The Selection of International Investment Currency: Implications for the Dollar Dominance in the Geopolitical Era

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Abstract

This study examines the determinants influencing the selection of international investment currencies, using the IMF Coordinated Portfolio Investment Survey (CPIS). The novelty of this study is that it analyzes the currency composition of international investment assets, while previous studies examine that of foreign exchange reserves or trade invoicing. The empirical results show that bilateral financial links between investors and currency issuers significantly affect the choice of investment currency, but trade links do not. The level of financial market development in a currency-issuing country is found to be an important criterion for the choice of investment currency. While past military alliances do not significantly affect currency choice, pro-Russian countries in the recent war in Ukraine increase the share of both US dollar and Chinese renminbi assets, reducing euro-denominated assets. These results suggest that the dollar-dominant regime is likely to persist even in a geopolitical era.

Keywords: International investment currency; Dollar-dominant regime; Geopolitical era
JEL classification: F02, F30

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1. Introduction

Since the dollar-dominant international monetary system was established after the World War II, there have been some moments for change. The suspension of the dollar's gold convertibility in the early 1970s, the rise of the Japanese yen and the Deutsche mark in the 1980s, and the introduction of the euro in the late 1990s could be triggers for its transformation. China's economic expansion since the 2000s and its growing role in the global economy have created a new potential momentum for change. More recently, geopolitical factors, such as the recent intensification of strategic competition between the United States and China, and supply chain disruptions, have made a substantial impact on the global economy. These factors may also lead to changes in the international monetary system beyond the international trade structure.

There are three views on the future of the international monetary system. The first view emphasizes that an international currency has the strong nature of a natural monopoly, due to network effects and complementarities between different functions of an international currency. This view suggests that the dollar dominance is likely to continue (Gopinath, 2015; Gopinath et al., 2020; Gopinath and Stein, 2021). The second view highlights the growing economic importance of China, its progress in capital account liberalization, and the historical precedents of a multipolar currency system. This view predicts that the Chines renminbi could increase its share as an international currency substantially in the future and that a multipolar system is possible (Eichengreen et al., 2018; 2019; 2022). The final view is somewhere in between the first two, suggesting that the renminbi can rise in stature only if China makes an institutional progress in financial market and political governance (Prasad, 2017; 2019; 2022).

Like a national currency, an international currency serves as a unit of account, a medium of exchange, and a store of value in the international dimension. Table 1 summarizes these functions in the private and public spheres. A small number of currencies such as the dollar, the euro, and the yen are used as international currencies performing these functions. Each of these currencies has a different share in each of these functions. There are various empirical studies on the currency composition and its determinants by function. The currency composition of official foreign exchange reserves has been the most studied (Chinn and Frankel, 2007, 2008; Eichengreen et al., 2016, etc.). Initially, studies examined the currency composition of aggregate global reserves, but the availability of data on the currency composition of national reserves allowed for country-level analyses (McCauley and Chan, 2014; Ito and McCauley, 2020; Gopinath and Stein, 2021). There are also many empirical studies on the choice of trade invoicing currency (Kamps, 2006; Boz et al., 2022). As well, some studies investigate what determines the implicit choice of an anchor or reference currency by analyzing currency co-movements (Frankel and Wei, 1994; Kawai and Pontines, 2016; McCauley and Shu, 2019; Park and An, 2020).

Table 1. Functions of International Currency

	Unit of account	Medium of exchange	Store of value
Private	Trade invoicing	Vehicle currency FX market	International debt denomination
Public	Anchor currency	FX intervention Currency	FX reserves denomination

Source : Ito and McCauley (2020), Table 1 / originally from Cohen (1971) and Kenen (1983)

This study is novel in that it focuses on the function as a store of value in the private sector, i.e., as an international investment currency. We analyze the selection of the currency in which securities are denominated in international investments. When investing overseas, investors choose both denomination currency and investment destination. The aim of this paper is to investigate what affects the selection of international investment currencies using country pairwise panel data. To the best of our knowledge, there are only a few studies on this topic. This is possibly due to the limited availability of data on the currency composition of a country’s international assets and liabilities. This paper uses data from the IMF's Coordinated Portfolio Investment Survey (CPIS). The CPIS contains information on international asset holdings denominated in major currencies such as the dollar (USD) and the euro (EUR) and, more recently, emerging currencies such as the Australian dollar (AUD) and the Chinese renminbi (CNY). It is also notable that this study considers not only economic variables but also non-economic factors such as military alliances as potential determinants of the choice of investment currency.

The results reveal some notable findings. First, bilateral trade links with an issuer, i.e. the issuing country of an international currency, do not have a significant effect on the choice of investment currency, but investment links with the issuer do. Second, the level of financial market development in the issuing country affects the choice of investment currency. Third, past alliance relations do not have a consistent effect on the choice of investment currency, but countries' attitudes towards the war in Ukraine affect the holding of renminbi-denominated securities. We believe that these findings have implications for the future of the international monetary system in the geopolitical era.

The paper is organized as follows. Section 2 presents stylized facts about the currency composition of international debt securities, a means of international investment. Section 3 describes the strategy of the statistical analysis. Section 4 summarizes the results of the analysis for each currency. Section 5 concludes with a summary of the findings and implications for the international monetary system.

2. Currency Composition of International Debt Securities

To provide an overview of the currency composition of international debt securities, i.e. international bonds, we, first, use the BIS International Debt Statistics (IDS) data.[3] While the IDS data have limitations in analyzing the currency composition of individual countries, they are more comprehensive and accurate than the CPIS data in providing overall picture of the global composition.[4] Figure 1 shows the change in the currency composition of newly issued international bonds, with more details in appendix Figure A1. As of the first quarter of 2023, dollar-denominated bonds account for the largest share of outstanding bonds at 47%, followed by the euro, the pound sterling (GBP), and the yen (JPY) at 39%, 8%, and 1%, respectively, with other currencies accounting for 5%. The breakdown of other currencies is as follows: Australian dollar 0,9%, Canadian dollar (CND) 0.5%, Swiss franc (CHF) 0.7%, and Chinese renminbi 0.7%.

It is noteworthy that the currency composition of international bonds differs substantially from that of foreign reserves.[5] First, the share of the USD in international bonds is more than

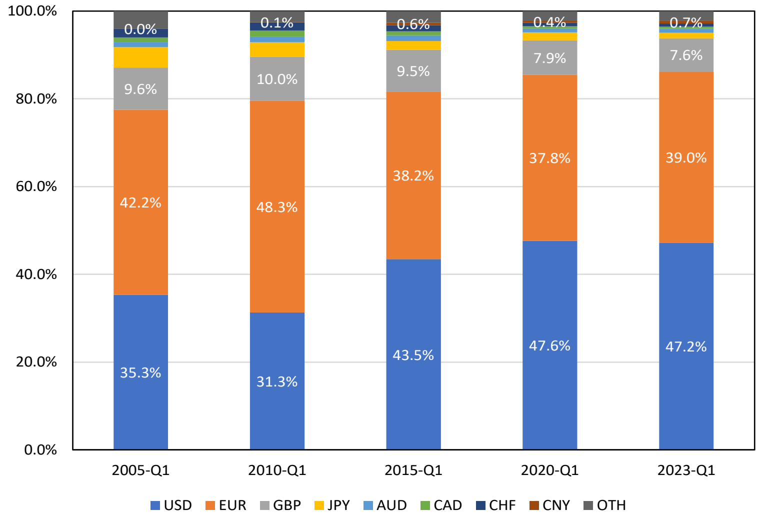
[3] This currency composition data covers only international debt securities (IDS) issued overseas by residents, excluding domestic debt securities (DDS) issued within a country.

[4] The IDS data categorizes denomination currencies into three, USD, EUR and others, at the country level, but it provides a more detailed breakdown of currencies for global aggregates.

[5] For the change in the currency composition of foreign reserves, see Arslanalp et al. (2022).

10 % points lower than in foreign reserves, while the shares of the EUR and GBP in bond issues are much higher than in reserves. In particular, while the share of the USD in reserves has fallen by approximately 10 % points over the past decade, the share of the dollar-denominated bonds has increased by 13 % points over the same period. Finally, the share of other currencies in bond issues has fallen from 8 % to 5 % over the past decade. This contrasts with an increase in their share in reserves. In sum, while the importance of the dollar in reserves, a store of value *in public*, has declined, its importance in international bonds, a store of value *in private*, has increased. This suggests that looking at foreign reserves alone can be misleading in assessing a currency's status as an international currency. It also means that analyzing the composition of the international investment currency has a different significance from analyzing the composition of the foreign reserve currency.

Figure 1. Currency Composition of International Bond Issues (IDS data)



Note: Amount of outstanding
Source: BIS Statistics, International Debt Securities, and Authors' calculation

Next, we see the currency composition of international bond holdings using the IMF CPIS data, which are used for the analysis in this paper. The CPIS relies on voluntary reporting by countries, which causes the disadvantages of inaccuracy and limited country and time coverage. However, it has the advantage of providing more breakdowns of the currency composition. It also provides information on holdings of international securities denominated in so-called non-major or minor currencies. International securities are broken down into those denominated in USD, EUR, GBP, CAD, CHF, JPY, CNY, AUD, and others. In addition, the CPIS data are based on holdings of international securities, while the IDS data are based on international bond issues. Therefore, the currency composition in the CPIS reflects the consequences of investors' currency choice or international currency preferences, while the IDS data represent the issuer's demand for funding by currency.

Table 2 reports basic statistics on the share of international bonds by currency based on the CPIS. The shares are the average of 38 countries over the period 2001-2021. This currency composition is somewhat different from that of the IDS, with the average EUR share of 47.5 % being higher than the USD share of 34.5 %. This difference is mainly because many emerging economies are missing from the CPIS, while most European countries are included. As shown in Table 3, OECD or Eurozone members have a higher EUR share and a lower USD share than non-members.

Table 2. Currency Composition of International Debt Securities (CPIS data)

(Unit: %)

Currency	Total	OECD		Eurozone	
		Member	Non-Member	Member	Non-Member
AUD	0.6	0.9	0.2	0.2	1.2
CNY	0.3	0.2	0.4	0.1	0.5
EUR	47.5	51.2	41.0	69.8	13.3
JPY	2.1	1.7	2.8	1.3	3.3
GBP	0.8	1.0	0.4	0.6	1.1
USD	34.5	30.1	41.8	16.0	64.4

Source: IMF Statistics, CPIS, and Authors' calculation

3. Data and Estimation Strategy

3.1 Data

This study uses the IMF CPIS data to identify the determinants of the currency composition of international portfolio investment. The CPIS provides information on the size and currency composition of a country's international assets and liabilities. In the CPIS, total portfolio investment assets are composed of equity and debt securities. Debt securities are further divided into long-term and short-term debt securities. The CPIS provides the amount of assets in each type, denominated in the following currencies: US dollar (USD), euro (EUR), pound sterling (GBP), Canadian dollar (CAD), Swiss franc (CHF), Japanese yen

(JPY), Chinese yuan (CNY), Australian dollar (AUD), and others. Data for AUD, CAD, and CNY start from 2016. As of 2022, 56 countries are voluntarily reporting, although some items are not reported due to difficulties in disaggregating by currency or confidentiality.

Of the international portfolio assets, this study focuses on debt-type assets, i.e. international bond holdings by non-residents. Due to the existence of euro bond markets where bonds are denominated in offshore currencies, the issuing country of an international bond may be different from the issuing country of the currency in which the bond is denominated. Since a non-resident investor can purchase bonds traded in country A but denominated in the currency of country B, the currency composition of bond holdings does not match the country composition of investments. Therefore, the analysis of currency composition has a different meaning from that of investment destination. In contrast, for international equity investments, the currency composition and the country composition are almost perfectly matched.

This paper uses the data from 2001-2021 for 38 countries for which currency composition data are available and reliable.[6] Appendix Table A1 shows the list of countries and the number of observations. We analyze for the major international currencies, USD, EUR, GBP, and JPY, and the emerging currencies, AUD and CNY with data only since 2016.

The dependent variable (a_{it}^{j}) is defined as the proportion of assets denominated in currency j out of the total external debt securities held by country i at time t, as expressed in Equation (1):

$$a_{it}^{j} = \frac{A_{it}^{j}}{A_{it}} \qquad \text{(eq. 1)}$$

Where A_{it} represents the total external bonds held by country i at time t, A_{it}^{j} denotes the bonds denominated in currency j held by country i at time t, and j represents the currencies: USD (United States), EUR (Eurozone), JPY (Japan), GBP (United Kingdom), CNY (China), and AUD (Australia).

Table 3 presents basic statistics on a_{it}^{j}, the currency composition of reported external assets (bonds) by country over a period of 21 years, encompassing data from 38 countries.

[6] Only 40 out of 56 countries report debt-type assets broken down by currency. We exclude from the analysis countries with large discrepancies between the total of assets (T1) and the sum of currency breakdowns (T2). We also exclude countries with observations shorter than 5 years (e.g., Hong Kong).

Table 3. Basic Statistics: The Currency share of International Debt Assets

(Unit: %)

Currency	Obs.	Mean	Sd	Min	p5	p25	p50	p75	p95	Max
AUD	173	0.6	1.5	0.0	0.0	0.0	0.1	0.4	4.7	7.5
CNY	172	0.3	1.0	0.0	0.0	0.0	0.0	0.1	1.1	7.0
EUR	586	47.5	35.1	0.0	0.8	10.7	44.1	84.6	95.9	99.9
JPY	567	2.1	4.3	0.0	0.0	0.3	1.1	2.2	7.1	53.4
GBP	523	0.8	1.3	0.0	0.0	0.0	0.1	1.0	3.7	7.9
USD	575	34.5	31.4	0.1	2.6	8.1	23.0	57.4	97.4	99.9

3.2 Model

To analyze the determinants of currency selection in international investment, we establish an estimation model as depicted in Equation (2).

$$a_j = \beta_0 + \beta_1 BI_{ij\,t-1} + \beta_2 J_{j\,t-1} + \beta_3 I_{i\,t-1} + \beta_4 T_t + \epsilon_{ijt} \quad \text{(eq.2)}$$

Among the four groups of explanatory variables, BI_{ij} is a vector of bilateral relationship variables between the asset-holding country (i) and the currency-issuing country (j). This is because economic or strategic relationships between the two countries (i and j) are expected to influence the currency composition of held assets. The second group, J_j, represents the vector of currency-issuing country (j) variables. These variables are included because the credibility of each currency or the stability of its value can be expected to influence the choice of denomination. The third group, I_i, is a vector of variables representing the economic characteristics of the asset-holding country (i). Factors such as the degree of economic openness in the asset-holding country may also influence the choice of designated currency. The last group, T_t, represents a vector of time (t) variables reflecting the global economic conditions. For example, the composition of the denomination may vary depending on the degree of instability in international financial markets.

Due to concerns about endogeneity, variables excluding time-specific characteristics are lagged by one year. Given the nature of the data, there is a high likelihood of collinearity, autocorrelation, and heteroskedasticity between groups of asset-holding countries (i) and currency-issuing countries (j). Driscoll-Kraay (1998) standard errors allow for consideration of group and time dependency. Therefore, in the analysis, Driscoll-Kraay (1998) standard errors with a one-year lag are estimated.

Empirical studies on the currency composition of international investments are very rare due to the lack of available data.[7] Previous studies on the determinants of the currency composition of international investment include Galstyan et al. (2020) and Haili and Mercado (2023). Galstyan et al. (2020) also use CPIS data, but their focus is on the choice of investment destination country rather than the denomination currency. As possible determinants, they mainly consider investor characteristics such as inflation, exchange rate fluctuations, and bond yields, while we consider bilateral economic linkages, currency issuer characteristics and geopolitical factors. Their main finding is that there is a bias in favor of US dollar and euro-denominated assets in portfolio investment. Haili and Mercado (2023) use data from Bentrix et al. (2019) to analyze the determinants of the share of USD, EUR, GBP, JPY, and CNY denominations in the international assets of Asia-Pacific economies. The main determinants are also the characteristics of investors, as in Galstyan et al. (2020).

This study is distinguished from the previous studies in the following ways. We include more recent data for all countries available in the CPIS and focus only on debt securities to highlight the characteristics of currency composition. In addition, the analysis includes bilateral relationship variables and the characteristics of both currency issuers and investors. The bilateral relationships take into account trade, financial, and strategic links between investors and currency issuers. Estimation results for the characteristics of currency issuers may have implications for the conditions for being a major international currency.

The variables categorized in Equation 2 are explained as follows, with Table 4 offering a summary of their definitions and sources.

Bilateral relationship variable group (BI_{ij}): Economic linkages

Strengthening economic ties between currency-issuing and asset-holding countries may lead to a rise in the proportion of currency-denominated assets held. These assets from closely connected economies can offer cost savings in terms of currency conversion or

[7] Bentrix et al. (2019) is the earliest study and attempts to construct a time series of the currency composition of the international investment position for 50 countries, using gravity models and other estimation tools.

hedging expenses for foreign currency liquidity. This relationship is examined using variables measuring trade and financial linkages, calculated as the proportion of bilateral trade within total trade and the proportion of holdings between countries within total asset holdings. Trade and financial linkage data are sourced from the IMF's Direction of Trade Statistics (DOTS) and the Coordinated Portfolio Investment Survey (CPIS). Additionally, the interest rate differential between countries is included. This is because it's anticipated that the investment yield of debt securities may influence currency selection. The 10-year government bond yield is used as the interest rate indicator for each country.

Bilateral relationship variable group (BI_{ij}): Strategic linkage and others

The degree of strategic alliance with the currency-issuing country in international currency issuance may influence the denomination of assets. For allied countries, there is the possibility of a close relationship beyond economic motives alone. In addition, in the event of war or strategic confrontation, the safety of assets denominated in the currencies of allied countries may be perceived as greater, potentially reducing risks such as freezing or confiscation. On the other hand, an increase in holdings of assets denominated in the currencies of allied countries could serve as evidence of the alliance. A military alliance index, quantifying the security sector bandwidth, is included to capture this relationship. Additionally, variables reflecting colonial rule, proximity, language use, and regional trade agreements between countries are considered.

Currency issuing country variable group (J_j)

This group focuses on indicators representing the financial market development and governance quality of the currency-issuing country. Higher levels of development and capital liberalization are expected to attract investors to currencies from countries with more diverse financial asset selection and stable asset prices. Variables include the financial development index, capital liberalization index, and corruption control indices.

Asset holding country variable group (I_i)

These variables depict the characteristics of the asset-holding country, such as trade volume to GDP ratio and external assets to GDP ratio. Geopolitical factors, like attitudes towards conflicts such as the Ukraine war, are captured using an index assessing pro-Russia tendencies from the Economist Intelligence Unit (EIU). The pro-Russia tendency index categorizes countries into five groups based on their stance towards Russia.

Time variable group (T_t)

Time-specific characteristics are represented by the global financial market instability index and the dollar value index. The VIX index measures financial market instability, while fluctuations in the dollar index influence currency selection. A rising dollar value may lead to an increase in dollar-denominated assets, driven by a "rush to quality" phenomenon.

Table 4. Explanatory variable definitions and sources

Variables	Definitions and Period	Source
Bilateral relationship variable group (ij)		
Trade_ij	Trade with country j (sum of exports and imports)/total trade of country i, unit: ratio, 2000-2021	IMF DOTS
Finance_ij	Assets and liabilities with country j/external portfolio assets and liabilities of country i, unit: ratio, 2000~2021	IMF CPIS
Military alliance_ij	Index related to military alliance between i and j, unit: index, 2000~2020	Moyer et al. (2021) “Formal Bilateral Influence Capacity index: Security Bandwidth”
Bordering_ij	Border country dummy variables for i and j	Mayer & Zignago (2011) “CEPII GeoDist Database”
Common language_ij	Common language dummy variable for i and j	
Colony_ij	Dummy variable for i and j's colonial suzerain relationship	
Distance_ij	Logarithmic value of the distance between countries i and j (based on densely populated cities), unit: logarithmic value of km	
RTA_ij	Dummy variable for whether i and j have concluded a regional trade agreement, 2000~2022	Egger & Larch (2008) “Mario Larch's Regional Trade Agreements Database”
Currency issuing country variable group (j)		
Financial development_j	IMF's financial development index (institutional and market integration) for country j, 2000-2021	IMF

Capital liberalization_j	Chinn-Ito capital liberalization index of country j, normalized, 2000~2020	Chinn & Ito (2006)
Corruption control_j	Country j's corruption control index, 2000-2021	Kaufmann et al (2010) "The Worldwide Governance Indicators"

Asset holding country variable group (i)		
Trade proportion_i	Country i's trade-to-GDP ratio, unit: ratio, 2000~2021	world bank
Foreign investment proportion_i	Total portfolio investment assets and liabilities compared to GDP in country i, unit: ratio, 2000~2021	IMF CPIS, Worldbank
Pro-Russian tendency_i	Degree of pro-Russian tendency in country i, units: 1 (non-Russian) to 5 (pro-Russian), 2023	The Economist (2023)
Eurozone	Dummy variable for country i's Eurozone membership	-

Time variable group (t)		
VIX index_t	Logarithm of the CBOE VIX Index, 2000-2021	CBOE
Dollar index_t	Logarithm of the US Dollar Index, 2000-2021	The Wall Street Journal
Trend_t	Year values from 1 (2000) to 21 (2021)	-
Int_diff_t	Long-term interest rates difference	OECD

Table 5. Basic statistics of explanatory variables

Variables	Obs	Mean	Std. Dev.	Min	Max
Bilateral relationship variable group (ij)					
Trade_ij	2,596	0.13	0.18	0.00	0.74
Finance_ij	2,596	0.18	0.23	0.00	0.87
Military alliance_ij	2,385	0.48	0.40	0.00	1.33
Bordering_ij	2,596	0.06	0.25	0.00	1.00
Common language_ij	2,596	0.08	0.27	0.00	1.00
Colony_ij	2,596	0.06	0.24	0.00	1.00
Distance_ij	2,596	8.38	1.05	5.16	9.87
RTA_ij	2,596	0.43	0.49	0.00	1.00
Currency issuing country variable group (j)					
Financial development_j	2,596	0.83	0.09	0.56	0.96
Capital liberalization_j	2,194	0.16	0.20	0.00	0.90
Corruption control_j	2,535	1.50	0.51	-0.36	2.00
Asset holding country variable group (i)					
Trade proportion_i	2,596	0.86	0.40	0.20	1.90
Foreign investment proportion_i	2,596	1.12	1.01	0.03	5.71
Pro-Russian tendency_i	2,596	1.43	0.94	1.00	5.00
Eurozone_i	2,596	0.61	0.49	0.00	1.00
Time variable group (t)					
VIX index_t	2,596	2.90	0.30	2.41	3.49
Dollar index_t	2,596	4.50	0.10	4.34	4.74

Basic statistics for these variables are detailed in Table 5. In the following statistical analyses, we perform an integrated data analysis for all international currencies and a separate analysis for each currency. The explanatory variables included are different in each case. In the integrated analysis, the time variables are not included. On the other hand, the currency-specific analysis does not include variables of the currency issuing country.[8]

4. Estimation Results

The analysis begins with an integrated estimation including all international currencies (USD, EUR, JPY, GBP, CNY, AUD), and the results are shown in Table 6. Contrary to the expectation, bilateral trade links are not significant, meaning that greater trade with the issuer of a currency does not increase the investment in bonds denominated in that currency. In contrast, bilateral financial links have a significant positive relationship with the currency share. This means that a country is likely to hold more bonds denominated in the currency of the country in which it invests. Despite the development of the Eurobond market in advanced countries, a large proportion of bonds are issued in local currency, so the currency share is proportional to the investment share. Military alliances are significantly positive when only the bilateral economic links are included as explanatory variables, but lose significance when other variables are added. This could be because other characteristics of the currency issuer overwhelm the alliance effect. The result for FTAs is sensitive to the model specification.

Among the characteristics of currency issuers, the financial development index is, as expected, significantly positive regardless of the model specification. This implies that when a country has developed financial markets, its currency-denominated assets are preferred by foreign investors. However, the capital account liberalization does not show consistent results. The anti-corruption index, a proxy for governance, shows the opposite sign to that expected. More research is needed to understand the causes.

[8] Issuer country variables can be included as time-varying variables, but issuer country characteristics, such as the degree of financial development, rarely change in the short run, making them essentially time-invariant.

Table 6. Integrated estimation of international currencies

Model	(1)	(2)	(3)	(4)	(5)
Explanation	Bilateral relationship		Currency issuing country		Asset holding country
Trade_ij	-12.16**	-13.89**	9.55	8.56	9.75
	(4.59)	(5.48)	(5.83)	(5.43)	(5.89)
Finance_ij	121.50***	120.03***	122.70***	123.01***	121.84***
	(4.36)	(4.96)	(5.16)	(5.17)	(5.50)
Military alliance_ij		3.77***	0.49	0.81	0.48
		(0.83)	(1.23)	(1.29)	(1.20)
Bordering_ij		8.74***	4.87	6.26*	4.75
		(2.82)	(3.21)	(3.19)	(3.20)
Common language_ij		-1.68	-2.69	-3.44**	-2.52
		(1.47)	(1.59)	(1.42)	(1.63)
RTA_ij		-4.97***	-1.490	-4.13***	-1.20
		(0.49)	(0.97)	(1.18)	(0.93)
Financial development_j			80.43***	87.14***	75.98***
			(6.81)	(9.69)	(9.18)
Capital liberalization_j				-24.25***	6.26
				(3.69)	(5.13)
Corruption control_j			-11.11***		-13.12***
			(0.95)		(1.90)
Observations	2,340	2,326	2,272	2,326	2,272
R-squared	0.71	0.71	0.75	0.74	0.75
i-j group	211	210	210	210	210

Note: For clear reporting of coefficient estimates, the units have been adjusted (dependent variable %, other values are proportions) and constant coefficients have been omitted. If there were no observations from the Eurozone among the explanatory variables, they were replaced with observations from Germany. The values in parentheses are the standard errors of Driscoll-Krray (1998). *, **, *** indicate significance levels of 10%, 5%, and 1%.

In the following, we estimate for individual currencies. While an integrated estimation for all major currencies provides an overall picture, it does not allow us to identify the distinctive nature of each currency and to interpret the results of some of the explanatory variables. First, Table 7 presents the results for the USD share of international debt security holdings. As in the integrated estimation, the coefficients of the trade linkages are not consistent, but the financial linkages are consistently significant and positive. The coefficients of the financial linkages are close to or greater than 1.0, indicating a tendency to hold more dollar-denominated securities than investments in the US. As expected, the share of USD assets increases as the USD appreciates. Eurozone members, as expected, tend to have a lower USD share. There is also a regional effect, or preference for the currency issued in the same continent.

It is noteworthy that countries with greater financial openness, measured as foreign investment proportion, prefer less dollar-denominated securities. This implies that countries with developed financial markets tend to have a more diversified currency composition, possibly for risk diversification and investment returns. It is an unexpected result that pro-Russian countries have a higher USD share than anti-Russians or neutrals. As geopolitical confrontation has intensified since the Ukraine war in 2022, this result should be seen as a recent tendency rather than a persistent one. This unexpected preference of pro-Russians for dollar-denominated assets has implications for the international monetary system in an era of economic fragmentation between the US and China, since pro-Russian countries largely overlap with China-friendly countries, mostly low-income or emerging economies.

Table 7. Estimation by currency: USD results

Model	(1)	(2)	(3)
Sample		j = USD issuing country (USA)	
Explanation	Trade/Finance Linkages	Other Links	Control Variables
Trade_ij	13.01*	-59.52*	-71.90*
	(6.92)	(32.42)	(35.46)
Finance_ij	88.53***	104.62***	105.65***
	(8.47)	(8.88)	(8.90)
Military alliance_ij		-0.78	0.15
		(3.34)	(3.01)
Bordering_ij		42.10**	48.41**
		(17.89)	(19.50)
pro-russia_i		3.84*	3.95**
		(1.89)	(1.86)
Trade proportion_i	1.61	0.89	1.95
	(2.25)	(1.85)	(1.69)
Foreign investment proportion_i	-7.17***	-5.92***	-5.74***
	(0.86)	(0.85)	(0.75)
Dollar index_t	29.19***	30.57***	29.31***
	(5.23)	(6.46)	(6.43)
VIX index_t			1.35*
			(0.68)
Trend_t			-0.30***
			(0.10)
Int_us_eu_t			134.84*
			(66.70)
Eurozone_i	-20.19***	-16.80***	-17.82***
	(1.99)	(1.79)	(1.90)
Observations	532	532	532
R-squared	0.72	0.74	0.74
i-j group	37	37	37

Note: See the note of Table 6.

Table 8 shows the results for the EUR. Again, trade linkages are not significant, while financial linkages are significantly positive. The coefficient of financial linkages is lower than for the USD, ranging from 0.68 to 0.75. As expected, eurozone members have a higher share of euro-denominated assets, but the same continent effect is negative after controlling for membership. Countries with greater financial openness have a higher EUR share, which pairs with the previous results for the USD. This suggests that more financially developed countries tend to diversify into less-dominant currency assets, such as the EUR. It is also remarkable that pro-Russian countries have a significantly lower EUR share. This means that euro-denominated securities are not seen as the safest asset for these countries as dollar-denominated ones are, so they tend to avert from it. The coefficient of military alliance is positive but not significant. The coefficient of the interest rate differential with the US is significantly positive, reflecting the consideration of investment returns in currency choice.

Table 8. Estimation by currency: EUR results

Model	(1)	(2)	(3)
Sample	j = EUR issuing country (Eurozone)		
Explanation	Trade/Finance Linkages	Other Links	Control Variables
Trade_ij	-9.30 (9.56)	9.96 (10.07)	9.78 (9.13)
Finance_ij	75.12*** (10.92)	68.13*** (11.19)	68.30*** (10.79)
Military alliance_ij		3.09 (2.82)	2.73 (2.98)
Bordering_ij		-11.62*** (2.47)	-12.01*** (2.40)
pro-russia_i		-3.11*** (0.82)	-3.10*** (0.79)
Trade proportion_i	-3.93 (3.21)	-2.88 (3.99)	-2.93 (4.16)
Foreign investment proportion_i	7.68*** (1.68)	8.65*** (1.63)	8.94*** (1.66)
Dollar index_t	5.61 (6.70)	6.64 (7.37)	20.32*** (4.73)
VIX index_t			-2.06 (1.49)
Trend_t			-0.02 (0.08)
Int_eu_us_t			223.21** (78.62)
Eurozone_i	32.02*** (2.80)	26.02*** (3.74)	25.98*** (3.78)
Observations	541	527	527
R-squared	0.72	0.73	0.74
i-j group	38	37	37

Note: See the note of Table 6.

The results for the GBP, which is omitted due to space limitations, report that unlike other currencies, the GBP share is influenced more by trade links than by financial links. Colonial ties are also significantly positive, as many former colonies still have close economic ties with the UK. Controlling for these colonial ties reduces the significance of the trade linkages, but it is still high compared to other currencies.[9] The financial openness of investor countries is not significant, implying that financially developed countries do not choose sterling-denominated securities as an alternative to the USD.

Table 9. Estimation by currency: JPY results

Model	(1)	(2)	(3)
Sample		j = JPY issuing country (Japan)	
Explanation	Trade/Finance Linkages	Other Links	Control Variables
Trade_ij	4.21	5.28*	5.76*
	(2.72)	(2.77)	(2.83)
Finance_ij	22.01***	15.76***	15.85***
	(2.84)	(3.05)	(3.07)
Military alliance_ij		0.84***	0.85***
		(0.21)	(0.21)
pro-russia_i		0.11	0.10
		(0.07)	(0.07)
Trade proportion_i	-0.37***	-0.21**	-0.23**
	(0.08)	(0.10)	(0.10)
Foreign investment proportion_i	0.27***	0.30***	0.30***
	(0.04)	(0.04)	(0.00)
Dollar index_t	0.13	0.23	0.15
	(0.46)	(0.43)	(0.41)
VIX index_t			0.19*
			(0.10)
Trend_t			0.01*
			(0.01)
Int_jp_us_t			5.55
			(6.01)
Observations	471	471	471
R-squared	0.29	0.31	0.31
i-j group	36	36	36

Note: See the note of Table 6.

The results for the JPY are presented in Table 9. The JPY share is positively related to trade links, although the significance is weak, and to financial links with stronger significance. Interestingly, countries with military alliances with Japan have a significantly higher JPY share. We also find that countries with greater financial openness tend to hold more yen-denominated securities, which is similar to the results for the EUR. The VIX index also has a

[9] This may be a consequence of strong trade ties with the euro area, but more research is needed to determine the exact cause.

significant positive coefficient, representing that the JPY is usually perceived as a safe haven asset in capital markets, especially in times of financial instability.

Table 10. Estimation by currency: CNY results

Model	(1)	(2)	(3)
Sample		j = CNY issuing country (China)	
Explanation	Trade/Finance Linkages	Other Links	Control Variables
Trade_ij	0.53	-4.32**	-4.21**
	(2.19)	(2.10)	(1.95)
Finance_ij	34.840	84.30***	88.70***
	(26.60)	(25.07)	(23.18)
Military alliance_ij		-0.61	-0.65*
		(0.38)	(0.35)
Bordering_ij		-1.82***	-1.81***
		(0.42)	(0.39)
pro-russia_i		0.81***	0.86***
		(0.13)	(0.12)
Trade proportion_i	-0.06	0.03	0.01
	(0.27)	(0.24)	(0.23)
Foreign investment proportion_i	-0.16	-0.02	0.08
	(0.10)	(0.09)	(0.09)
Dollar index_t	-11.70***	-10.95***	15.14*
	(3.53)	(3.14)	(8.31)
VIX index_t			-0.06
			(0.33)
Trend_t			0.06
			(0.07)
Int_ch_us_t			90.05**
			(35.46)
Observations	138	138	136
R-squared	0.11	0.32	0.37

Note: See the note of Table 6.

Next, we analyze the share of international securities denominated in the CNY and AUD, which are not major currencies but are of interest in terms of their potential rise as international currencies. Table 10 shows the results for the CNY share. While the financial linkages are significantly positive as expected, the trade linkages are significantly negative. More studies are needed to understand the causes of the negative effect of the trade linkages. The military alliance is not significant, but the pro-Russian index has a significantly positive coefficient. This is consistent with the common perception that Russia-friendly countries have recently increased their allocation to renminbi-denominated assets. It is also notable that the CNY share increases when the USD is stronger, and *vice versa*. In sum, strong investment ties with China, a decline in the value of the USD and an anti-Western stance are likely to drive the increase in renminbi-denominated securities holdings.

The last estimation is conducted for the AUD, but its results are not presented due to space constraints. The AUD share is significantly positively related to both bilateral trade and financial linkages. It is distinctive that the coefficient of trade linkages is greater than one, indicating that strong trade links with Australia lead its trading partners to prefer Australian dollar-denominated assets, in particular. Given that Australia is a major exporter of commodities such as iron ore and coal, this may be a prime example of trade links leading to a preference for an investment currency. Military alliances are negatively associated with a preference for the AUD.[10]

5. Conclusion

The main findings from the previous estimations can be summarized as follows. First, the share of a denomination currency in international debt securities holdings is not significantly associated with bilateral trade links with the currency issuer, but is significantly and positively associated with bilateral financial or investment links. The latter can be seen as an expected result, as most of the investment in a country is done by holding securities denominated in the local currency. However, it is not common for a high level of trade with a currency issuer to lead to more securities being held in its currency. This is the case for the GBP and AUD, as discussed above. Second, international investors prefer securities denominated in the currency of an issuer with developed financial markets. This may be because a developed financial market offers more diverse, liquid and less volatile financial assets. Third, investors with more open financial markets tend to be less concentrated in USD assets and more concentrated in EUR or JPY assets. This suggests that financially advanced investors are likely to hold more diversified portfolios across different currencies. They tend to seek investment yields while taking some risk, rather than focusing solely on the safety of the assets. This contrasts with emerging economies, who have a stronger preference for dollar-denominated securities. Fourth, a stronger USD is likely to increase the share of USD assets, as expected. However, there is no evidence that it significantly reduces the share of non-dollar currencies, except for the CNY. Finally, military alliances do not have a significant

[10] The negative relationship is possibly because China, a strategically confronting country, has close trade ties to Australia and, thus, has a relatively large share of the AUD assets.

and consistent impact on the choice of investment currency. However, pro-Russian countries after the recent war in Ukraine increase the share of both the USD and the CNY, whereas decreasing the share of the EUR, with other things being equal. This finding is noteworthy, given that China has attempted to promote the use of the CNY in those countries.

In conclusion, the development of financial markets and the growth of international financial transactions are crucial for a currency to function as an international currency. Given that financial rather than trade linkages are more important in the choice of investment currency, the potential for the CNY to function as an investment currency is limited due to the underdevelopment of financial markets in China, despite its growing share in world trade. Finally, we examine the impact of US-China strategic competition or economic fragmentation on the international monetary system. Our results report that in the past military alliances did not have a significant impact on the choice of investment currency choice, but after the war in Ukraine, pro-Russian countries prefer the CNY more. However, the preference for the CNY is not a substitution of the USD, but rather a substitution of other currencies such as the EUR. The results also find that financially less developed countries stick to the safest assets, dollar-denominated assets, rather than diversifying their portfolios across currencies. As they increase their holdings of international assets, such as foreign exchange reserves, in anticipation of higher geopolitical risk, they are likely to increase the USD and the CNY assets simultaneously. Consequently, they all predict the continuation of the dollar-dominant regime even in a geopolitical era.

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Appendix

Table A1. Debt assets by country and currency

	Countries	AUD	CNY	EUR	JPY	GBP	USD	Total
OECD	Austria*	5	5	21	21	21	21	94
	Belgium*	6	6	9	9	9	9	48
	Canada	6	6	8	8	8	8	44
	Czech Rep.*	4	4	8	8	8	8	40
	Denmark*	0	0	19	19	19	19	76
	Finland*	6	4	9	6	9	9	43
	France*	6	6	21	21	21	21	96
	Germany*	6	6	15	15	15	15	72
	Greece*	1	1	21	19	21	21	84
	Hungary*	5	5	21	21	21	21	94
	Israel	0	0	20	20	20	20	80
	Italy*	6	6	21	21	21	21	96
	Japan	5	5	21	0	21	21	73
	Korea, Rep. of	6	6	21	21	21	21	96
	Mexico	8	8	19	16	19	19	89
	Netherlands*	4	4	13	13	8	13	55
	Poland*	0	0	17	6	11	17	51
	Portugal*	6	6	21	21	21	21	96
	Spain*	5	5	16	16	16	16	74
	Sweden*	2	2	16	16	16	16	68
	Switzerland	0	0	21	21	21	21	84
	United States	6	6	19	19	19	0	69
non OECD	Albania	0	0	7	0	7	7	21
	Argentina	5	5	6	6	6	6	34
	Brazil	6	6	9	9	9	9	48
	Bulgaria*	5	5	19	19	19	19	86
	Cyprus*	4	5	19	16	19	19	82
	Estonia*	6	6	11	9	11	11	54
	Iceland	0	0	12	12	12	12	48
	India	6	6	12	11	15	16	66
	Indonesia	5	5	17	19	14	21	81
	Latvia*	8	8	14	14	14	14	72
	Lithuania*	9	9	13	13	13	13	70
	Romania*	6	6	21	11	13	21	78
	Russia	5	5	20	18	20	20	88
	Slovak Rep.*	5	5	10	10	10	10	50
	South Africa	5	5	10	10	10	10	50
	Türkiye	5	5	9	9	9	9	46
	Total	173	172	586	523	567	575	2,596

* refers to Eurozone countries. The data period is 2001-2021. The AUD, CNY, EUR, JPY, GBP, and USD columns show observations of debt securities assets in each currency denomination.
Source: Authors' calculation using CPIS data

Table A2. Trade and financial linkages with currency issuing countries

Trade_ij (Unit: %)

Currency (Country)	Obs.	Mean	S.D.	Min	P5	P25	P50	P75	P95	Max
AUD (Australia)	173	0.66	0.91	0.04	0.07	0.15	0.35	0.58	2.70	4.39
CNY (China)	172	8.55	6.81	1.29	2.13	3.28	5.62	12.44	23.44	27.51
EUR (Euro)	586	39.59	18.65	6.30	7.20	24.52	44.79	53.53	62.64	69.77
JPY (Japan)	567	3.89	2.18	0.51	0.73	2.28	3.50	5.38	7.91	12.25
GBP (United Kingdom)	523	2.40	3.13	0.11	0.25	0.82	1.41	2.43	10.00	20.27
USD((United States)	575	8.80	13.26	0.78	1.27	2.58	4.93	8.15	28.56	74.08

Finance_ij (unit: %)

Currency (Country)	Obs.	Mean	S.D.	Min	P5	P25	P50	P75	P95	Max
AUD (Australia)	173	0.74	0.70	0.00	0.03	0.24	0.56	0.95	2.58	2.86
CNY (China)	172	0.38	0.42	0.00	0.03	0.11	0.24	0.49	1.30	2.11
EUR (Euro)	586	50.05	20.81	8.31	15.97	29.11	53.69	68.38	79.18	86.77
JPY (Japan)	567	7.54	4.95	0.21	1.70	4.41	6.51	9.15	17.78	30.27
GBP (United Kingdom)	523	2.64	2.28	0.00	0.14	0.85	2.25	3.83	6.05	14.16
USD (United States)	575	21.54	16.45	0.94	4.04	8.45	17.33	30.75	59.34	78.78

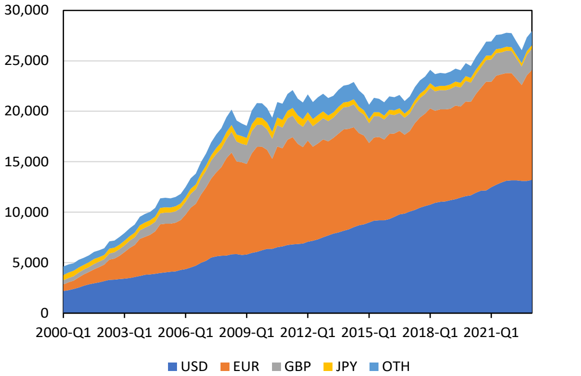
Average comparison (unit: %)

Currency (Country)	Trade_ij Average				Finance_ij average			
	OECD		Eurozone		OECD		Eurozone	
	member	non-member	member	non-member	member	non-member	member	non-member
AUD (Australia)	0.75	0.55	0.27	1.25	0.99	0.45	0.40	1.28
CNY (China)	8.46	8.64	4.06	15.40	0.49	0.26	0.21	0.64
EUR (Euro)	40.71	37.56	51.17	21.79	49.60	50.84	63.50	29.37
JPY (Japan)	4.18	3.34	4.55	2.92	7.57	7.50	6.77	8.68
GBP (United Kingdom)	2.26	2.65	1.02	4.64	3.35	1.35	2.15	3.44
USD (United States)	11.29	4.70	3.59	17.21	22.71	19.61	11.44	37.85

Figure A1. Currency Composition Trend of International Bond Issues

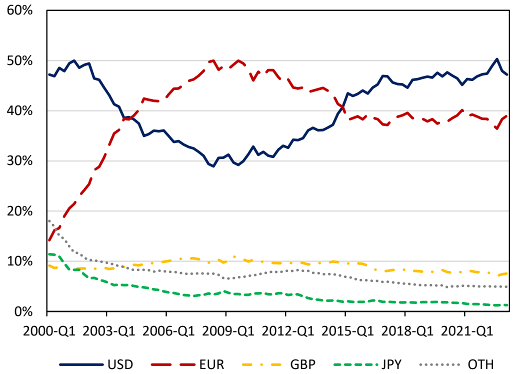
Amount of outstanding of major currencies

(unit: billion dollars)



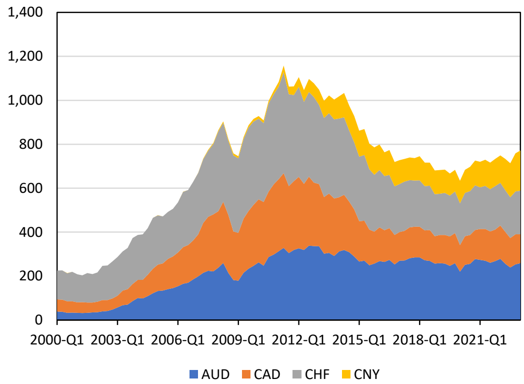
Currency composition of major currencies

(unit: %)



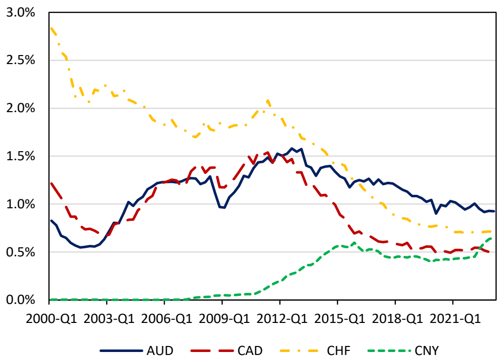
Amount of outstanding of other currencies

(unit: billion dollars)



Currency composition of other currencies

(unit: %)



Source: BIS Statistics, International Debt Securities, and Authors' calculation