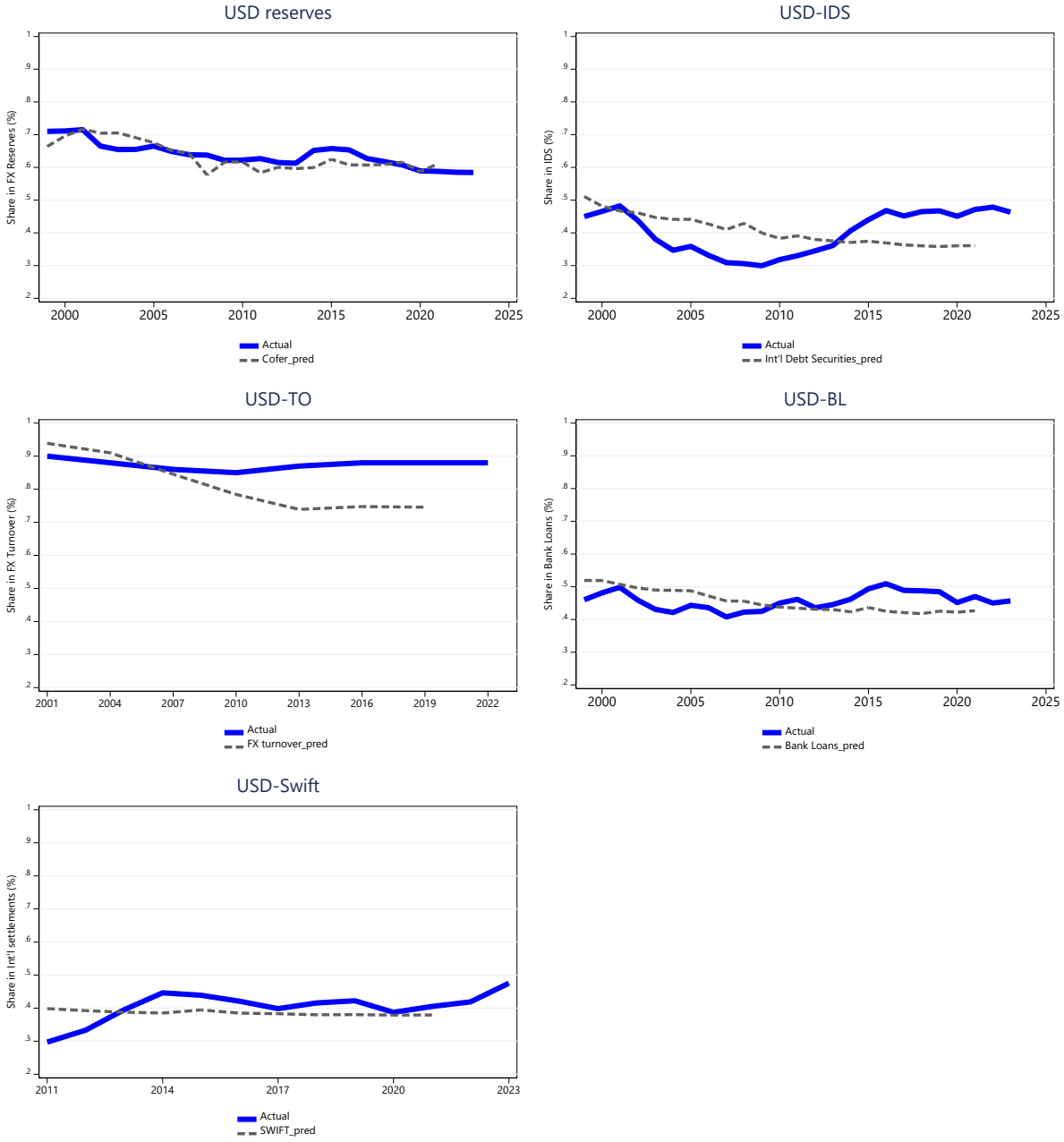
In this section, we predict currency shares based on the above estimation results and compare them to actual observed values for each of the five estimation sets.

Figure 5-1 shows actual observed values and in-sample forecasts based on the estimation model (5) for the five dependent variables reported in Tables 2-1 through 2-5. Figures 5-2 and 5-3 repeat the same calculations for the euro and yuan, respectively.

Model forecasts closely trace the actual currency share for central bank foreign exchange, as shown in Figure 5-1. In the mid-2010s, the actual observed share is slightly above the forecast, and is nearly identical for international debt securities, foreign exchange turnover, and cross-border bank loans. For international debt securities and cross-border bank loans, forecasts overshoot the actual share in the 2000s. For foreign exchange turnover, the actual share has persistently exceeded the forecast since the end of the 2000s.

Overall, the estimation model predicts currency shares close to actual observed values.

Figure 5-1: USD Shares and In-sample Predictions



In the case of the euro (Figure 5-2), the most striking feature is that the model's predictions were lower than the actual values for international bonds and cross-border bank loans from the early 2000s to the mid-2010s. For the share of the EUR in cross-border bank loans, the predicted values exceeded the actual observed values in the late 2010s. For foreign exchange turnover, the share of the EUR is consistently below the predicted value, suggesting that the economic and financial characteristics of the EUR may be increasing the currency's share of foreign exchange turnover.

Figure 5-2: EUR Shares and In-sample Predictions

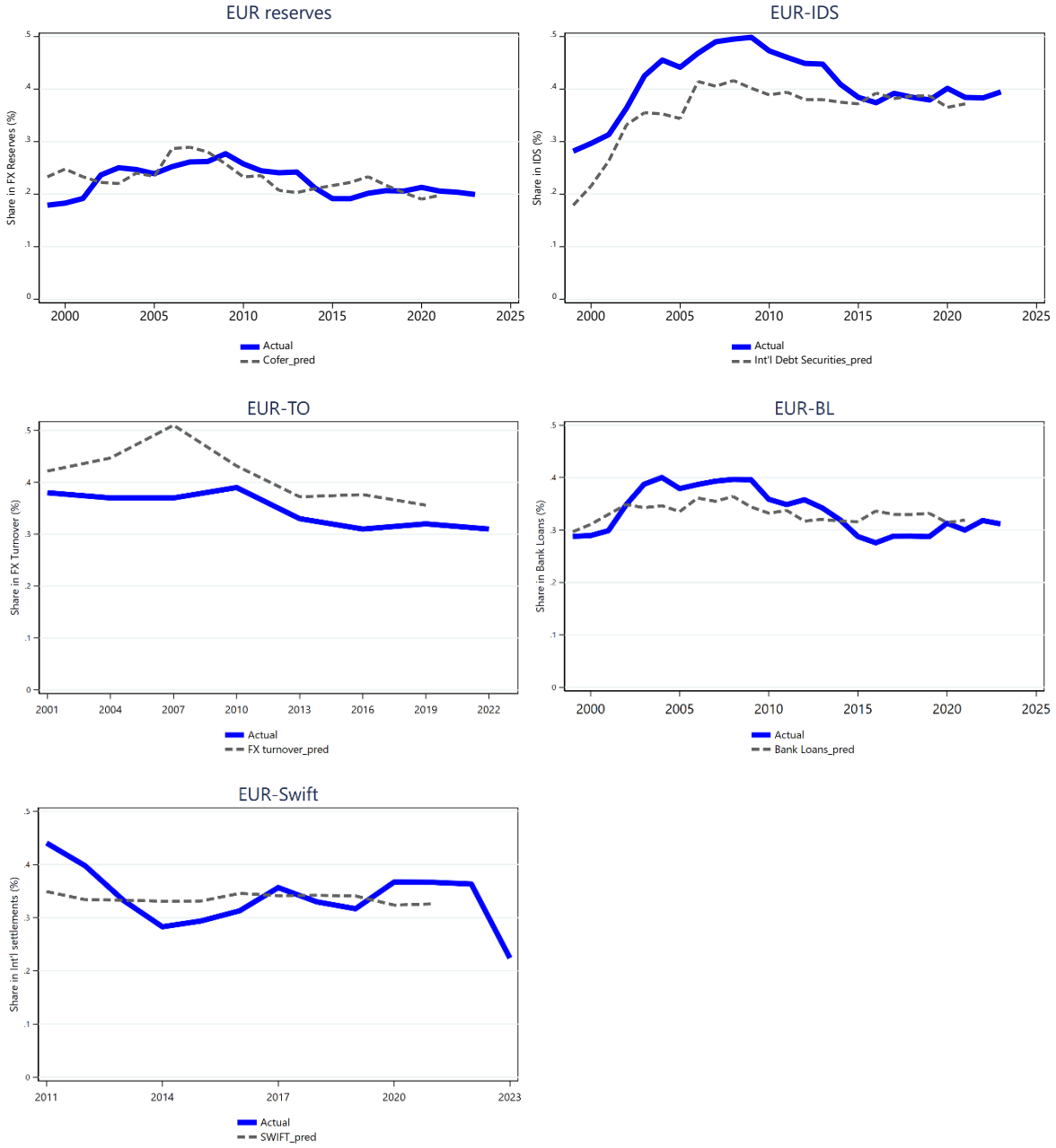
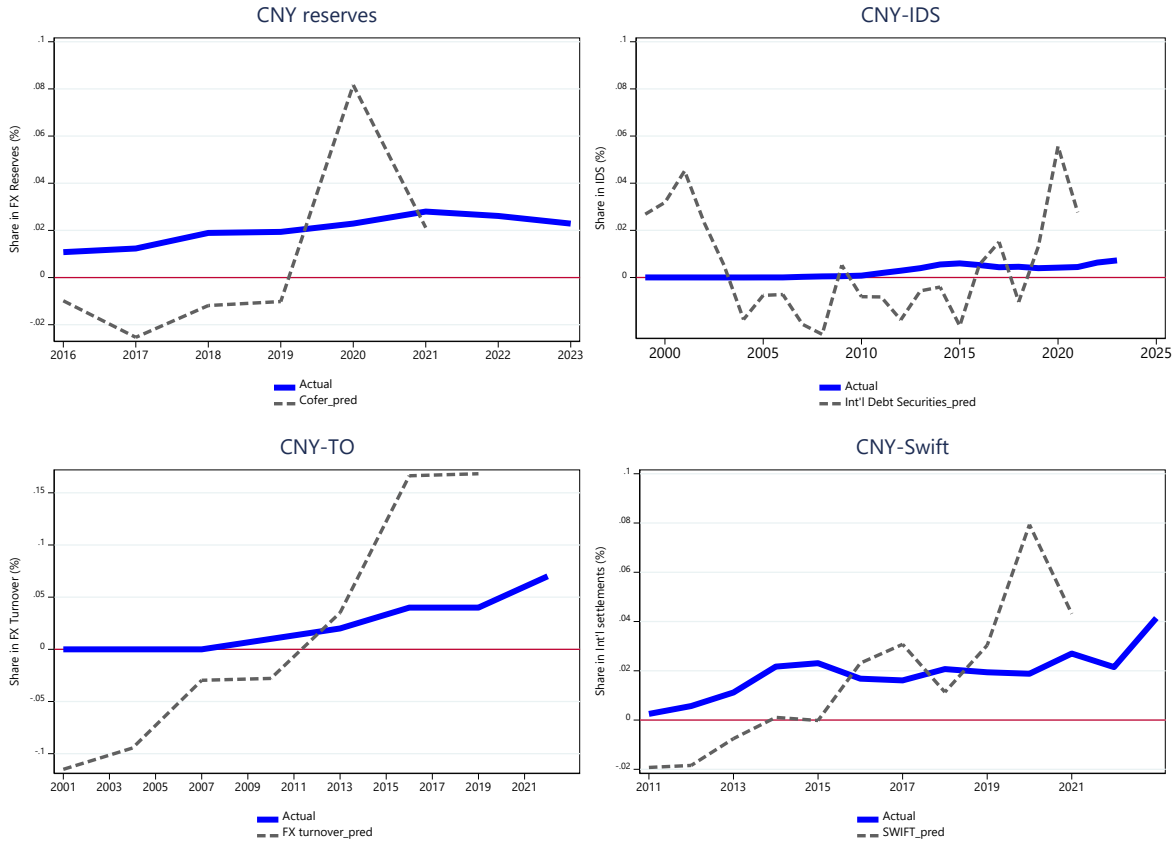


Figure 5-3 shows the CNY share and its in-sample forecast, and while the CNY forecast is in negative territory until the 2010s or early 2010s, this is not too surprising given that the actual CNY level was near zero and the linear estimation model is used. While the actual CNY share tends to increase generally steadily (from a low base) in the four currency shares, the model projections tend to be very unstable, [8] except in the case of market turnover. Interestingly, the

[8] CNY is not included in the cross-border bank loans database.

projected RMB share rises sharply in 2020 in foreign exchange reserves, international bonds, and international payments (using SWIFT data). The RMB share in international payments suggests a persistently high level since 2012, but the actual share has not reached the projected level.

Figure 5-3: CNY Shares and In-sample Predictions



4. Importance of institutions, Financial Development and Financial Openness

As we have discussed, some emerging economies want to internationalize their currencies. This is due to their wariness of the unstable spillover effects arising from changes in U.S. monetary policy and the possible liquidity shortages that could occur in the event of a financial shock. In addition, countries, especially those with different diplomatic and geographic goals from those of the West, are strongly opposed to the “weaponization of the dollar.

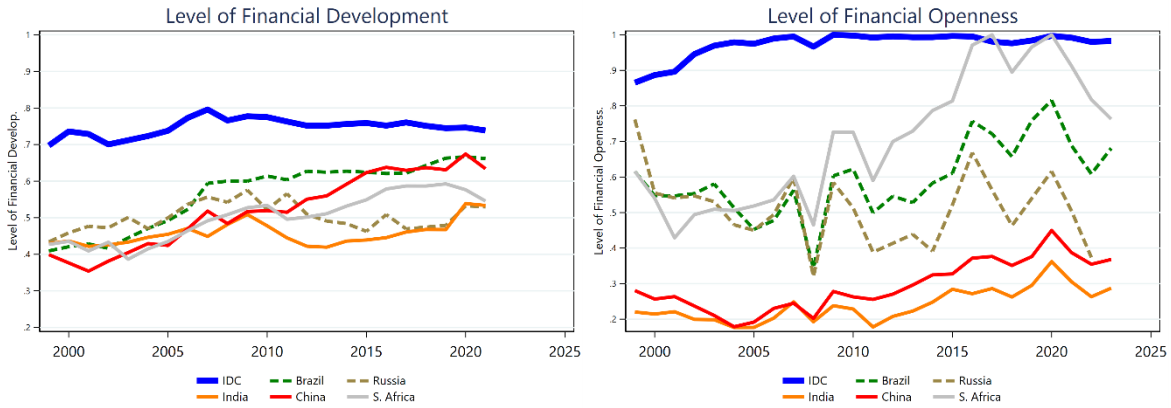
BRIC countries, including China, Russia, India, and Brazil, have recently been active in increasing the use of their currencies for international trade and investment as well as cross-border settlements. China has been making internationalization efforts since 2009. India has

recently announced that it will promote the internationalization of the rupee by allowing and encouraging foreign banks from 18 countries to open special accounts for settling payments in rupees. In 2023, then Brazilian President Lula da Silva even urged BRICS countries to establish a new common currency. Conceptually, if they successfully increase the use of their currencies for cross-border transactions, they may become more economically independent from the U.S. and its western allies. Given that we know what it takes for a currency to become a major international currency, our question is, can they succeed in such “de-dollarization”?

In our paper (Ito and Kawai, 2024), we discuss how difficult for them to internationalize their currencies although the economic size of BRICS will be at par with the U.S. and their level of per capita income are expected to grow steadily. BRICS is expected to expand with new members (Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates), implying that the possible currency union could exceed the USD zone. However, there is no guarantee that the BRICS would be able to become an international currency that could surpass the dollar, given that their financial markets are far less developed and open than those of the United States.

In order for BRICS countries or other nontraditional reserve currencies to become as well as other major reserve currencies, not to mention it requires macroeconomic stability, but also deepening and promoting the opening of financial markets, and reforming institutions and governance is important.

Figure 6: Financial Development and Financial Openness



The tendency for emerging market economies to achieve underdeveloped and less open financial markets can be explained by the lack of institutional and legal development. Figure 7 illustrates that the level of institutional development, which we measure with the first principal

component of the variables for law and order, bureaucratic quality, anti-corruption measures, and democratic accountability, is distinctively low compared to industrialized countries (IDCs).

Figure 6 compares IDCs with BRICS countries in terms of financial development and financial openness.[9]

The level of financial development of BRICS is still consistently below that of IDCs, suggesting there is room for improvement. As for financial openness, South Africa has achieved a comparative level to IDCs, followed by Brazil and Russia. The level of financial openness is especially low for China and India. While India's institutional development is relatively high, the other BRICS countries do not high scores.

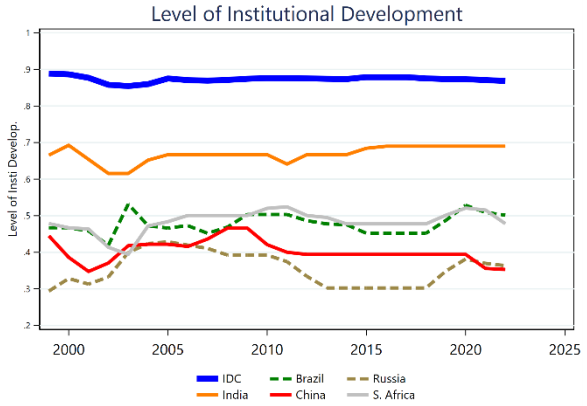
When we regress financial development (*FD*) and financial openness (*FO*) on the variable for institutional development (*Institutional*), we get results as:

FD = 0.072 + 0.755*Institutional**** *N = 234, # of currencies = 36, p-value = 0.000*

FO = 0.005 + 1.01*Institutional**** *N = 234, # of currencies = 36, p-value = 0.000*

Thus, emerging market economies, the lack of institutional development is crucial.

Figure 7: Level of Institutional Development



[9] Industrialized countries (IDCs) refer to countries whose IMF-IFO codes are less than 200, but excluding Turkie and South Africa.

When the Shanghai stock market crashed in 2015, China aggressively imposed capital controls to stop capital outflows. This gave domestic and foreign market participants the impression that the Chinese government authorities would aggressively regulate capital flow, if necessary.

In emerging markets such as Russia and China, the interpretation and application of laws can be arbitrary and without due process. Given that, it may take time for these economies to meet the requirements of an international currency that includes reforming legislation, establishing transparency, and guarantee freedoms and equity. Even the euro, which has an open and deep financial market and meets other requirements, has yet to establish itself on an international currency that threatens the dominance of the dollar. Whether the currencies of the BRICS and other emerging markets will succeed in internationalizing their currencies is yet to be known.

5. Concluding Remarks

The question of what factors make a given currency a major international currency is once again gaining much attention among academia and policymakers. This time, it is not just China that is strongly interested in the issue, but also countries from the Global South. They are frustrated with the current dollar-centric international monetary system where the accessibility to international liquidity is capricious; their economies are so vulnerable to spillovers from changes in U.S. monetary policy or some shocks against which these economies are unable to take counterparts; and the U.S. government authorities are willing to weaponize the use of the USD against certain adversaries. Many emerging & developing economies argue that USD dominance should be reduced through de-dollarization.

Among the Global South economies, the BRICS countries (Brazil, Russia, India, China, and South African) have taken definitively positive steps to increase the use of their home currencies. These countries are robust and high-growth economies, some of which have taken over the U.S. in terms of the size.

However, when it comes to the question of whether the BRICS countries can form a currency union or adopt a common currency, most observers are anecdotally univocal about the failure of the policy agenda. In this paper, we take a more formal approach by conducting a panel data analysis with the dimension of $k \times t$ whether k represents a major reserve currency, with which we examine the determinants of currency composition of official reserves, international debt securities, foreign exchange rate turnover, cross-border bank loans, and international settlements.

Appendix 1: List of Currencies

	Currency	Country	Cofer	IDC	Turnover	Bank loans	SWIFT
1	AED	United Arab Emirates		X	X		
2	ARS	Argentina		X	X		
3	AUD	Australia		X	X		X
4	BGN	Bulgaria		X	X		
5	BHD	Bahrain		X	X		
6	BRL	Brazil		X	X		
7	CAD	Canada	X	X	X		X
8	CHF	Switzerland	X	X	X	X	X
9	CLP	Chile		X	X		X
10	CNY	China	X	X	X		X
11	COP	Colombia		X	X		
12	DKK	Denmark		X	X		X
13	EUR	Euroarea	X	X	X	X	X
14	GBP	United Kingdom	X	X	X	X	X
15	GRD	Greece		X	X		
16	HKD	Hong Kong, China		X			X
17	HUF	Hungary		X	X		X
18	IDR	India		X	X		
19	ILS	Israel		X	X		
20	INR	Indonesia		X	X		
21	JPY	Japan	X	X	X	X	X
22	KRW	Korea, Rep.		X	X		
23	MXN	Mexico		X	X		X
24	NOK	Norway		X	X		X
25	NZD	New Zealand		X	X		X
26	PEN	Peru			X		
27	PHP	Philippines		X	X		
28	PLN	Poland		X	X		X
29	RON	Romania			X		
30	RUB	Russian Federation		X	X		X
31	SAR	Saudi Arabia		X	X		
32	SEK	Sweden		X	X		X
33	SGD	Singapore		X	X		X
34	THB	Thailand		X	X		X
35	USD	United States	X	X	X	X	X
36	ZAR	South Africa		X	X		X

Appendix 2: Data Descriptions and Sources

Variable	*Name*	*Descriptions and sources*
Share_y_ppp	Ratio of GDP to total World GDP	Ratio of GDP of major currency issuers in PPP to GDP of world aggregate. IMF World Economic Output.
NEER_sd	Exchange rate volatility	Calculated as the standard deviation of the log first difference of the NEER of each major currency issuer over moving 60-month windows. Source: BIS.
FD	Financial development	The IMF financial development index. It is the first principle of variables pertaining to financial development.
FO_R	Financial market openness	It is the measure of financial market openness. It is the sum of external assets and external liabilities minus international reserves normalized by GDP and total international trade. See Ito and Kawai (2014, 2024)
pc_income_ppp	Per capita income in PPP	Per capita income measured with PPP. IMF's World Economic Outlook.
Dependent Variable		
cofer	Composition of major foreign exchange reserves	Share of major reserve currencies in total world central bank foreign exchange reserves. IMF- Currency Composition of Official Foreign Exchange Reserves (COFER).
IND	Shares of currencies in international debt securities	Shares of currencies in international debt securities based on the Bank for International Settlements (BIS).
Turnover	Shares of currencies in foreign exchange market turnover	Shares of currencies in foreign exchange turnover based on the BIS Triennial Central Bank Survey of foreign exchange.
b_loans	Shares of currencies in coss-border bank loans	Shares of currencies in cross-border bank loans based on the BIS locational bank loans database.
swift	Shares of major currencies in SWIFT international settlements	Shares of major currencies in SWIFT international settlements.

The estimations are done with the OLS method. The major currency issuers: the US, the euro member countries, the UK, Japan, and China are not included in the estimations.

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