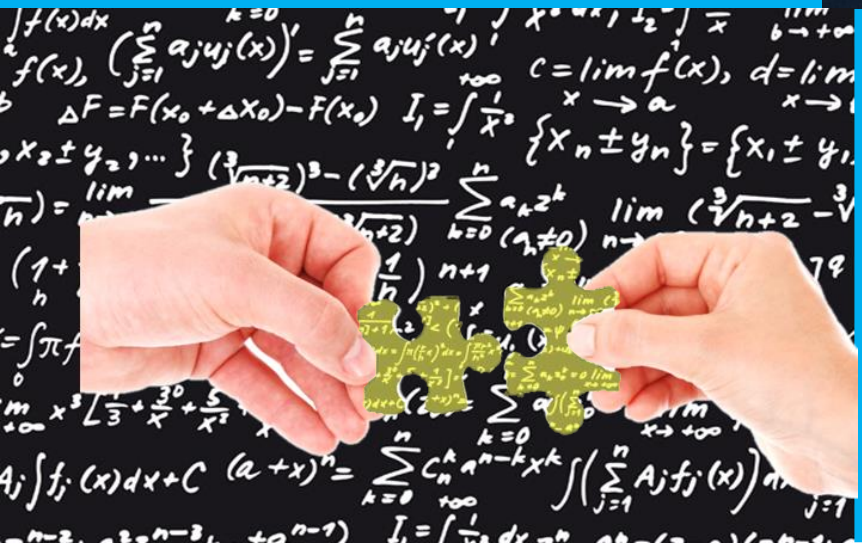
ARTNeT

ESCAP
Economic and Social Commission for Asia and the Pacific

# Riding the Dragon: Ascent of China's Renminbi and the Decline of Dollar Dominance




**Nilanjan Banik**

**Khanindra Ch. Das**



ASIA-PACIFIC RESEARCH AND TRAINING NETWORK ON TRADE

Working Paper

No. 241 | 2024

The Asia-Pacific Research and Training Network on Trade (ARTNeT) is an open regional network of research and academic institutions specializing in international trade policy and facilitation issues. ESCAP, WTO and UNCTAD, as key core network partners, and a number of bilateral development partners, provide substantive and/or financial support to the network. The Trade, Investment and Innovation Division of ESCAP, the regional branch of the United Nations for Asia and the Pacific, provides the Secretariat of the network and a direct regional link to trade policymakers and other international organizations.

The ARTNeT Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about trade issues. An objective of the series is to publish the findings quickly, even if the presentations are less than fully polished. ARTNeT Working Papers are available online at http://artnet.unescap.org. All material in the Working Papers may be freely quoted or reprinted, but acknowledgment is requested together with a copy of the publication containing the quotation or reprint. The use of the Working Papers for any commercial purpose, including resale, is prohibited.

**Disclaimer:**

The designations employed and the presentation of the material in this Working Paper do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. Where the designation “country or area” appears, it covers countries, territories, cities or areas. Bibliographical and other references have, wherever possible, been verified. The United Nations bears no responsibility for the availability or functioning of URLs. The views expressed in this publication are those of the author(s) and do not necessarily reflect the views of the United Nations. The opinions, figures and estimates set forth in this publication are the responsibility of the author(s) and should not necessarily be considered as reflecting the views or carrying the endorsement of the United Nations. Any errors are the responsibility of the author(s). The mention of firm names and commercial products does not imply the endorsement of the United Nations.

ASIA-PACIFIC RESEARCH AND TRAINING NETWORK ON TRADE

WORKING PAPER

# Riding the Dragon: Ascent of China's Renminbi and the Decline of Dollar Dominance [1]

Nilanjan Banik[2], Khanindra Ch. Das[3]

**Please cite this paper as:**

Nilanjan Banik, Khanindra Ch. Das (2024). "Riding the Dragon: Ascent of China's Renminbi and the Decline of Dollar Dominance", **ARTNeT Working Paper Series** No. 241, July 2024, Bangkok, ESCAP.

**Available at** http://artnet.unescap.org

[1] The authors are grateful to Yann Duval and two anonymous referees for their extremely useful suggestions to improve the quality of the article. Usual disclaimers apply.
[2] Professor and Program Chair (Economics and Finance Area and PhD programs), Mahindra University, Hyderabad, India. All comments to nilbanik@gmail.com
[3] Assistant Professor, BIMTECH, Greater Noida, India.

## Abstract

Several commentaries are written about de-dollarization. We analyze the factors which are contributing to de-dollarization and provide an alternative assessment. On the economic front, the US economy's reduced fiscal and financial capacity can strain economic trust in the dollar. The internationalization of the Chinese currency is another factor. Additionally, a lower forecast for the world economic growth outlook, a higher debt financing in the US and a war in Europe are also leading to central banks around the world buying more gold and reducing investment in the US treasury bonds. While these factors may lead to a reduced demand for dollars and increase the use of alternate international currencies, including digital currencies, we argue that dislodging the dollar as a global anchor currency is going to be restricted by economic and geopolitical reasons.



**Keywords:** De-dollarization, Twin Deficits, CBDC

**JEL Codes:** H6, O5

# Table of Contents



# List of Tables



# List of Figures

# 1. Introduction

Several commentaries are written about the US dollar losing its status as the world's dominant currency (Gopinath, 2024; The Economist, 2024).[4] The US dollar is considered as a global currency which is widely accepted and transacted throughout the world. Countries around the world prefer to hold the US dollar as most of them cannot trade and participate in international transactions in their own currencies. The dominance of the US dollar as a global currency is driven by both economic power of the US and the global financial infrastructure (Bernanke, 2005). The financial power is derived from the US government's quotas and voting power in the network of banking and financial institutions such as the International Monetary Fund (IMF) and World Bank (WB), and its influence over the global financial messaging system such as the Society for Worldwide International Financial Telecommunication (SWIFT). However, there are challenges to the supremacy of the US dollar leading to the discussion on de-dollarization. De-dollarization may lead to a decreased relative demand for the US dollar as a currency compared to other currencies and asset classes.

The motivation to study de-dollarization stems from several factors. Firstly, there has been extensive research on stock market contagion as many countries have adopted open economic models over the past two to three decades. Markowitz (1952) using portfolio theory showed there are likely gains from international portfolio diversification if there is no perfect correlation among returns from these markets. However, because of deregulation and financial market liberalization, capital markets are becoming more integrated. Evidence suggests as capital markets get interconnected there is a convergence in returns from different equity markets, eventually leading to a diminishing benefit from portfolio diversification (Asadi et al., 2022; Dua and Tuteja, 2016). However, few studies have specifically addressed the relationship between the substitutability of currencies with equities across various markets. Therefore, studying factors leading to de-dollarization becomes important.

Secondly, despite their increasing significance in global trade, equity, and capital movements, the connections between currency markets of BRICS (an economic grouping initially comprising of Brazil, Russia, India, China, South Africa, and now expanded to include Egypt, Ethiopia, Iran, and the United Arab Emirates) and the US have largely remained unexamined (Aroul and Swanson, 2018). Evidence suggests that currency markets exert influence on equity markets and vice versa (Mahapatra and Bhaduri, 2019). Changes in exchange rates may impact the international competitiveness of firms, thereby influencing their profits and stock prices (Dornbusch and Fischer, 1980). When a country is a net exporter, there tends to be a positive correlation between stock prices and the strength of the domestic currency. Conversely, the opposite holds true for countries that are net importers. The study on de-dollarization

[4] A quick search on Google about de-dollarization is yielding close to 6,20,000 search items. De-dollarization refers to the process by which a country reduces its reliance on the US dollar in its financial transactions, reserves, and overall economic activities.

becomes important as with financially integrated markets, the demand for the US dollar is going to change relative to another assets class.

Thirdly, the dominant currency status currently enjoyed by the US dollar is not static and can be subject to change over time due to shifts in economic fundamentals, geopolitical dynamics, or changes in global financial infrastructure. The emergence of new economic powers such as China, changes in trade patterns, developments in financial technology, and domestic macro factors can all influence the dynamics of the “dominant currency equilibrium” [5] (Gopinath and Itskhoki, 2022).

On the economic front, there is reduced fiscal and financial capacity of the US economy that can strain investors’ trust in the US dollar (Farhi, 2019). On 19 January 2023, the US government breached the debt ceiling limit of $31.4 trillion, and since then the US treasury has implemented a number of measures to avoid the default (Berman, 2023). On the external front, China, the second largest economy after the US, is pushing hard to internationalize the Chinese Renminbi (RMB) by increasingly convincing the world’s largest suppliers of energy, including Russia, Saudi Arabia, Iran, and Venezuela, among others to trade in RMB; thereby attempting to launch RMB as an international currency.[6]

In 2016, the RMB became the fifth currency to be included in the Special Drawing Rights (SDR) basket of the IMF (IMF, 2016). By 2022, the weight of RMB increased to 12.28%, surpassing that of the Japanese yen (7.59%) and the British pound (7.44%). The RMB holds the third position, trailing only the US dollar (43.38%) and the Euro (29.31%) (IMF, 2022). Furthermore, under the Belt and Road Initiative (BRI) program, China is extending loans and initiating investments in over 70 countries across Africa, Asia, and Europe (Das, 2022). The study on de-dollarization becomes important in the context of “dominant currency equilibrium”.

Finally, besides the "China factor", the emergence of Central Bank Digital Currencies (CBDCs) as substitutes for the US dollar in cross-border transactions, coupled with a rising trend of central banks worldwide acquiring gold as a hedge against global economic uncertainties and adapting to currency swap agreements in response to geopolitical shifts, presents potential challenges to the dominance of the US dollar as the dominant global currency. These developments collectively augment the potential for broader acceptance of the RMB, particularly within the global south (Liu et al. in 2022).

This paper offers a comprehensive examination of each of these factors, providing detailed insights into the reasons behind de-dollarization and RMB internationalization. The rest of the paper is organized as follows. In section 2, we discuss the relevance of the US twin deficit in impacting the value of the US dollar. In section 3, we discuss the effort taken by the Chinese government to internationalize the RMB. In section 4, we

[5] "Dominant currency equilibrium" refers to a situation in the global economy where one currency, typically the currency of a major economic power, such as the US dollar, plays a predominant role in international trade, finance, and reserves.

[6] As per data from the World Bank, for the year 2021, the size of the Chinese economy in the current US dollar was $17.7 trillion, whereas that of the US economy was $23 trillion. However, based on purchasing power parity (PPP) adjusted GDP the size of the Chinese economy was $27.3 trillion, whereas that for the US is $23 trillion.

analyze increase in demand for gold reflecting diversification away from the US dollar. In section 5, we analyze how introduction of CBDC could impact demand for the US dollar. In section 6, we compare the US productivity and the Chinese productivity. Concluding observations are given in section 7.

# 2. Demand for the US dollar and the Twin Deficits

Open economy macroeconomic models serve as the foundation for studying currency internationalization (Bahmani-Oskooee, et al., 2019). To achieve the status of a global currency requires more than just currency convertibility; factors such as liberalization of capital controls, maintaining sound and stable economic performance, and exercising prudent macroeconomic management are also crucial. While currency convertibility is a prerequisite for internationalization of a currency, the extent to which it is allowed to float may vary.

## 2.1 The Evolution of the US Dollar as a Global Currency

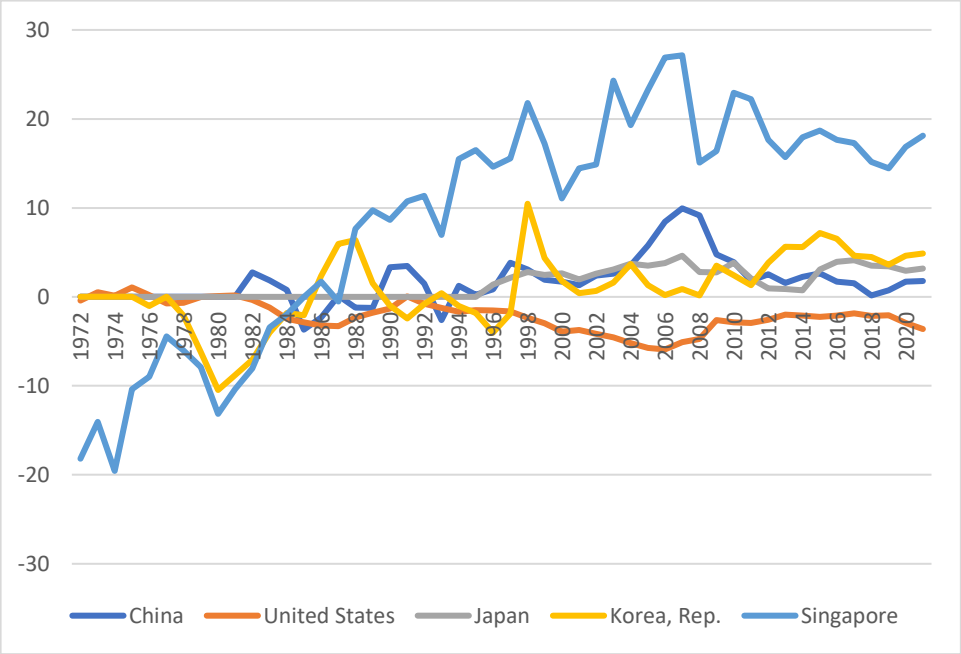
The commencement of the US dollar as the global reserve currency started with the signing of the Bretton Woods Agreement in 1944. This internationalization process of the US dollar gained momentum with the arrival of 'petrodollar' in the early seventies.[7] During the time of the Yom Kippur War of 1973, the Organisation of the Petroleum Exporting Countries (OPEC) imposed restrictions on oil exports and also cut down production of oil. This led to an increase in the price of oil from $3 in 1973 to $12 in 1974. The elevated price of oil guaranteed substantial revenue for the OPEC member countries. With the end of the Yom Kippur War and after the signing of the Egyptian-Israeli Disengagement Agreement in January 1974; the then-American President, Mr. Richard Nixon struck a deal with OPEC member countries to sell and price oil in US dollars. In exchange for this deal, OPEC member countries could utilize the US financial system to invest the proceeds earned from oil trade, marking the beginning of the 'petrodollar' era. This is how the circulation and internationalization of the US dollars, gained momentum. A liberal trade order in the subsequent times complemented this process.

During the 1980s, 1990s, and up until 2006, there was a notable trend towards liberal world trade regimes. Countries in Asia, in particular, China, India, Korea, and other South East Asian nations reduced tariff barriers which led to expansion in trade. All these Asian countries became part of the global value chain network; with designing, product development, and marketing happening in the EU and the US, whereas manufacturing of products and technology assimilations, were happening in Asia. China emerged as the largest trading partner of the US. World trade as a percentage of global GDP increased during this period. Trade and investment were happening in US dollars and demand for the US dollar continued. The absence of competing economic powers helped the US dollar emerged as an international currency. Due to the demand for the US dollar in international markets the US economy could sustain large fiscal and current account deficits (CAD) (Sheel, 2021). The US economy had a capital account surplus because of the stature of the US dollar as an international currency. Current and capital accounts are two important constituents of the balance of payments of a country (Banik and

[7] The term 'petrodollar' refers to the phenomenon where oil-exporting countries, particularly in the middle east region, price and sell oil in US dollars.

Velamuri, 2023).[8] On the trade front, the US was moderately trade surplus even at the time when gold standard system was abolished in 1971 (Figure 1).[9]

**Figure 1. Current account balance (% of GDP) for the US and select Asian trading partners, 1972-2021**




*Source: Authors' compilation from Word Development Indicators (WDI), 2023*

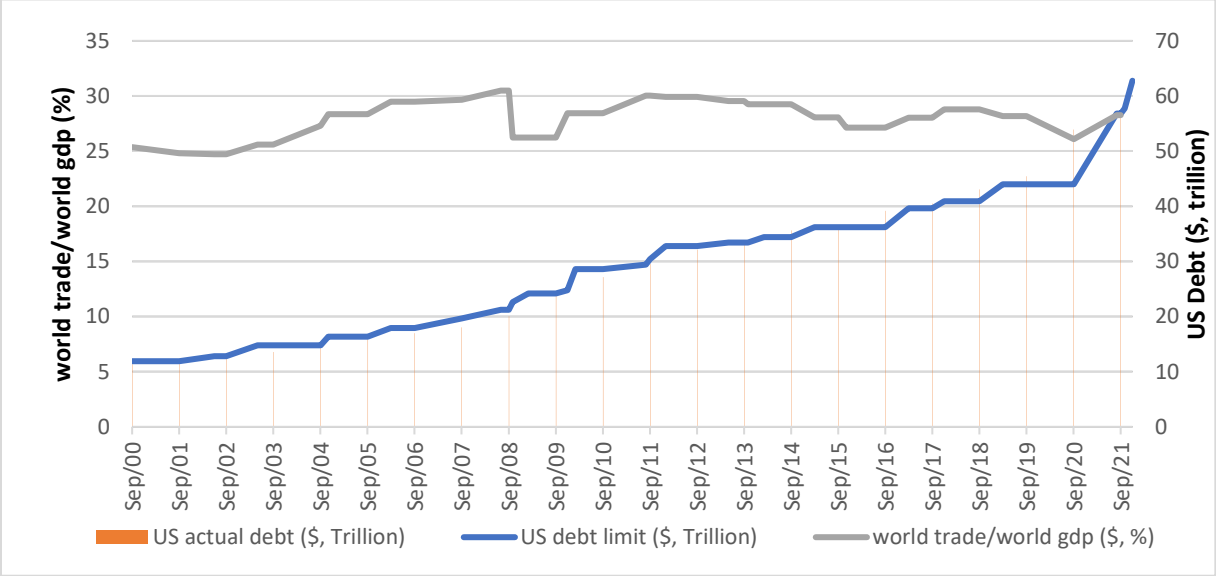
The start of the global financial crisis and the period after that saw a sudden jump in the US debt limit (Figure 2). This was also the time when trade across the world was slowing down. This impacted the major trading economies such as China, Europe, and the US. Global trade as a percentage of world's GDP began to decline from mid-2008 onwards. As world trade slowed, individual countries started raising tariffs (although, keeping them below the bound rates at the World Trade Organization) and implemented non-tariff barriers such as anti-dumping measures, sanitary and phytosanitary sanctions, etc. (Banik, 2009). International trade volume declined, leading to a decrease in the demand for currencies used in those transactions, particularly the US dollar.

From Figure 2 we observe that since July 2008 budget deficit started rising for the US. There was a dip in world trade in September 2007 and after that it remained stagnant.

[8] Current account comprises trade account (i.e. imports and exports of merchandise goods), services account (i.e. imports and exports of services), and net factor income from abroad (e.g. remittances). On the other hand, capital account balance captures the difference between receipt from sale of domestic assets (stocks, bonds, and lands) to the foreigners and the spending on buying foreign assets by residents.

[9] Gold standard system is operated on the principle of inter convertibility between domestic money and gold at a fixed official price. The exchange rate of a country is determined on the basis of its central bank's promise of the amount of gold that need to be paid in exchange of one unit of currency.

**Figure 2. The US debt ($Trillion) and the growth in world trade (% of world GDP)**




*Source: Authors' compilation from US Treasury (2022) and WDI (2023).*

## 2.2 The US Twin Deficits and the Policy Response

From the identity of national income accounts, the total investment (*I*) in a country has to be met by the saving done by the private sector ($S^{Pvt}$), public sector ($S^{Pub}$) and the surplus coming from rest of the world ($S^{Row}$).

$$I = S^{Pvt} + S^{Pub} + S^{Row}$$

$$\Rightarrow (G - T) = (S - I) + (M - X)$$

Public sector saving is the difference between government revenue (T) and expenditure (G). Saving from the rest of the world (ROW) is the difference between the imports (M) and exports (X) by the home country. Therefore, an increase in the fiscal deficit will be associated with a CAD increase, if private sector savings does not respond to the rising fiscal deficit. This is also known as twin deficits, as fiscal deficit may lead to CAD.

In a Mundell-Fleming framework, considering the case of a large open economy, we can arrive at the same result. An expansionary fiscal policy will raise the aggregate demand. Robust economic activities will raise demand for capital, which in turn increases the interest rates (cost of capital). The ensuing higher interest rates will attract capital flow from the ROW. In a flexible exchange regime, the domestic currency appreciates, leading to a fall in exports and a resultant CAD. Even if the interest rates cease to rise, as may happen in case of excess capital reserves, a higher aggregate demand may lead to an increase in imports, and a resultant CAD.[10] Under the fixed exchange rate regime when the central banks want to monetize the growing fiscal deficit, it may lead to a currency crisis. Monetization of the fiscal deficit – as may happen when the government decides

[10] This simultaneous rise in fiscal deficit and CAD, that is, twin deficits is ingrained in the Keynesian income absorption hypothesis.

to spend on freebies as part of election process or on social welfare measures at the time of pandemic like COVID-19 – may lead to inflation. Demand for foreign currencies will increase, as the value of domestic currency fall with inflation. The central bank has to sell foreign exchange reserves if it wants to maintain a fixed exchange rate. A currency attack may occur when market participants believe that the central bank lacks sufficient assets to support the exchange rate. Thus, a fiscal crisis can manifest as a currency crisis in subsequent periods. This happened at the time of the Asian financial crisis in 1997.

Given this narrative about the twin deficits, countries around the world want to put a cap on the fiscal deficit. The US as a country is no different, and the US Congress does it by putting a cap on its debt obligation. Much of the increase in US debt in recent times happened because of the government's intervention during the pandemic. As of 31 January 2023, the US government spent $4.6 trillion in response to COVID-19 (US Government, 2023). Debt financing contributed to inflation. In order to control inflation the Fed employed unconventional monetary policy (UMP) measures. These included reducing reserve requirements for commercial banks, extending the maturity of lending operations, expanding asset purchase programs, and relaxing collateral requirements to bolster credit creation. If UMP measures fail, a significant budget deficit could exacerbate challenges in controlling inflation and depreciating the US dollar, potentially reducing its demand as an international currency.[11]

## 3. Internationalization of the RMB

China is expected to become the largest economy in the world, bypassing the US, within the next fifteen years. China has also taken various steps to internationalize the RMB since 2007 (Tung et al., 2012). These include issue of *Dim sum* bonds and currency swap agreements, among others.[12] Since global financial crisis of 2008 China denominated more of its international claims away from the US dollar into the RMB (Cheung et al., 2011). Further, the signing of bilateral currency swap agreements with other central banks is an effort to push for the internationalization of the RMB (Hao et al 2022; Perez-Saiz and Zhang, 2023). China has created currency swaps with more than 41 countries across continents (Table 1).[13] China's swap agreements are aligned with the experience of the US, whereby the US Fed used swap agreements with major central banks of the world (Farhi et al. 2011).

[11] For the US, $p^*$ and p are the same. However, this may change if, over the next few decades, the US dollar fails to remain the world's dominant international currency.
[12] Dim sum bonds are Chinese RMB-denominated bonds issued in Hong Kong, enabling international investors to access the Chinese market and invest in RMB-denominated assets.
[13] One noticeable difference between the US and China is that the former has established swap lines majorly with developed countries whereas the latter has done so with both developed and developing world including the African countries.

**Table 1. Swap Arrangements by China and the US**

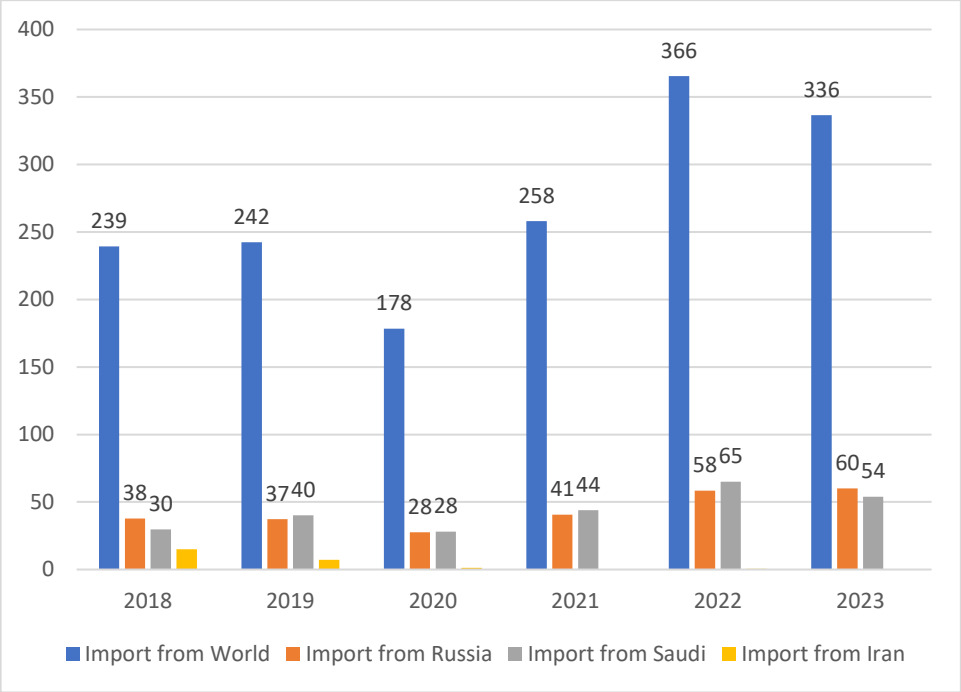
| Continents | China | The US |
|---|---|---|
| Asia & the Pacific | Armenia, Indonesia, Kazakhstan, South Korea, Malaysia, Mongolia, Macao SAR, Japan, Lao PDR, Pakistan, Qatar, Hong Kong, Singapore, Sri Lanka, Tajikistan, Thailand, Turkey, UAE, Uzbekistan, Australia, New Zealand | Bank of Japan, Monetary Authority of Singapore, Reserve Bank of Australia, Reserve Bank of New Zealand, Bank of Korea |
| Africa | Egypt, Morocco, Nigeria, South Africa, | - |
| America | Argentina, Brazil, Chile, Suriname, Canada | Central Bank of Brazil, Bank of Canada, Bank of Mexico, |
| Europe | Albania, Belarus, Euro Area / European Central Bank (ECB), Hungary, Iceland, Serbia, Switzerland, Ukraine, United Kingdom, Russia | Swiss National Bank, National Bank of Denmark, Eurosystem [European Central Bank], Central Bank of Iceland, National Bank of Poland, Magyar Nemzeti Bank, Norges Bank, Sveriges Riksbank, Bank of England |

*Source: Authors' compilation from Hao et al (2022), Perez-Saiz and Zhang (2023), Horn et al (2023), Farhi et al (2011).*

China has pushed for trade in the RMB since 2007. With the beginning of the Russia-Ukraine war, the RMB is increasingly used in settling merchandise trade, including energy trade, with Russia, and many Southeast Asian, Middle East, African, and Latin American countries. China is also developing alternative payment mechanisms, with world's leading energy and crude oil suppliers, which can further lessen the dependence on the US dollar. China is increasingly relying on imports of crude oil from Russia, and Saudi Arabia. Imports from these countries are growing and are able to meet more than one-third of China's crude petroleum requirement (Figure 3). In return for crude oil, China

is investing heavily in the Middle East and North Africa (MENA) region. Between 2005 and 2021, Chinese investment in the MENA region totalled to $273 billion (ITC, 2023). China accounts for more than a third of Iran's total trade.

**Figure 3. China's Imports of Crude Oil (HS-2709), 2018-2022 ($, Billion)**

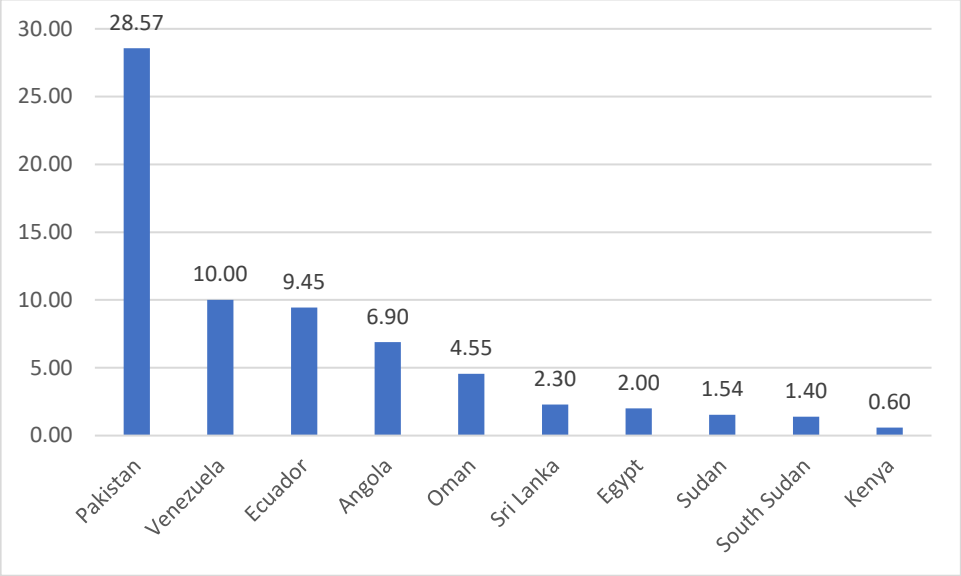



*Source: Authors' compilation from Trade Map, International Trade Centre (ITC), 2023*

In August 2023, the BRICS nations gathered in Durban, South Africa, and discussed the feasibility of introducing a common currency for intra-BRICS trade, aiming to decrease dependency on the US dollar. In the short run, the concept of a common BRICS currency may not take off (Aroul and Swanson, 2018). India may not like the idea of having a BRICS common currency tied with the RMB. However, with many countries eager to join BRICS, the Chinese strategy of having an RMB-backed BRICS common currency may become real.[14] During the August 2023 meeting, BRICS extended membership to Argentina, Saudi Arabia, Egypt, Ethiopia, Iran, and the United Arab Emirates, with the latter four countries joining the block on January 2024. In addition to the RMB backed BRICS common currency, other measures to internationalise the RMB can also be seen, for example, advancement of rescue loans to other countries under the BRI umbrella. Some of the major recipients of rescue loans include Pakistan, Venezuela, Ecuador, Angola, Oman, Sri Lanka, and Egypt (Figure 4).

[14] These countries in terms of regional breakup are as follows: Latin America - Argentina, Nicaragua, Mexico, and Uruguay; Africa - Nigeria, Algeria, Egypt, Senegal, and Morocco; and Asia - Saudi Arabia, the United Arab Emirates, Turkey, Syria, Iran, Afghanistan, Indonesia, Thailand, Kazakhstan, and Bangladesh.

**Figure 4. China's Emergency Rescue lending ($, Billion)**



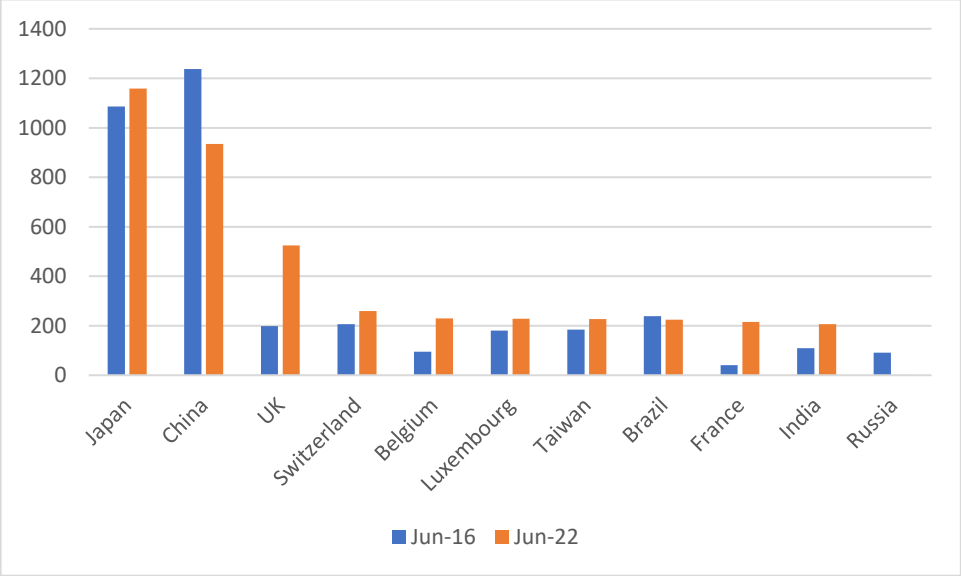

*Source: Authors' compilation from Aiddata (2023). Figures as of December 2022.*

However, the use of the RMB in global financial market transactions has remained low. The reluctance to accept the RMB is because of the lack of liquidity, reliability, and independence of the Chinese monetary authorities and other issues related to cultural differences (de Quadros, et al, 2023). There is capital control, with the domestic market in China still closed to non-residents apart from a handful of qualified foreign investors. Unless the RMB-denominated foreign assets are freely available outside mainland China, it is difficult for the RMB to get a foothold like the US dollar. Considering the global exchange reserves holding 59.8% are in US dollars, followed by 19.7% in Euro, 5.3% in Japanese Yen, 4.6% in British pound, and 2.8% in Chinese RMB (IMF, 2023).

## 4. Gold as an Alternate to the US dollar

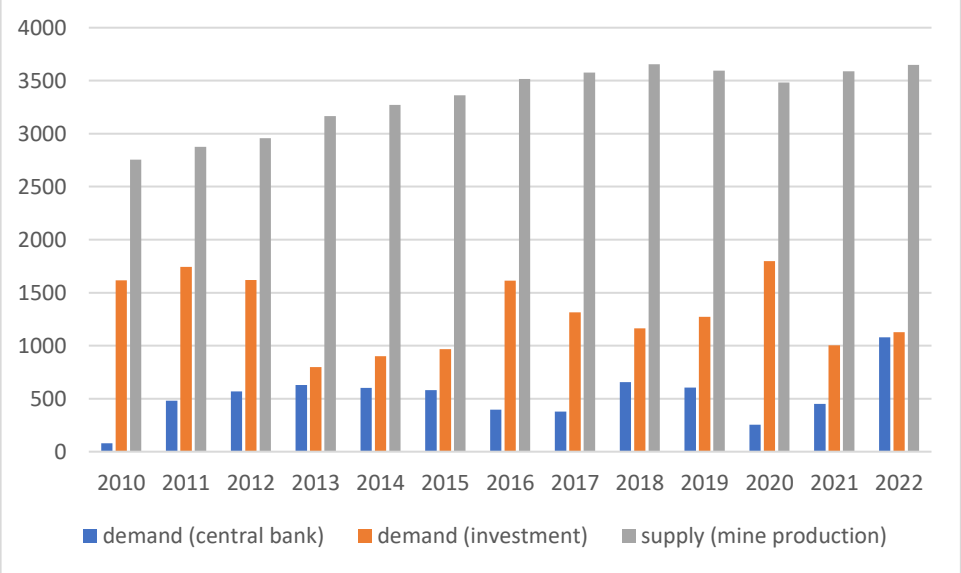
Gold is considered as a hedge against inflation (Baur, 2010), stock volatility and uncertain economic outlook (Beckmann, et al, 2015), and as an asset class that is part of a diversified investment portfolio (Hillier et al, 2006). Studies also demonstrate the role of gold in hedging against the exchange rate risk, particularly in relation to fluctuations in the US dollar (Azimli, 2024). The pandemic, a slower world economic outlook, and the Russia-Ukraine war led to increasing demand for gold. As per the World Gold Council (WGC), demand for gold increased by 18% in 2022, taking the world's gold demand to 4,741 tonnes, the highest for any year since 2011 (WGC, 2023). Economies such as China, Russia, and Brazil have turned out to be net sellers of the US treasury securities, and buying gold (Figure 5 and Figure 6). Central banks' purchase of gold is reflection of increasing trust in gold as a hedging instrument.

**Figure 5. Value of foreign holding of the US long-term treasury securities ($, billion)**




*Source: Authors' Compilation from US Treasury (2017, 2023).*

**Figure 6. Gold supply and demand (tonnes)**




*Source: Authors' compilation from World Gold Council (2023).*

## 5. Advent of CBDCs

Digital technology has accelerated the adoption of CBDCs across various nations. Existing evidence indicates that currency substitution triggered by CBDCs is more prevalent among emerging market economies (Chen and Siklos, 2023). CBDCs have the potential to exert substantial influence on economic activity, with their impact varying depending on the intricacies of their design. Factors such as accessibility, interest rates, transaction costs, privacy features, and interoperability with existing financial systems

can all play a role in shaping how CBDCs affect consumer behavior, monetary policy transmission, financial stability, and overall economic growth (Moro and Landi, 2024). Geopolitical conditions can also impact use of CBDCs. The Russia-Ukraine war has shown that if the US wants it can restrict international transactions by cutting off foreign banks from the SWIFT. Any CBDC comes with the benefit that it can bypass both the US dollar and SWIFT. As a part of its effort to internationalize the RMB and to become independent of the US-dominated financial system, China domestically launched CBDC, called the e-RMB.[15] The US is yet to launch its own CBDC. In addition to China, around hundred more other countries have started experimenting with digital currencies (Table 2). It is argued that China has gained first-mover advantage by rolling out a CBDC albeit the outcome will evolve depending on evolution of the US and Chinese economies (Aysan and Kayani, 2022). With CBDC, the international coordination will eventually allow individuals and businesses to hold multiple digital currencies thereby impacting greater currency substitution and usage. From a payment perspective, CBDC offers several advantages. It helps to reduce costs, mitigate counterfeiting risks, and reinforces the authority of legal tender. Moreover, it can enhance the inclusivity of the payment system, ensuring broader access for all stakeholders (Sun et al., 2017).

**Table 2. Tracking CBDC**

| Status | Countries / Territories | Use case | Cross-border projects |
|---|---|---|---|
| Launched | Nigeria, The Bahamas, Jamaica, Anguilla, Saint Kitts and Navis, Antigua and Barbuda, Montserrat, Dominica, Saint Lucia, Saint Vincent and the Grenadines, Grenada | Retail | • DCash (Anguilla, Saint Kitts and Navis, Antigua and Barbuda, Montserrat, Dominica, Saint Lucia, Saint Vincent and the Grenadines, Grenada) |
| Pilot Stage | Australia, Malaysia, Singapore, Thailand, Hong Kong, Japan, South Korea, Russia, India, China, South Africa, Saudi Arabia, | Retail / Wholesale / Both | • Project Dunbar (Australia, Malaysia, Singapore, South Africa)<br>• Project Ubin, Project Jasper, Onyx/Multiple wCBDC (Singapore)<br>• Project Stella (Japan) |

[15] Besides performing functionalities of physical cash such as medium of exchange and store of value, the CBDC comes with an added advantage such as minimal or no costs for international transactions. Since May 2020, China has been experimenting with the digital RMB, by introducing e-RMB across 15 provinces in China. For a detailed discussion on e-RMB refer to Aysan and Kayani (2022).

| | | | |
|---|---|---|---|
| | UAE, Iran, Kazakhstan, Ukraine, Sweden, Ghana | | • Project Aber (Saudi Arabia, UAE)<br>• mCBDC Bridge (China, UAE, Thailand, Hong Kong)<br>• Project Icebreaker (Sweden, Norway, Israel)<br>• e-CNY/RMB (Hong Kong, Macau)<br>• Project Aurum (Hong Kong)<br>• Project Sela (Hong Kong) |
| Development Stage | Canada, USA, Belize, Haiti, Venezuela, Brazil, Mauritius, Indonesia, Philippines, Palau, Cambodia, Taiwan, Macau, Bhutan, Bahrain, Israel, Turkey, Tunisia, Italy, Austria, France, Germany, Netherlands, Euro Area, UK, Norway | Retail / Wholesale / Both | • Project Jasper (Canada)<br>• Digital Euro (Spain, France, Italy, Germany, Netherlands, Estonia, Finland, Euro Area)<br>• Project Helvetia, Project Jura, Project Mariana (Switzerland) |
| Research (40) | Mexico, Guatemala, Honduras, Trinidad and Tobago, Colombia, Peru, Paraguay, Chile, Belarus, Czech Republic, Hungary, Montenegro, Georgia, Azerbaijan, Jordan, Morocco, Qatar, Oman, Pakistan, Nepal, Bangladesh, Myanmar, Laos, Vietnam, Eritrea, | Retail / Wholesale / Both | |

| | | | |
|---|---|---|---|
| | Uganda, Kenya, Rwanda, Tanzania, Zambia, Zimbabwe, Namibia, Eswatini, Madagascar, New Zealand, Solomon Island, Vanuatu, Fiji, Tonga | | |
| Inactive | Iceland, Denmark, Egypt, Lebanon, Palestine, Kuwait, Benin, North Korea, Uruguay, Argentina, Bermuda, Sint Maarten, Curacao, Costa Rica | Retail | |

*Source: Authors' compilation from Central Bank Digital Currency Tracker (Atlantic Council: https://www.atlanticcouncil.org/cbdctracker/). This is the state of the CBDC as on April, 2023.*

The demand for CBDCs is likely to rise as they offer solutions to contemporary challenges in monetary policy. These include improving policy transmission efficiency, streamlining regulation of conversion periods, curbing the migration of funds from the real economy to the virtual one, and bolstering the ability to monitor international capital flows. Consequently, CBDCs hold promise in combating issues such as money laundering, terrorist financing, and tax evasion (Tronnier, 2021). Going forward CBDCs and alternate type of financial systems such as use of digital payments, credit cards, etc., can help the central banks around the world to establish an alternative cross-border payment system (Kuehnlenz et al, 2023; Lubis et al, 2019).

Immediately, the threat to the US dollar may not be there as many developing countries lack adequate technology and financial infrastructure to launch CBDC. However, China's initiative of having its own CBDC has led other countries to develop digital currencies of their own. These countries are now working as to how to integrate the same with other CBDCs. For example, mBridge is a platform developed by the Hong Kong Monetary Authority, has the People's Bank of China, central banks from Thailand, the United Arab Emirates, and the Bank of International Settlement as members, which is aimed towards supporting real-time, peer-to-peer, cross-border payments and foreign exchange transactions using CBDCs. Similarly, Project Dunbar is being piloted by Australia, Malaysia, Singapore, and South Africa. UAE and Saudi Arabia, who had politically hostile

relations, have piloted Project Aber. Once CBDCs start operating on a global scale, there could be reduced dependence on the US dollar.

## 6. The Productivity Factor

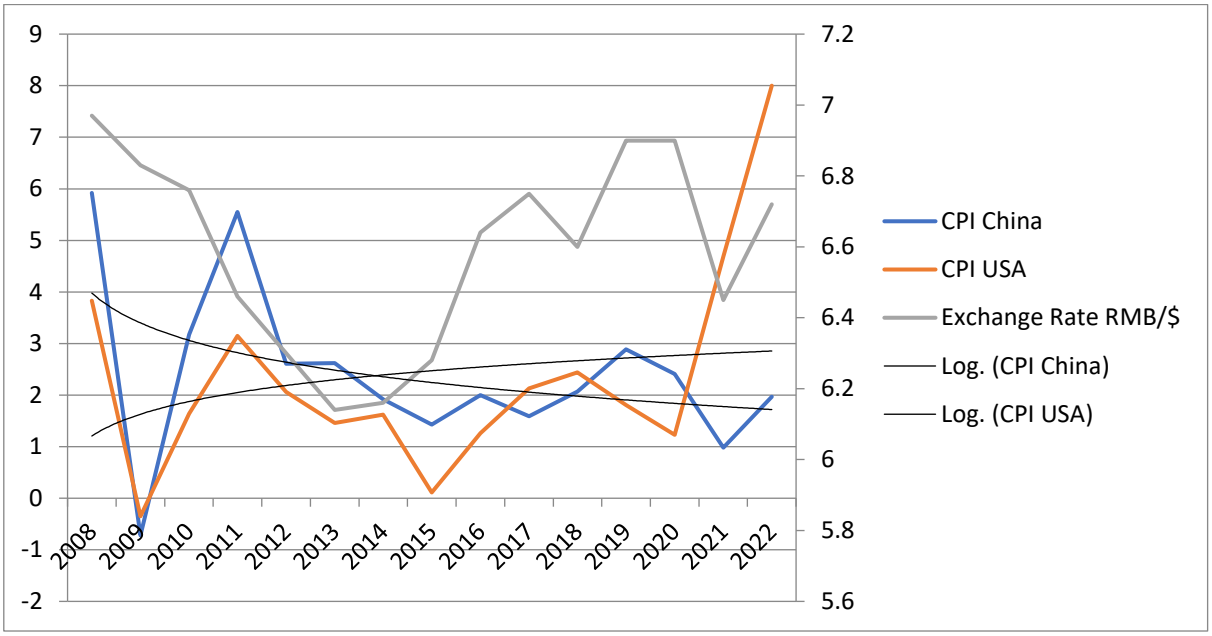
The celebrated Harrod-Balassa-Samuelson (HBS) framework elucidates the relationship between productivity growth and the real exchange rate (Lee and Tang, 2007; Balassa, 1964; Samuelson, 1964). The HBS framework is intuitive: if productivity increases solely in the home country's traded-goods sector, then, assuming perfect competition, the marginal costs for domestic firms in that sector will decrease.[16] This leads to increased wages in the traded-goods sector at given prices. As labour moves from the non-traded-goods sector to the traded-goods sector in response to higher wages, wages rise in the non-traded-goods sector until they equalize across sectors. However, as the increase in wages in the non-traded-goods sector is not matched by productivity gains, firms in that sector must raise their prices. Consequently, the relative price increase of non-traded to traded goods results in a real exchange rate appreciation (based on broad price indices), without undermining the international price competitiveness of firms in the traded-goods sector.

Between 2009 and 2012, the US government ran a deficit of more than $1 trillion every year (Federal Bank of St Louis, 2023). In 2020 and 2021 the US fiscal deficits were $3.13 trillion and $2.77 trillion, respectively (*Ibid.*). Inflation, measured in terms of the Consumer Price Index (CPI) showed an upward trend. The trend of inflation rates (measured by the logarithm of CPI) suggests that for the US inflation rates went up, but for China, it went down (Figure 7). Going by the Law of One Price (LOOP), the US dollar should depreciate.[17] However, considering China, which is among the US's largest trading partner till 2022, we find the RMB depreciated against the US dollar.

[16] There are two measures of productivity – labour productivity and total factor productivity (TFP). HBS framework works well when productivity is measured in terms of labour productivity. When productivity is measured using TFP, then the correlation between the exchange rate and the productivity differential is not statistically significant (Lee and Tang, 2007).

[17] The LOOP suggests that in efficient markets, identical goods should have the same price when expressed in a common currency. That is, the real exchange rate which is expressed as $e \times \frac{p^*}{p}$ is equal to unity. Here e is nominal exchange rate, p* is foreign price, and p denotes domestic price.

**Figure 7. Inflations Rates in China and USA; and the Exchange Rates (RMB/$)**




*Source: World Bank and Federal Bank of St Louis (2023).*

High inflation numbers in the US did not depreciate the US dollar against the RMB. This may be because of the labour productivity difference between these two countries. As per International Labour Organization (ILO) estimates, adjusting for the working population, China is producing an output of $7,318 per worker. This is below the US standard which is $98,990 per worker (ILO, 2023). The US economy did not slow. During the last two quarters of 2022, the US economy grew by 3.2% and 2.6% (Federal Bank of St Louis, 2023).

## 7. Conclusion

Despite the surge in the use of the RMB, the US dollar will likely continue its position as a global currency. The USA has a demographic balance, technological advantages, and research and development that can generate endogenous growth to ensure that its large economic status continues for decades. Due to the development of financial markets and the convertibility of currencies, market practitioners and traders are often influenced to prefer the US dollar over the RMB. However, some structural shifts are occurring due to changes in geopolitical scenarios. Geopolitical tensions, trade disputes, and shifts in global alliances are influencing the patterns of trade flows and altering the dynamics of currency demand. As countries reassess their trade strategies and alliances, the traditional drivers of currency demand may undergo significant transformations, impacting the use of the US dollar in the global economy. The reason why some of the world's leading energy and crude oil suppliers such as Iran, Russia, and Saudi Arabia are willing to trade in currencies other than the US dollar has to do with commitments by the EU region and the US towards green energy. The EU in particular is in a path of abandoning fossil fuels. The environmental regulations, example, Carbon Border

Adjustment Mechanism (CBAM) and Inflation Reduction Act, requiring the reduction of carbon footprint will make it difficult for the economies in Africa, Asia, and Latin America to trade with the EU and the US. The CBAM implemented by the EU and the Inflation Reduction Act passed in the US have incorporated environmental considerations into trade regulations. The EU region, in particular after the outbreak of Russia-Ukraine war is adopting green energy. China too is in the path of rapid deployment of renewable energy in the country's energy basket. However, several emerging economies in Asia, Africa and Latin America are still using fossil fuels and continue to remain a big market for the oil-producing nations. The decline of petrodollar could also be attributed to the US becoming a big producer of petroleum energy, among others.

When it comes to China, owing to the development stage, the country still needs fossil fuel such as oil. China has emerged as an alternate trading partner for the global south and Russia especially for energy and commodities. China's efforts since the 2007-08 financial crisis reflect its ability to reduce dependence on the US dollar in its international transactions, showcasing the capabilities of the world's second-largest economy in diversifying its currency usage. Nevertheless, China must undertake significant structural reforms, particularly in the financial sector, before it can begin to replace the US dollar. In an optimistic scenario, given the supply chain that China has built in the Asian region it may be possible for the RMB to dislodge the Japanese yen in the near term. The degree to which the RMB substitutes for the US dollar will evolve as the factors identified in the paper change for better or worse.

## List of references


Aroul, R.R. & Swanson, P.E., (2018). Linkages between the foreign exchange markets of BRIC countries—Brazil, Russia, India and China—and the USA, *Journal of Emerging Market Finance*, Vol.17, No.3, pp.333-353.

Asadi, M., Roubaud, D. & Tiwari, A. K. (2022). Volatility spillovers amid crude oil, natural gas, coal, stock, and currency markets in the US and China based on time and frequency domain connectedness, *Energy Economics*, 109: 105961.

Aysan, A. A., & Kayani, F.N. (2022). China's transition to a Digital Currency Does it Threaten Dollarization? *Asia and the Global Economy*, Vol.2 No.1: pp 1-6.

Azimli, A. (2024). Is gold a safe heaven for the U.S. dollar during extreme conditions? *International Economics*, 177: 100478.

Bahmani-Oskooee, M., Bahmani, S., Kutan, A. M. & Xi, D. (2019). On the asymmetric effects of exchange rate changes on the demand for money: Evidence from emerging economies, *Journal of Emerging Market Finance*, Vol. 18 No. 1, pp 1-22.

Balassa, B. (1964). The purchasing-power parity doctrine: a reappraisal. *Journal of political Economy*, Vol. *72, No.* 6, pp. 584-596.

Banik, N., & Velamuri, S. R., (2023). The 'What,''Why,'and 'How'of a Widening Current Account Deficit, *Economic & Political Weekly,* Vol 58, No 3, pp 38-43.

Banik, N. (2009). Does the Crisis Alter Indian Trade Priorities, in S. Evenett (eds.), *The Unrelenting Pressure of Protectionism: The 3rd GTA Report*, Center for Economic Policy Research, London

Baur, D. G., & Lucey, B. M. (2010). Is gold a hedge or a safe haven? An analysis of stocks, bonds and gold, *Financial Review,* Vol 45, No. 2: pp 217-229.

Beckmann, J., Berger, T. & Czudaj, R. (2015). Does gold act as a hedge or a safe haven for stocks? A smooth transition approach, *Economic Modelling,* Vol. 48: pp 16-24.

Berman, N (2023). What Happens when the U.S. hits Its Debt Ceiling? Council on Foreign Relations, New York, USA. Available at https://www.cfr.org/backgrounder/what-happens-when-us-hits-its-debt-ceiling

Bernanke, S. B. (2005). The Global Savings Glut and the US Current Account Deficit, *Federal Reserve Board, Sandridge Lecture,* Virginia Association of Economists, Richmond, Virginia, 10 March.

Chen, H. & Siklos, P. L. (2023). Currency substitution in a world of looming retail CBDCs: Suggestive currency substitution-based evidence, *Journal of International Financial Markets, Institutions and Money*, 88: 101828.

Cheung, Y.-W., Ma, G. & McCauley, R. N. (2011). Remminbising China's foreign assets, *Pacific Economic Review*, 16(1): 1-17.

Das, K. C. (2022). Economic interdependence since COVID-19: China and South Asia. *China Report*, Vol. 58 No. 2, pp 131-151.

de Quadros, S. E. G., & de Azevedo, A. F. Z. (2023). The Internationalization of Renminbi: The View of Brazilian Companies Regarding the Internationalization Process of Chinese Currency, *The Chinese Economy,* Vol. 56, no. 2, pp 147-162.

Dornbusch, R. & Fischer, S. (1980). Exchange Rates and Current Account. *The American Economic Review*, Vol. 70, No. 5, pp 960-971.

Dua, P. & Tuteja, D. (2016). Financial crises and dynamic linkages across international stock and currency markets, *Economic Modelling*, 59: 249-261.

Farhi, E. (2019). Toward a multipolar system, *Finance & Development,* International Monetary Fund, June, pp 38-39.

Farhi, E., Gourinchas, P.-O. & Rey, H. (2011). *Reforming the international monetary system*, Centre for Economic Policy Research Press: London.

Federal Bank of St. Louis (2023). FRED Economic Data. Available at https://fred.stlouisfed.org/series/DEXINUS

Gopinath, G. (2024). Geopolitics and its impact on global trade and the dollar, Speech, Series on the future of the international monetary system, Stanford Institute for Economic Policy Research, May 7. Available at https://www.imf.org/en/News/Articles/2024/05/07/sp-geopolitics-impact-global-trade-and-dollar-gita-gopinath

Gopinath, G. & Itskhoki, O. (2022). Dominant currency paradigm: A review, in Gopinath et al. (eds) *Handbook of International Economics*, Vol 6, pp. 45-90.

Hao, K., Han, L. & Li, T. W. (2022). The impact of China's currency swap lines on bilateral trade, *International Review of Economics & Finance*, Vol. 81, pp 173-183.

Hillier, D., Draper, P.& Faff, R. (2006). Do precious metals shine? An investment perspective, *Financial Analysts Journal*, Vol. 62, No. 2, pp 98-106.

Horn, S., Parks, B. C., Reinhart, C. M. & Trebesch, C. (2023). China as an international lender of last resort, Working Paper No. 2244, Kiel Institute for the World Economy.

ILO (2023). ILOSTAT, International Labour Organization. Available at https://ilostat.ilo.org/topics/labour-productivity/

IMF (2016). IMF launches new SDR basket including Chinese *Renminbi*, Determines new currency amounts, Press Release No. 16/440, International Monetary Fund. Available at https://www.imf.org/en/News/Articles/2016/09/30/AM16-PR16440-IMF-Launches-New-SDR-Basket-Including-Chinese-Renminbi

_____ (2022). IMF executive board concludes quinquennial SDR valuation review and determines new currency weights for SDR valuation basket, Press Release No. 22/153, International Monetary Fund. Available at https://www.imf.org/en/News/Articles/2022/05/14/pr22153-imf-board-concludes-sdr-valuation-review

ITC (2023). Trade Map: Trade Statistics for international business development. Available at https://www.trademap.org/Index.aspx

Kuehnlenz, S., Orsi, B. & Kaltenbrunner, A. (2023). Central bank digital currencies and the international payment system: The demise of the US dollar? *Research in International Business and Finance*, Vol 64, pp 101834.

Lee, J. & Tang, M.-K. (2007). Does productivity growth appreciate the real exchange rate? *Review of International Economics*, Vol. 15, No. 1, pp. 164-187.

Liu, T., Wang, X. & Woo, W. T. (2022) The rise of Renminbi in Asia: Evidence from network analysis and swift dataset, *Journal of Asian Economics*, 78: 101431.

Lubis, A., Alexiou, C. & Nellis, J.G., (2019). Gauging the impact of payment system innovations on financial intermediation: Novel empirical evidence from Indonesia, *Journal of Emerging Market Finance*, Vol 18, No. 3, pp.290-338.

Mahapatra, S. & Bhaduri, S. N. (2019). Dynamics of the impact of currency fluctuations on stock markets in India: Assessing the pricing of exchange rate risks, *Borsa Istanbul Review*, Vol. 19, No.1, pp.15-23.

Markowitz, H. (1952). Portfolio Selection, *The Journal of Finance*, Vol. 7, No. 1, pp. 77-91.

Moro, A. & Landi, V. N. (2024). The external financial spillovers of CBDCs, *Journal of Economic Dynamics and Control*, Vol. 159, pp. 104801.

Perez-Saiz, H. & Zhang, L. (2023). Renminbi usage in cross-border payments: Regional patterns and the role of swap lines and offshore clearing banks, WP/23/077, International Monetary Fund.

Samuelson, P. A. (1964). Theoretical notes on trade problems. *The review of economics and statistics*, Vol. 46, No. 2, pp 145-154.

Sun, H., Mao, H., Bai, X., Chen, Z., Hu, K. & Yu, W. (2017). Multi-blockchain model for central bank digital currency. In: *2017 18th International conference on parallel and*

*distributed computing, applications and technologies (PDCAT)*, pp. 360-367. IEEE, 2017.

The Economist (2024). The fight to dethrone the dollar, May 3. Available at https://www.economist.com/special-report/2024/05/03/the-fight-to-dethrone-the-dollar

Tronnier, F. (2021). Privacy in payment in the age of central bank digital currency. In *Privacy and Identity Management: 15th IFIP WG 9.2, 9.6/11.7, 11.6/SIG 9.2. 2 International Summer School, Maribor, Slovenia, September 21–23, 2020, Revised Selected Papers 15* (pp. 96-114). Springer International Publishing.

Tung, C.-Y., Wang, G.-C. & Yeh, J. (2012). Renminbi internationalization: Progress, Prospect and Comparison, *China & World Economy*, Vol. 20, No. 5, 63-82.

US Treasury (2017). Foreign Portfolio Holdings of U.S. Securities as of June 30, 2016, Department of Treasury, Federal Reserve Bank of New York. Available at https://ticdata.treasury.gov/Publish/shla2016r.pdf

_____ (2022). Available at https://fiscaldata.treasury.gov/datasets/historical-debt-outstanding/historical-debt-outstanding

_____ (2023). Foreign Portfolio Holdings of U.S. Securities as of June 30, 2022, Department of Treasury, Federal Reserve Bank of New York. Available at https://home.treasury.gov/system/files/136/shl2022_report.pdf

WDI (2023). World Development Indicators Databank, Last Updated: May 2023, World Bank.

World Gold Council (2023). Historical Demand and Supply, Last updated: May 2023. Available at https://www.gold.org/goldhub/data/gold-demand-by-country.

The Asia-Pacific Research and Training Network on Trade - ARTNeT - is an open network of research and academic institutions and think-tanks in the Asia-Pacific region. Since its inception, ARTNeT aims to increase the amount of high quality, topical and applied research in the region by harnessing existent research capacity and developing new capacities. ARTNeT also focuses on communicating these research outputs for policymaking in the region including through the ARTNeT Working Paper Series which provide new and policy–relevant research on topics related to trade, investment and development. The views expressed in this publication are those of the authors and do not necessarily reflect the views of the United Nations and ARTNeT secretariat or ARTNeT members.



This and other ARTNeT publications are available from **artnet.unescap.org**

ARTNeTontrade

@ARTNeTontrade

ARTNeT Group

artnetontrade@un.org

ARTNeT Secretariat, United Nations ESCAP

Rajadamnern Nok Avenue

Bangkok 10200, Thailand

Tel: +66(0) 22881425

Fax: +66(0) 22881027