U.S. DOLLAR DOMINANCE IN TRADE INVOICING AND CROSS-BORDER INVESTMENTS IN SEACEN ECONOMIES

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The SEACEN Centre

The South East Asian Central Banks (SEACEN) Research and Training Centre
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This SEACEN collaborative research project (RP1 2025), entitled: *U.S. Dollar Dominance in Trade Invoicing and Cross-Border Investments in SEACEN Economies"*, should not be reported as representing the views of SEACEN member central banks/monetary authorities. The views expressed in this report are those of The SEACEN Centre and do not necessarily represent those of its member central banks/monetary authorities.

Notes:

- The SEACEN Centre recognises "China" as the People's Republic of China," "Hong Kong, China" as the Hong Kong SAR, China, and "Korea" as the Republic of Korea.

- USD or US$ refers to the U.S. dollar.

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FOREWORD

The U.S. dollar (USD) has anchored the international monetary system since WWII, serving as the world's primary medium of exchange and reserve currency. This dominance was cemented by the Bretton Woods system and the historical size of U.S. gold reserves. Even after the gold standard ended, the USD's role persisted due to the unrivaled depth, liquidity, and institutional credibility of U.S. financial markets, creating powerful network effects that make it the default currency for trade and international debt issuance.

The single reserve currency system enhances global liquidity and reduces transaction costs due to network effects. Nevertheless, it creates significant asymmetries between the issuing economy and other economies. The reserve currency issuer benefits from increased monetary policy flexibility and expanded fiscal capacity, though the "Triffin Dilemma" emphasises tensions between domestic priorities and international obligations. Conversely, other economies face constraints on their monetary independence, increased susceptibility to dollar-related shocks, and complexities in exchange rate and capital flow management. For emerging market economies, these limitations manifest as difficulties such as the "original sin" of foreign currency borrowing and heightened sensitivity to movements in U.S. interest rates. In response, these economies often accumulate USD reserves to manage risk, which may result in inefficiencies in capital allocation and potentially divert resources away from promising domestic investment opportunities.

Policymakers have introduced various mechanisms to mitigate dollar dependence and enhance monetary autonomy. At the global level, the IMF's Special Drawing Rights (SDRs) serve as an alternative reserve asset. Regionally, SEACEN economies are adopting Local Currency Settlement Frameworks (LCSF) and bilateral swap lines to promote the use of local currencies in trade. Other measures include deepening domestic capital markets, implementing macroprudential FX regulations, and exploring Central Bank Digital Currencies (CBDCs) to enhance efficiency and reduce costs of cross-border payment systems.

The findings in this collaborative research project reveal that de-dollarisation faces steep institutional hurdles despite ongoing regional initiatives. In Cambodia, prevalent dollarisation is a legacy of past instability, while in Malaysia and Vietnam, over 80% of trade remains USD-invoiced reflecting their extensive participation in global value chains. Studies in Thailand and Korea suggest that "invoicing inertia" and high transaction costs for non-dollar pairs are associated with the prominent use of the USD. While regional connectivity continues to improve, the USD remains the currency of choice for trade and finance across the region.

We are very grateful to Prof. Hiro Ito (Visiting Research Economist, RP1-2025) for his guidance and support on this SEACEN collaborative research project. We also thank the researchers from SEACEN member central banks for their country case studies and background papers. They are Nem Makara and Nget Sreynuch from the National Bank of Cambodia, Hsin-Mien Wang from the Central Bank of Chinese Taipei, Do Thu Hang from the Banking Academy of Vietnam, Chew Chern-I, Law Lee Jia, and Mohd Zaidi Mahyuddin from Bank Negara Malaysia, Mintrapan Chaeng-lum, Nuwat Nookhwun, and Jettawat Pattararangrong from the Bank of Thailand, Sang Woo Park from the Bank of Korea, and Joan Christine S. Allon-Pineda, Ivan Cenon V. Bernardo, Earl D. Dorado, and Jose Adlai M. Tancangco from Bangko Sentral ng Pilipinas.

Finally, I wish to express my sincere appreciation to the SEACEN team for their support and management of the research project. Dr. Rogelio Mercado, Senior Economist, took the lead for this collaborative research initiative and managed the publication process under the overall oversight of Dr. Ole Rummel and Dr. Donghyun Park as former and current Director of Macroeconomics and Monetary Policy Management Pillar. Mr. Ahmad Aizudeen assisted with research and facilitated the production of this study. Ms. Yun Yee Seow edited the draft chapters, while Mr. Zamri Abu Bakar of Zabriz Enterprise handled the design, typesetting, and layout of this publication. Dr. Ole Rummel, Dr. Meltem Chadwick, and Dr. Nur Ain Shahrier provided valuable comments and suggestions during the interim workshop.

Dr. Cynyoung Park
Executive Director
The SEACEN Centre

ABSTRACT

The international monetary system (IMS) since the end of World War II has been characterised by the dominant role of the United States dollar (USD). The dollar functions as the world's primary medium of exchange, unit of account, and store of value in international transactions. Its influence is evident across a wide range of global economic activities, including trade invoicing, foreign exchange trading, cross-border banking, global reserves management, debt issuance, and commodity pricing. The prominence of the USD reflects not only the economic size of the United States but also the depth, liquidity, credibility, and institutional strength of U.S. financial markets.

This eBook examines the mechanisms through which USD dominance shapes macroeconomic and financial conditions, particularly in emerging market economies (EMEs) in East and Southeast Asia. The widespread use of the dollar creates both benefits and vulnerabilities. On the one hand, it facilitates global liquidity, reduces transaction costs, and provides a stable reference point for international financial markets. On the other hand, it can constrain monetary policy autonomy in countries that rely heavily on dollar-denominated borrowing or maintain exchange rate stability against the USD. Such dependence exposes these economies to fluctuations in global dollar liquidity and U.S. monetary conditions.

For SEACEN economies, understanding the mechanisms and implications of USD dominance is particularly important. The country-specific studies presented in this eBook examine how economies in the region engage with, adapt to, and are constrained by the dollar-based international monetary system. Together, these analyses provide insights into the challenges and policy considerations faced by emerging economies operating within a global financial system centered on the U.S. dollar.

Each chapter following the introduction is written by researchers from several central banks in the region: Cambodia (Chapter 2), Chinese Taipei (Chapter 3), Vietnam (Chapter 4), Malaysia (Chapter 5), Thailand (Chapter 6), the Republic of Korea (Chapter 7), and the Philippines (Chapter 8). In each chapter, the authors examine the extent to which the U.S. dollar is used in their economies, the factors explaining its widespread use, the policy measures undertaken to reduce the prominence of the dollar, and the degree to which these measures have been successful in mitigating overreliance on the dollar in trade and financial transactions.

One common finding across the chapters is that all economies continue to rely heavily on the U.S. dollar as the principal currency for cross-border financial transactions and international trade. At the same time, these economies are deeply integrated into global supply chains and benefit from lower transaction costs and reduced exchange rate risks associated with dollar use. Nevertheless, many of the sample economies also face the disadvantages of a U.S. dollar-centred international monetary system, particularly the uncertainty and volatility arising from spillovers of U.S. monetary policy.

Historically, many developing and emerging economies, including those in East and Southeast Asia, have experienced the problem known as "original sin," referring to the inability to issue external in their own currencies and the resulting exposure to the monetary policy of major currency issuers, especially the United States. For decades, EMEs have struggled with the challenges associated with this structural constraint. In general, the more an economy relies on the U.S. dollar, the more vulnerable it becomes to external shocks originating in the United States and the more limited its monetary policy autonomy becomes.

Nevertheless, some policy initiatives aimed at alleviating the problem of original sin have achieved meaningful progress. Several economies have increasingly issued debt in their own local currencies. In addition, countries such as Indonesia, Malaysia, and Thailand have made progress in promoting local currency settlements in international trade. At the same time, recent geopolitical developments have highlighted another dimension of dollar dominance. As seen in sanctions imposed on countries such as Iran, North Korea, and Russia, the United States has increasingly used its currency as an instrument of geopolitical influence. While most of the sample economies are not currently direct targets of such geopolitical measures, these developments nonetheless underscore the broader strategic implications of the dollar-centred global financial system.

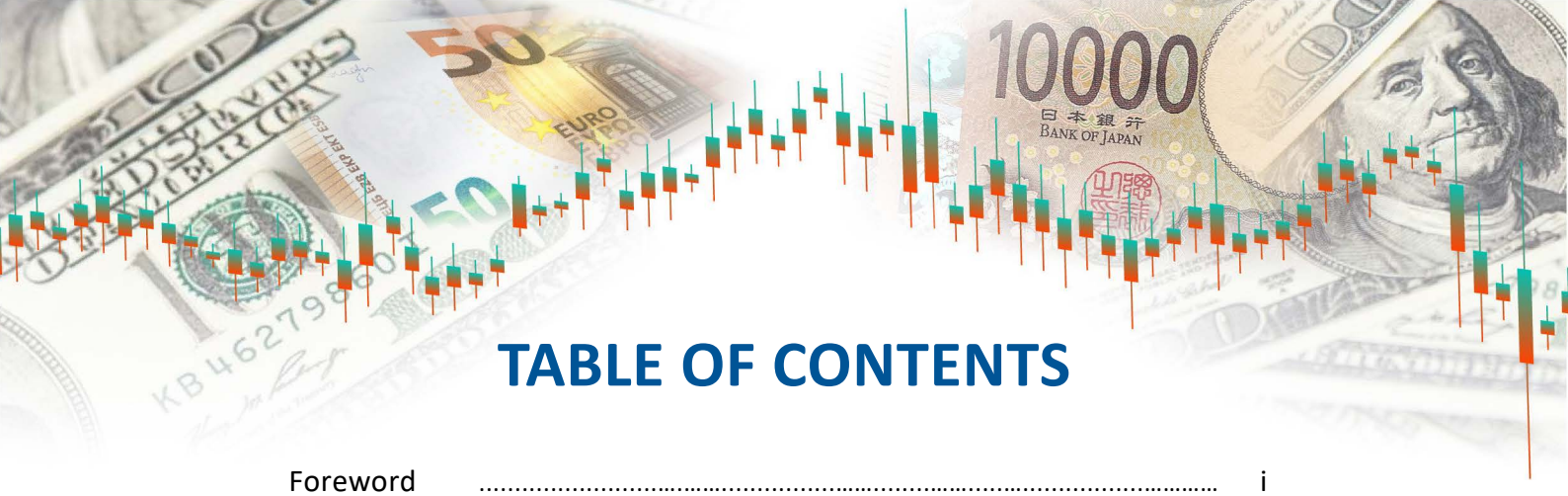


TABLE OF CONTENTS

CHAPTER 2
The Impact of U.S. Dollar Usage on Export Performance: The Case of Cambodia
by **Nem Makara** and **Nget Sreynuch**

CHAPTER 3
U.S. Dollar in Trade Invoicing and Cross-border Investments in Chinese Taipei
by **Hsin-Mien Wang**

CHAPTER 4

U.S. Dollar Dominance in Vietnam: Challenges and the Path to Diversification

by **Hang Thu Do**

CHAPTER 5

Malaysia's Structural Change and the Push for Local Currency Use

by **Mohd Zaidi Mahyuddin, Chew Chern-I** and **Law Lee Jia**

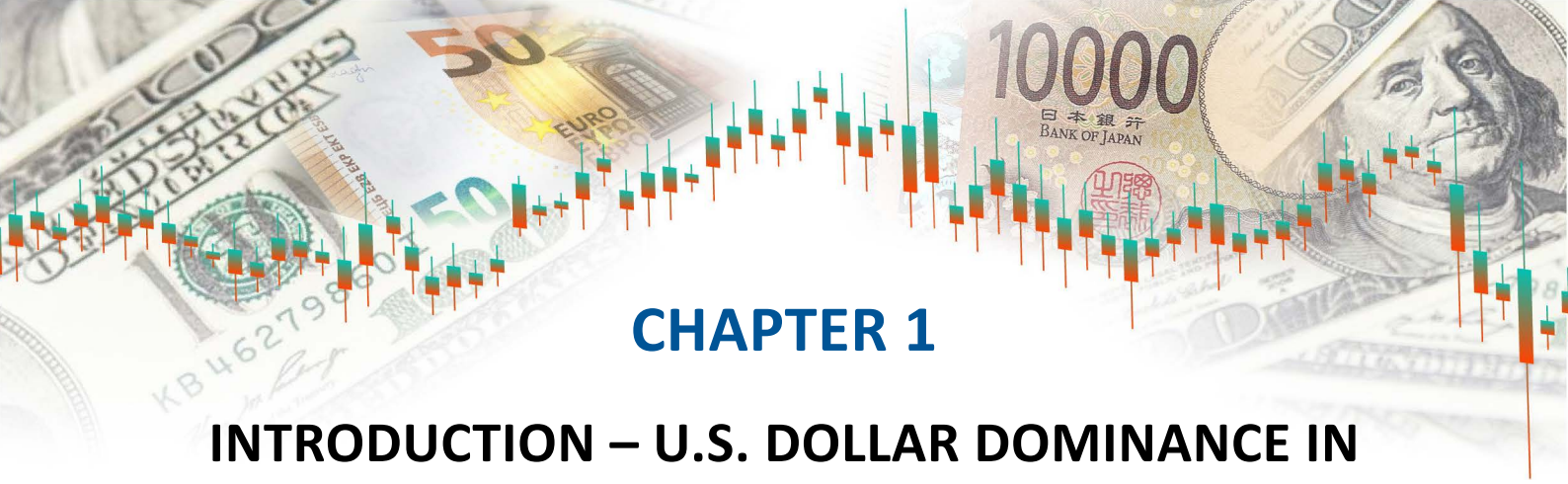
CHAPTER 6
U.S. Dollar Dominance and the Role of Local Currency Settlement Framework: Evidence from Thai Exports
by **Mintrapan Chaeng-Lum, Nuwat Nookhwun** and **Jettawat Pattararangrong**

CHAPTER 7
U.S. Dollar Dominance Challenges and Policy Implications for Korea – Determinants of U.S. Dollar Invoicing in Korea's Trade
by **Sang Woo Park**

CHAPTER 8

U.S. Dollar Dominance in Cross-Border Trade and Finance: Risks and Mitigation Efforts for The Philippines

by **Joan Christine S. Allon-Pineda, Ivan Cenon V. Bernardo, Earl D. Dorado** and **Jose Adlai M. Tancangco**



CHAPTER 1

INTRODUCTION – U.S. DOLLAR DOMINANCE IN THE GLOBAL ECONOMY

Hiro Ito, Portland State University, and
Cynyoung Park, SEACEN

1. Introduction

The dominance of the United States dollar (USD) is one of the defining structural features of the Post-World War II international monetary system. For more than seven decades, the USD has served as the world's primary medium of exchange, unit of account, and store of value in cross-border transactions. Its unrivaled role is visible in international trade invoicing, global reserves management, foreign exchange (FX) trading, cross-border banking, debt issuance, and the pricing of commodities.

This chapter introduces the core concepts, mechanisms, and implications of USD dominance for the global economy, setting the foundation for the country-specific studies that follow in later chapters. It explains how and why the USD became the preeminent international currency, examines the channels through which USD dominance shapes macroeconomic and financial conditions in emerging market economies (EMEs), and outlines the challenges and limits of global de-dollarisation efforts.

The wide use of the USD matters not only because of the economic weight of the United States, but also because of the depth, breadth, credibility, and institutional strength of U.S. financial markets. The dollar anchors a large global currency zone, influences the monetary autonomy of economies far beyond U.S. borders, and provides a benchmark for safe assets that are essential for global liquidity. Yet USD prominence also creates vulnerabilities, asymmetries, and tensions – particularly for EMEs that rely heavily on USD-denominated borrowing or maintain exchange rate stability against the dollar.

2. Brief Review of the International Monetary System

USD dominance is not accidental – it is the product of economic and non-economic (i.e., military, diplomatic, geopolitical, and technological) might and credibility as well as institutional development and network externalities. During and immediately after the World War II, the efforts to rebuild the international economic system led to the

establishment of the Bretton Woods system in 1944 which oversaw the international monetary system through the IMF and postwar reconstruction and development through the World Bank. In addition, the General Agreement on Tariffs and Trade was established in 1947 to promote trade liberalisation.

During the war, European States transferred massive amounts of gold to the United States to pay for the cost of the war and prevent the seizure of gold by the Axis Powers. By 1947, the U.S. had accumulated about 70% of the global gold reserves. The USD became the anchor currency of the Bretton Woods System on the back of the supremacy of the U.S. economy, massive gold reserves, and its convertibility to gold. Even after the Bretton Woods collapsed in 1971, the global economy continued to rely on USD because of the size and stability of U.S. financial markets.

The use of a single national currency or precious metal (e.g., gold and silver) as the global reserve assets constitutes a major structural flaw of a fixed exchange rate arrangement such as the Bretton Woods system. The conundrum of the USD as the global reserve currency is best known as the Triffin Dilemma, which is described as the conflict between domestic monetary policy goals and the international responsibility to supply global liquidity.

The USD became the dominant currency for global trade, and the U.S. economy faced growing global demand for dollars as Japan and West Germany expanded rapidly in the 1960s. Around the same period, rising U.S. expenditures on welfare reforms and the Vietnam War made it increasingly difficult to maintain external balance, generating USD depreciation pressures and speculative attacks on the dollar. In the late 1960s and early 1970s, investors began converting their dollar holdings into gold. In 1971, President Nixon announced the suspension of the USD's convertibility into gold, putting an end to the Bretton Woods system.

It became obvious that a single national currency cannot effectively serve as the global reserve currency. In 1969, the IMF created the Special Drawing Right (SDR) as an international reserve asset to address the Triffin Dilemma and supplement the member countries' official reserves instead of gold. In 1974, the SDR was valued against a basket of currencies [the United States dollar (USD), the French franc (FRF), the German deutsche mark (DEM), the British pound (GBP), and the Japanese yen (JPY)], moving away from gold or just USD.[1]

After the collapse of the Bretton Woods system, the world has split into two camps – one with major currencies that float freely with free flows of capital, and the other with varying degrees of capital controls and exchange rate managements (Ghosh et. al. 2010; IMF. 2010). Since the early 1980s, cross-border capital flows increased

1. Beginning in 1974, the SDR was defined by a basket of 16 currencies. In 1980, this structure was replaced by a five-currency basket consisting of the USD, DEM, FRF, GBP, and JPY.

substantially following waves of financial deregulation and liberalisation. Financial liberalisation first gained momentum in the 1980s among industrialised economies – many of them European countries seeking to promote economic and monetary integration – as well as in Latin American countries, where financial opening was viewed as a means of supplementing domestic saving. In the 1990s, emerging market economies (EMEs) in Asia followed suit, liberalising their financial markets largely to finance private investment. By the turn of the millennium, the growing volume and volatility of private capital flows had fueled unsustainable credit booms and asset bubbles in recipient countries, which increased vulnerability to sudden reversals (capital flight) during periods of financial stress and crises.

Despite the demise of the Bretton-Woods system, the international monetary system (IMS) continues to suffer from several structural weaknesses that contribute to financial instability. The current IMS lacks a comprehensive, globally agreed-upon framework to facilitate the adjustment of global imbalances. Instead, the IMS relies on undisciplined national policies, which often place a disproportionate burden on deficit countries to adjust their policies through austerity or currency depreciation. On the other hand, surplus countries face less pressure to reduce their excess reserves or stimulate domestic demand. The lack of international policy coordination can let major imbalances continue to grow without corrections, as some large economies can continue unsustainable growth or spending trajectories for an extended period. But there is no systematic, permanent mechanism for providing sufficient international liquidity during a widespread crisis, particularly for EMEs, when global liquidity dries up.

Related uncertainty and risks increased demand for foreign reserve accumulation. Countries hold foreign exchange reserves for various reasons including (i) enhancing credibility of monetary and foreign exchange policies, (ii) reducing external vulnerability by providing a cushion against external shocks with foreign currency liquidity, and (iii) defending the currency in a time of crisis. During financial crises, EMEs witnessed that international reserves played a crucial role in stabilising foreign exchange markets. Furthermore, sufficient holdings themselves preemptively deterred speculative positions on EME currencies. Ironically, increased demand for foreign reserves has solidified the role of USD as the global reserve currency, as it was concentrated in USD assets, especially U.S. Treasuries. This has made it difficult for the U.S. to achieve internal and external equilibrium.

3. Measuring Dollar Dominance

Dollar Dominance in International Trade

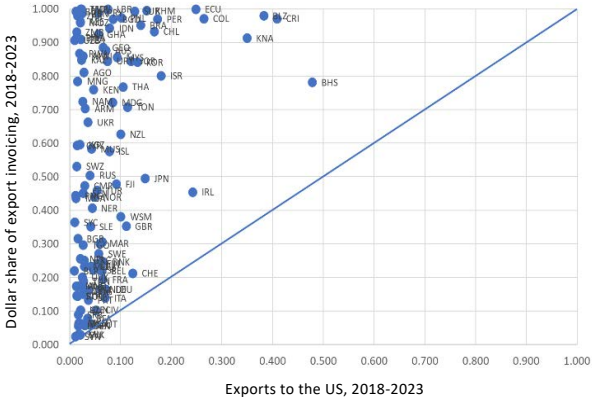
The most prominent role of the USD is for trade invoicing or settlement. Gopinath (2015) points out the dollar's outsized role in invoicing half or more of international trade. Figure 1a illustrates the shares of the dollar in export invoicing or settlement for individual countries (y-axis) compared to the shares of their total exports that are

destined for the United States (x-axis). The figure demonstrates how economies rely more on the dollar for international trade than their trade relationships with the United States might suggest.

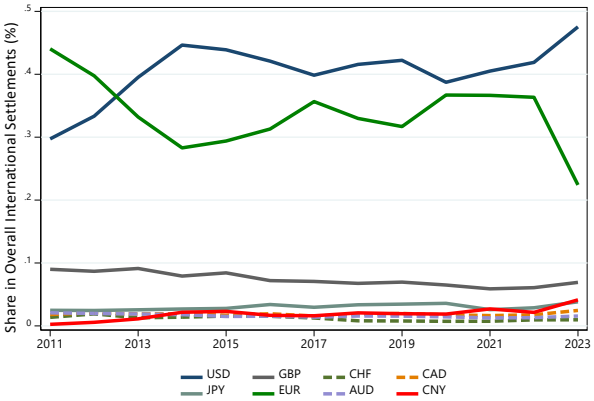
If the dollar did not play a dominant role, one would expect its invoicing/settlement share in export transactions of economies to be proportional to the share of the United States as a destination for an economy's exports. The figure clearly indicates that economies invoice or settle their exports in the dollar much more than proportionally in line with the share of their exports to the United States.

Figure 1: Currency Composition of Trade and Overall International Settlements (%)

a. Trade invoicing or settlement



b. Overall international settlements (SWIFT)



Note: In panel a, the horizontal axis is each economy's average share of export to the United States in total export, and the vertical axis is the economy's average share of U.S. dollar invoicing/ settlement in total export, both in 2018–23. Panel b reports currency shares in customer initiated and institutional payments, based on values.

Source: Author compilation, using data from Boz et al. (2020) for panel a, and from SWIFT, RMB Tracker, various issues, for panel b.

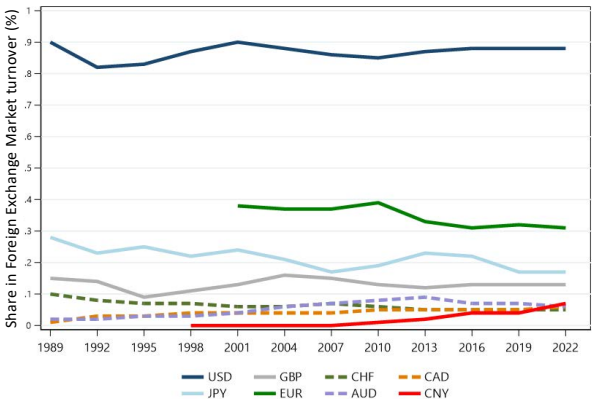
Figure 1b shows the currency composition of all international settlements reported by Society for Worldwide Interbank Financial Telecommunication SC (SWIFT). It is clear that the dollar is most widely used for international settlements, followed by the euro, while other major currencies such as the UK's pound sterling and the Japanese yen are far less important. Although the dollar is the most important international settlement currency, it is not so dominant and was actually less important than the euro in the early 2010s. Since then, the euro has been a strong second most important international settlement currency.

International Currencies in Foreign Exchange Trading and as Foreign Reserves

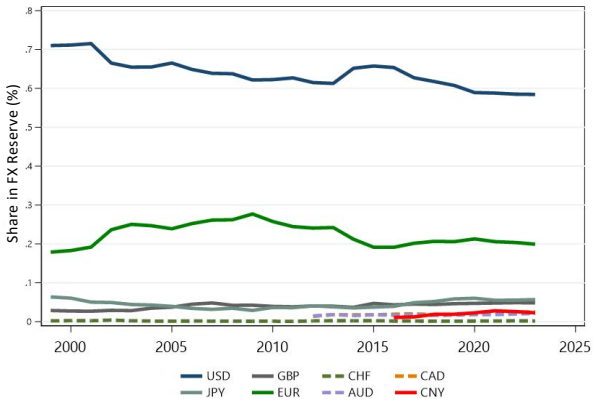
Figure 2a summarises the currency composition of foreign exchange trading in the world's major markets from 1989 to 2023, based on the triennial survey of the Bank for International Settlements (BIS). The figure indicates the USD is used in 80–90% of foreign exchange trading over the past 30 years, recording 88% in 2024. The euro share has slipped from 38% in 2001 to 32% in 2022, perhaps due to the Euro Area debt and banking crisis in 2011–2015. The share of the yen also fell from 27% in 1989 to 17% in 2022, a level below the previous trough in 2007. That share is still higher than for pound sterling, which was 13% in 2022. The share of the Chinese renminbi in the global currency markets has risen since the mid-2000s, and reached 7% in 2022.

Figure 2: Currency Compositions of Forex Market Turnover and Reserves (%)

a. Foreign exchange market turnover



b. Official foreign exchange reserves



Note: *The sum of the percentage shares of individual currencies totals 200% instead of 100% in panel a, because two currencies are involved in a single transaction. Data for the euro before its introduction are obtained as the sum of ECU and legacy currencies that are now the euro.*

Source: *Author compilation from BIS, Triennial Central Bank Survey: Foreign Exchange Turnover (Various issues) for panel a (accessed August 2021), and from IMF, Currency Composition of Official Foreign Exchange Reserves (COFFER) for panel b (accessed August 2021).*

Figure 2b reports the currency composition of foreign exchange reserves held by all IMF reporting member countries. It shows that the share of the USD has been relatively high at 50-70 % as the primary reserve currency, recording 58% in 2024. The share of the euro has been in the range of 20-30% and registered 20% in 2024.

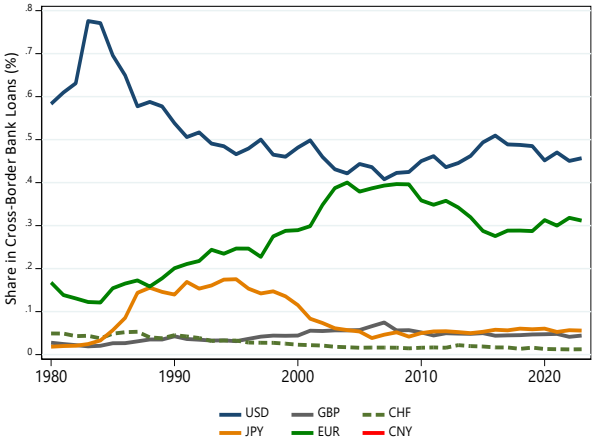
The shares of other reserve currencies have been very low in comparison to those of the dollar and the euro. The share of the yen has been at the 4–9% range and recorded 6% in 2024, but the yen still occupies the third position. The pound sterling continues to play a role as a reserve currency, accounting for 5% in 2024. The RMB is the only emerging economy reserve currency which was included in the IMF's special drawing rights basket in 2016, accounting for 2% of global FX reserves in 2024. Thus, the RMB is not yet one of the major global reserve currencies, although its share is now higher than those of the Canadian dollar, Australian dollar, and Swiss franc.

International Currencies for Cross-border Bank Loans and Debt Securities

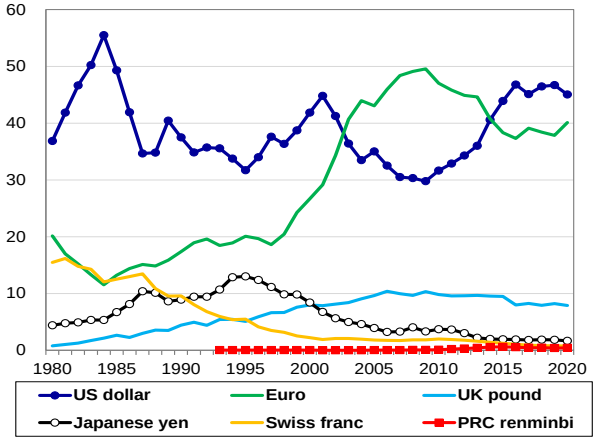
Figure 3a presents the currency composition of cross-border bank liabilities based on BIS locational banking statistics. It shows that the share of the USD was in excess of 60% in the early 1980s, and while this began to decline in the latter half of the 1980s, it has still maintained a 45–55% share over the last 30 years, reaching 48% in 2024. The euro share is the second highest and appears to have risen over time, at 31% in 2024. The share of the yen was low in the early 1980s, began to rise in the second half of that decade, maintained moderately high use at more than 10% in the 1990s but has declined since then, falling to 3% in 2024, which was slightly less than the pound sterling share. No data are reported for the renminbi.

Figure 3: Currency Composition of Cross-border Bank Liabilities and Debt Securities (%)

a. Cross-border bank liabilities



b. International debt securities issued



Note: Data for the euro refer to legacy currencies now included in the euro before euro data appear. In the case of international debt securities, data for the euro refer to EU1, i.e., the sum of ECU, euro, and legacy currencies now included in the euro, up to 2015 and EUR from 2016.

Source: Author compilation using data from the Bank for International Settlements, Locational Banking Statistics for panel a, and from BIS, Debt Securities Statistics for panel b.

Figure 3b presents the currency composition of the stock of international debt securities issued. It shows that the share of debt issued in euros was higher than for the dollar between the early 2000s and the early 2010s and overtaken by the dollar in the mid-2010s. In recent years, the dollar's share was high but not dominant at 46% while the euro's share was 40% in 2024. The share of the yen was moderately high in the mid-1990s, at close to 15%, but declined to a mere 1% by 2024. The pound sterling share has been higher than the yen share since the early 2000s, at 8% in 2024. The renminbi share has remained low at less than 1%, at 0.8% in 2024.

Dominance of the U.S. Dollar Zone

In the empirical international macroeconomics literature, many researchers have tried to estimate the extent to which an economy tries to stabilise its currency against major currencies. Those estimates can be essentially regarded as weights in currency baskets. By aggregating the weights across economies, the shares of major currencies (i.e., the USD, EUR, GBP, JPY, and RMB) can be used to estimate the economic size (e.g., GDP) for each currency zone. In this paper, we use the economic currency zones from Ito and Kawai (2025).[2]

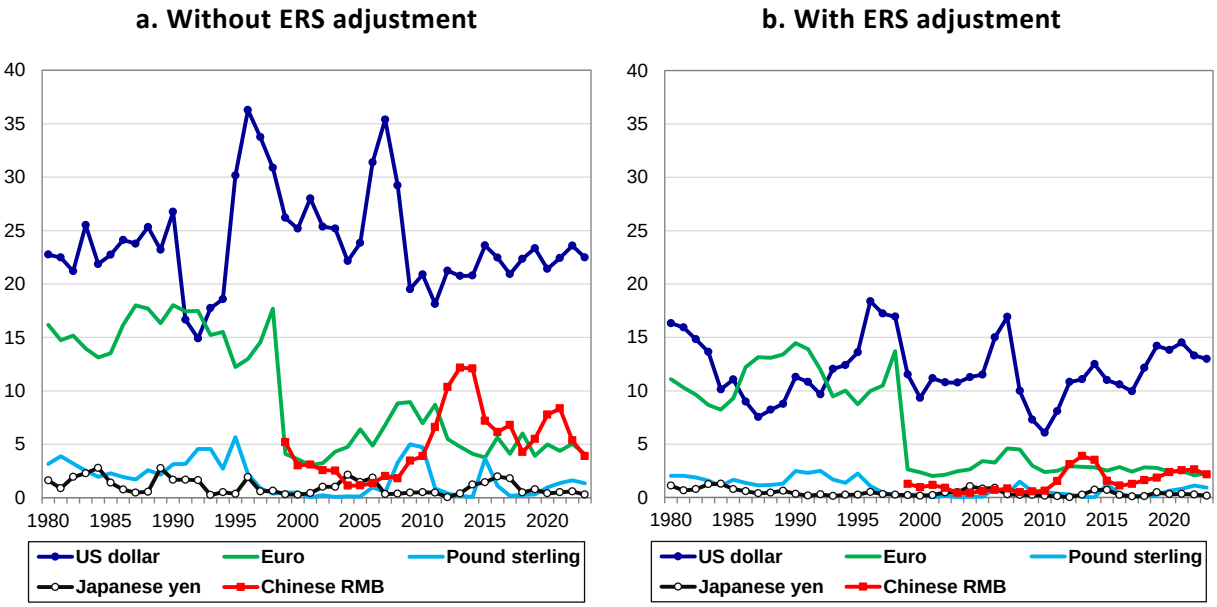
Figure 4 depicts the computed shares of currency zones formed by the USD, EUR (or DEM until 1998), GBP, JPY, and RMB, outside the major currency countries or regions. This means that the core countries of currency zones are excluded. Figures 4a and 4b show currency zone shares without and with adjustment for ERS, respectively, where ERS represents to what extent an economy of concern stabilises its exchange rate against a major currency or a basket of major currencies in a tight or loose way.[3]

Not surprisingly the currency shares are higher or at least not lower in Figure 4a than in Figure 4b. The USD zone share is the highest except for the short period up to the early 1990s when the EUR (more precisely DEM) zone share exceeded the USD zone share. This happened because many European countries as well as other economies in the rest of the world stabilised currencies against the DEM and the total size of these economies exceeded the size of USD zone economies. The EUR zone share declined sharply from 1998 to 1999 as 11 European countries, which had more or less stabilised currencies against the DEM, formed the Euro Area as core countries. The global share of the EUR zone economies outside the Euro Area has not risen much since then, at around 5%. Another striking observation is that the RMB zone has grown since the global financial crisis and sometimes exceeded the size of the EUR zone. In 2023, the RMB zone is roughly comparable to the euro zone at 3% in relative economic size.

2. See Appendix I of Ito and Kawai (2025) for more detailed explanation of the Frankel-Wei and Kawai-Pontines methods.

3. The ERS index is constructed by normalising the root mean squared error (RMSE), which is inversely related to the explanatory power of the Frankel-Wei or Kawai-Pontines regression equation, so that its value ranges between zero (complete currency flexibility) and unity (complete currency pegging).

Figure 4: Major Currency Zone Shares Outside the Major Currency Countries/Region, 1980-2023 (%)



Note: *RMB = renminbi. The euro before its introduction in 1999 refers to the deutschemark (DEM). The Chinese RMB is considered as one of the five major currencies from 1999 onward.*

Source: *Computation and compilation by authors.*

4. Merits of USD Dominance

Liquidity and Market Depth/Breadth

The wide use of the USD is not a coincidence, nor is it simply the product of path dependence. It results from a specific and powerful combination of economic, financial, and institutional factors that reinforce one another. As many researchers have done, we can identify drivers of its dominance, including liquidity, safety, the depth and breadth of U.S. financial markets, and the dollar's status as a global vehicle currency. These factors are mutually reinforcing and collectively explain why other currencies have found it challenging to achieve comparable international roles.

One of the primary reasons for the dollar's important role is the extraordinary liquidity of dollar-denominated markets. The United States hosts the world's largest and most sophisticated financial system, encompassing Treasury securities, corporate bonds, equity markets, and a wide range of derivative instruments. Deep, continuous, and transparent markets lower the cost of borrowing and hedging in dollars for firms around the world. High liquidity reduces price volatility, making the dollar more attractive for invoicing and investment. Market participants prefer assets that can be bought and sold quickly without large price impacts, and U.S. markets offer this degree of flexibility to a unique extent.

Facilitator of Regional Economic Integration

Dollarisation can facilitate regional economic integration. For example, although Korea and Thailand conduct substantial trade with China and ASEAN economies, more than 70–80% of these transactions are invoiced in USD. Using a common invoicing currency reduces exchange-rate risk across trading partners and simplifies cross-border transactions.

Network Externalities and Vehicle Currency Status

The dollar serves as a vehicle currency in international trade and finance, meaning that transactions between two non-U.S. countries are often conducted in dollars. Network externalities explain much of this behaviour. Once a currency becomes widely used -- because many firms find it convenient to quote prices in that currency -- new firms have an incentive to adopt it as well. Widespread usage reduces transaction costs for everyone involved, creating strong network externalities that hinder alternative currencies from gaining traction – even when their issuing countries are major trading partners. This results in a high degree of inertia, making it difficult for new currencies to displace established incumbents.

Safe-Haven Appeal and Stability

Related to liquidity is the availability of safe assets, particularly U.S. Treasury securities, which function as the backbone of the global financial system. Investors, central banks, and institutional asset managers rely on Treasuries as collateral for lending and derivative transactions. During periods of heightened risk or uncertainty, the demand for USD-denominated assets rises as investors seek safe-haven assets. Even during crises originating in the U.S., global investors flock to dollar assets, reflecting their confidence in American institutions, regulatory systems, and legal protections. Liquid and reliable USD assets could provide insurance. They remain popular despite their low yield and high opportunity cost of holding them.

5. Demerits of USD Dominance

5.1 Global Financial Cycles

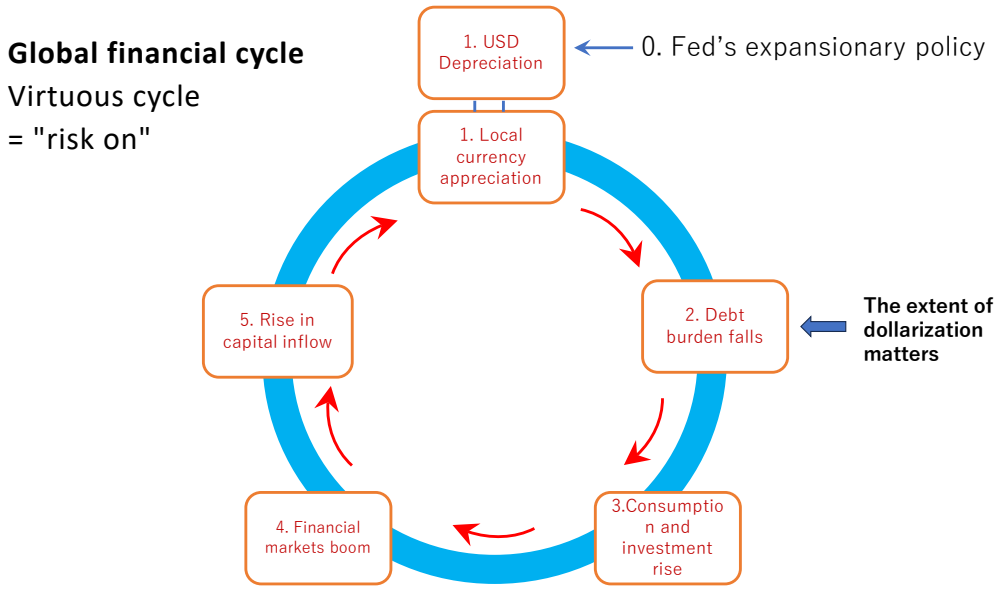
The Federal Reserve's policy decisions reverberate worldwide. When the Fed tightens monetary policy, the USD appreciates, global financial conditions tighten, and EMEs face capital outflows, rising debt burdens, and exchange rate volatility. This global financial cycle, first identified by Rey (2013), erodes monetary policy autonomy even for economies with flexible exchange rates.

Let us present the mechanism by which U.S. monetary cycles generate global financial spillovers and how EMEs can be affected. Figures 5a and 5b contrast two scenarios: the virtuous cycle and the vicious cycle.

The Virtuous Cycle

When the Federal Reserve lowers its policy rate ("point 0" in Figure 5a), the USD depreciates while EME currencies appreciate ("point 1"). For EMEs, this appreciation reduces the domestic-currency value of their dollar-denominated debt ("point 2"), and the magnitude of this relief depends on how much of their external liabilities are in USD—a share that is typically high for EMEs. As debt burdens fall, the perceived risk premium declines, stimulating both real economic activity ("point 3") and financial markets ("point 4"). Global risk appetite rises: investors become more willing to take positions in emerging markets ("risk on"), viewing them as opportunities for higher returns. Capital inflows increase, borrowing costs fall, and economic activity expands ("point 5"). This expansion can reinforce the initial dollar depreciation, further supporting growth in EMEs.

Figure 5a: Virtuous Cycle

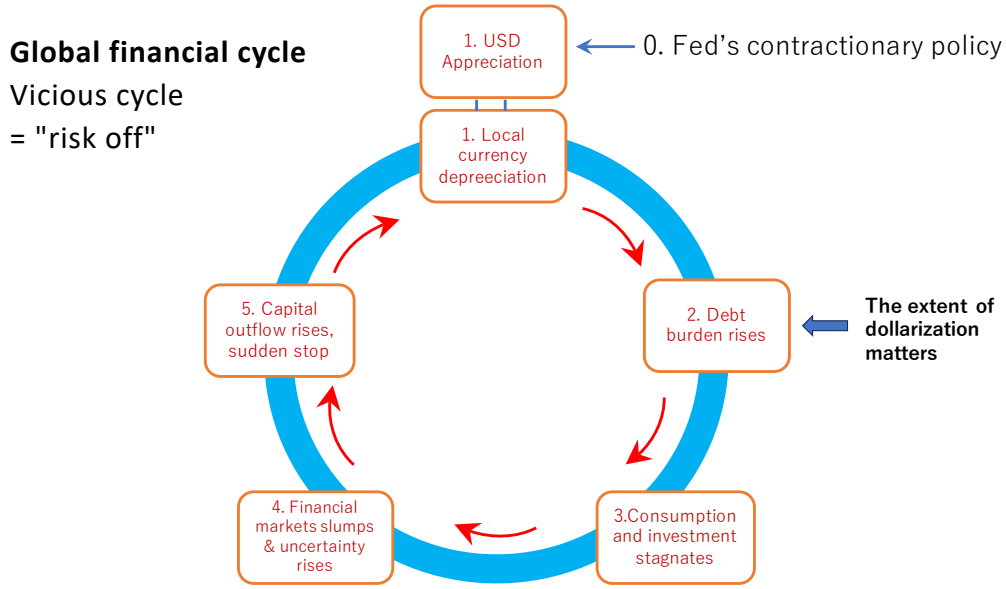


The Vicious Cycle

By contrast, monetary tightening by the Fed strengthens the dollar and tightens global financial conditions. Dollar appreciation would reduce the risk appetite of global investors, leading to capital outflows from emerging markets. Consequently, the burden of dollar-denominated debt increases and asset prices fall, threatening financial stability. These effects reinforce each other, generating a self-perpetuating cycle of distress (Figure 5b).

Since the 1980s, many EME financial crises, including the Latin American debt crisis of 1982, the Mexican crisis of 1994, and the Asian financial crisis of 1997-1998, have broken out in the wake of Federal Reserve's monetary tightening. The severity of these crises was particularly pronounced in economies with high exposure to USD-denominated external debt. As demonstrated during the 2013 Taper Tantrum and again in 2022, even a mere shift in expectations toward U.S. monetary tightening can trigger significant instability in EMEs.

Figure 5b: Vicious Cycle



The "Original Sin"

EMEs often borrow in USD due to their underdeveloped domestic markets. This generates currency mismatch: borrowing in USD but earning in local currency. Instability is amplified when EMEs borrow in USD on a short-term basis while extending long-term loans in local currency. When the dollar appreciates, the domestic-currency value of these short-term liabilities rises sharply. International investors then revise their expectations, anticipating a deterioration in local borrowers' ability to repay. Thus, the combination of term and currency mismatch, the double mismatch, amplifies financial fragility ("original sin").

Structural reasons for original sin are:

- Exchange-rate volatility discourages international investors from holding local-currency assets.
- Underdeveloped domestic financial markets lack long-term instruments.

- Weak institutional frameworks and lower investor confidence reduce demand for local-currency debt.
- Hedging markets are insufficiently developed.

5.2 Self-fulfilling Instability Embedded in the USD-centric Monetary System

EMEs hold large USD-denominated reserves as a form of self-insurance against financial shocks. The accumulation of reserves expanded rapidly after the Asian Financial Crisis (1997–98) especially among China, East Asia, and commodity exporting economies. In fact, during the Global Financial Crisis (2008–09), the extent of local currency depreciation was smaller among those economies with larger reserves holding (Aizenman, et al., 2025);

Additionally, reliance on IMF lending carries political or reputational costs for governments. Countries therefore choose to accumulate dollar reserves and borrow externally in dollars to minimise the likelihood of requiring IMF intervention. Such stigma effect encouraged economies to accumulate foreign exchange reserves as self-insurance.

Large reserve accumulation has created the very instability that EMEs seek protection from. By accumulating USD reserves, EMEs inject liquidity to global markets, which in turn fuels capital inflows and the buildup of vulnerabilities that is highly sensitive to shifts in U.S. monetary policy.

5.3 The Weaponisation of the Dollar

In recent years, another important drawback on the wide use of the USD has come to the forefront. The U.S. government has increasingly used the USD-based financial system as a tool of foreign policy. Sanctions on Iran, Russia, Venezuela, and North Korea -- implemented through restrictions on USD transactions -- have raised concerns among many economies about the geopolitical risks of dollar reliance. Dollar weaponisation encourages diversification away from USD.

Some economies, particularly those that tend to keep their political distance from the West, strongly oppose dollar weaponisation, and argue that USD prominaence should be reduced through “de-dollarisation,” for example by using local currencies for international transactions (e.g., Local Currency Settlement Framework), alternative international payments means (e.g., e-RMB), and the introduction of a new currency union.

6. De-dollarisation: Attempts and Limitations

6.1 The Rise of De-dollarisation Sentiment

In the post–World War II period, emerging market and developing economies (EMDEs) generally benefited from an international monetary system centered on USD. For decades, the advantages of using the dollar outweighed its drawbacks, and the demerits of dollar dependence remained manageable.

Vulnerabilities to U.S.-origin- spillovers as well as arbitrary use of exchange rate policy as geopolitical weapons have meant loss of economic and diplomatic autonomy for other economies. There have been past attempts by policymakers to make themselves more independent from the U.S. by internationalising and increasing the use of their local currencies outside their domestic markets.

There have been many attempts to reduce the overreliance on the USD or to promote de-dollarisation by non-U.S. economies (see Ito and Kawai, 2026). Below, we briefly review several prominent examples such as the creation of the euro, internationalisation of the yen, Thailand's baht initiative, and RMB internationalisation, and explains why these attempts did not succeed.

6.2 Challenges to Mitigate USD Reliance: Efforts to Internationalise the Euro, Yen, Baht, and RMB and Increase in the Use of Local Currency in ASEAN+3

The Euro

The creation of the euro in 1999 was clearly one of the most prominent de-dollarisation projects in history to challenge the existing, dominant international currency, the USD. The Euro Area member countries have substantially reduced the use of the USD for cross-border transactions among themselves and with the neighbouring countries. The euro has become the second world's second biggest currency, in terms of FX markets trading volume, FX reserves, trade and investment settlement, and currency-market anchor currencies. Given that Europeans have constantly criticised the Exorbitant Privilege that the U.S. has enjoyed, the euro project may have been partly driven by the idea that creating a European currency could reduce the U.S.'s privilege.

The Yen

Japan's yen rose in prominence in the 1980s. Japan adopted a policy of internationalising the yen in the 1980s and 1990s with some success. However, the efforts to promote internationalising the yen dwindled after the asset bubble burst in the early 1990s followed by a long-lasting recession. Limited financial openness, prolonged

economic stagnation, and regulatory constraints on both domestic and cross-border financial flows restricted its internationalisation.[4]

The Thai baht

Thailand attempted to expand use of the baht through the Bangkok International Banking Facility (BIBF). However, insufficient prudential oversight and large-scale dollar borrowing contributed to vulnerabilities that were exposed during the 1997 crisis. Many Thai firms and banks had borrowed in USD on a short-term basis and lent out long-term baht loans. Once speculative attacks on the Thai baht began, most USD-denominated short-term loans could not be repaid, triggering a banking crisis.

The RMB

China's efforts to internationalise the renminbi have included expanding RMB use in trade settlement, establishing bilateral currency swap lines, and developing offshore RMB markets. These initiatives achieved meaningful progress. In 2015, the IMF decided to include the RMB in the Special Drawing Rights (SDR) basket alongside the USD, EUR, GBP, and JPY—an important recognition of China's rising financial influence. However, the momentum stalled soon after. In the summer of 2015, the Shanghai stock market crash triggered a large-scale selloff and substantial capital outflows. To stem these outflows and contain depreciation pressures, the authorities reinstated or tightened capital controls, undermining the RMB's credibility as an international and SDR-class currency. Three major constraints continue to hinder further RMB internationalisation, namely persistent capital controls, non-market-oriented exchange-rate management, and weak legal and institutional frameworks, including limited regulatory transparency.

Moreover, many observers now worry that China may be entering a period of prolonged economic stagnation following the downturn in its property market, possibly following in the footsteps of Japan's Lost Decades. If China's economic performance weakens significantly, confidence in the long-run prospects of RMB internationalisation may diminish further just as the Japanese yen failed to become a major international currency.

6.3 ASEAN+3 and Regional Initiatives

The dominance of the USD in global trade and finance has historically exposed Asian economies to external shocks and currency mismatches. In response, regional policymakers, particularly within the ASEAN+3 framework, have been actively promoting

4. Frankel (2011) argues that in the beginning of the efforts of internationalisation of local currencies, both West Germany and Japan were reluctant to increase overseas use of their domestic countries because policymakers were afraid that internationalising their currencies would cause currency appreciation and thereby help lose trade competitiveness. He also argues that China seems to share the same view.

the use of local currencies and trying to reduce reliance on the USD for trade, investment, and financial stability. Initially spurred by vulnerabilities exposed during the 1997 Asian financial crisis and subsequent global liquidity shocks, regional frameworks such as the Asian Bond Markets Initiative (ABMI), the Local Currency Settlement Framework (Malaysia, Thailand, Indonesia, and the Philippines) and cross-border payment connectivity aim to mitigate exchange rate volatility, reduce transaction costs, and build greater monetary sovereignty and financial resilience.

Asian Bond Markets Initiative (ABMI), launched in 2003 by ASEAN+3 countries, aims to develop deep, liquid, and resilient local currency (LCY) bond markets. This initiative was designed to channel regional savings to regional investments and prevent currency and maturity mismatches that contributed to past financial crises. Related efforts include the ASEAN+3 Multi-Currency Bond Issuance Framework (AMBIF) and the Credit Guarantee and Investment Facility (CGIF) to promote bond issuance.

Local Currency Settlement Frameworks (LCSF) allow businesses to settle trade and direct investment transactions in their own currencies without converting to the USD first through bilateral and multilateral agreements between central banks. Examples include the bilateral frameworks between Malaysia and Thailand, Malaysia and Indonesia, and the recent launch of a framework between China and Indonesia in September 2025. Indonesia, Malaysia, and Thailand also established a harmonised framework in the mid-2010s, which has seen a steady increase in local currency transactions for bilateral trade. These frameworks offer businesses flexibility in foreign exchange administration, financing, and deposit accounts in the local currencies, which helps reduce transaction costs.

Cross-border Payment Connectivity is increasing. Promising advances are underway in digital payment connectivity. Indonesia, Singapore, Malaysia, Thailand, and the Philippines have already linked their domestic QR code payment systems to facilitate seamless cross-border retail payments and remittances in local currencies. China and Indonesia have also initiated a two-way trial of a cross-border QR code interconnection project.

Asia is already a global leader in digital payments, spanning both retail and wholesale applications. The next step is to connect payment systems across jurisdictions and shift to multilateral platforms. Regional initiatives like China's Cross-border Interbank Payment System and M-Bridge signal the future of regional financial integration. While technical platforms vary, the challenge today is not technology—it is policy and governance. Divergent standards in KYC, AML/CFT, and consumer protection continue to raise costs and limit interoperability. Projects like Project Nexus, which aim to connect domestic instant payment systems, prove that technical feasibility is within reach. But achieving alignments on governance and regulatory frameworks is more challenging.

Asian regional cooperation on local currency use is a strategic and ongoing effort to enhance financial stability, reduce vulnerability to external shocks, and foster greater monetary autonomy. Wider local currency use has already benefited businesses from lower foreign exchange transaction costs. Intra-ASEAN settlements have more than doubled in five years, increasing trade competitiveness and regional economic growth. Businesses also reduced exposure to exchange rate fluctuations and financial vulnerability. Overall, decreased reliance on the USD can help buffer the region against external economic shocks and volatility in major global financial markets.

These initiatives have achieved moderate success but remain limited compared to the scale of USD-dominated markets. While the USD dominance will likely remain, these regional efforts should continue as they generate benefits in expanding local currency use, reducing exchange rate risks and boosting intra-regional trade, thereby building a more resilient and integrated regional economic and financial ecosystem. The rest of the book will present the cases of Cambodia, Chinese Taipei, Indonesia, Malaysia, the Philippines, Korea, Thailand, and Vietnam.

7. Long-term Structural Issues

7.1 Relative Decline of the United States

Figure 6 illustrates that, while the USD continues to be dominant, the U.S. share of global GDP and trade have been trending downward, challenged by EMDEs (China and the Global South).

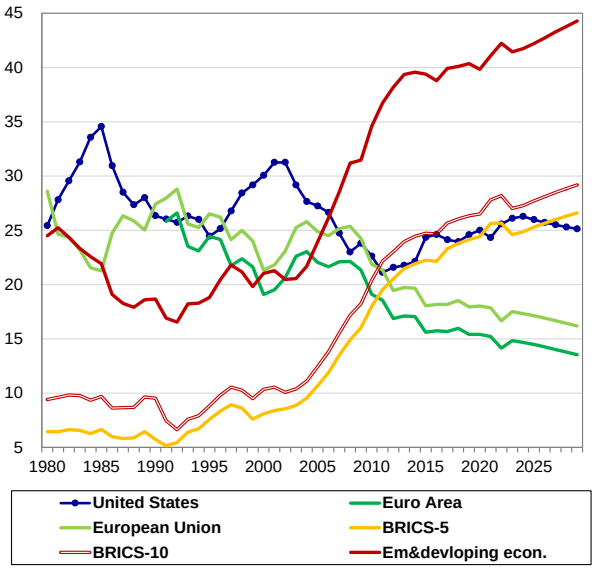
Such a trend will exacerbate tensions arise between U.S. national interests and global financial stability. The U.S. Fed sets its monetary policy to stabilise the U.S. economy and inflation, but the Fed has no such mandate for the world. The reliance on the USD, the national currency of a country that continues to shrink relative to the rest of the world, is not sustainable for EMDEs, which are already collectively larger than the U.S., and will continue to grow faster.

In particular, the role of the USD as the most prominent international currency creates tensions between the U.S. national interests and global monetary and financial stability.

The global economy needs a sufficient supply of USD as international currency for economic growth, stable capital flows, and financial stability. Furthermore, to continue its role as a credible global currency, the dollar needs to retain its safety and liquidity. If U.S. policies move in a direction that may pose a risk to its credibility, the Global South will need an alternative international currency that serves its interests, a situation as akin to the Triffin's Dilemma in the 1960s (Triffin, 1960).

Figure 6: GDP and Trade Shares of the U.S. BRICS, EM&DEs (%)

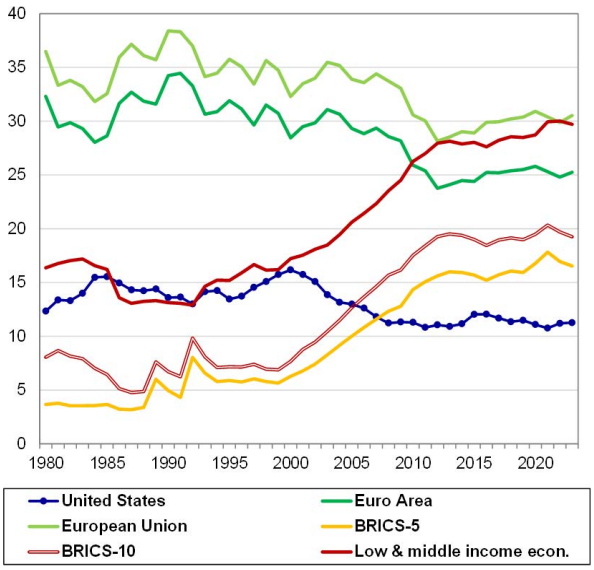
a. Nominal GDP at market exchange rates



Note: Data for 2024-2029 are projections made by the IMF.

Source: IMF, World Economic Outlook database, April 2024.

b. Trade in goods and services



Note: Sum of exports and imports of goods and services.

Source: UNCTAD, Goods and Services (BPM6).

7.2 Rise of China and the Global South

Reflecting growing frustration with their vulnerability to U.S. monetary cycles and with the United States' increasing willingness to use the dollar for diplomatic and geopolitical objectives, many EMDEs, most notably the BRICS economies (Brazil, Russia, India, China, and South Africa), have intensified efforts to reduce their reliance on the USD.[5] The economic size of the original BRICS has already caught up with that of the U.S. The BRICS economies have been diversifying their currencies to try to increase the use of their home currencies for trade and investment while considering a currency union or a new bloc currency. Following Russia's invasion of Ukraine in 2022 and the intensification of the U.S.-China trade war, the BRICS grouping has drawn increasing global attention and has come to be viewed as a key representative of the Global South.

However, realistically, it is impossible for the BRICS countries to introduce a common currency. First, even though the BRICS' large economic size would contribute to wide use of a BRICS common currency and a large BRICS currency zone, econometric results suggest that the global use of the common currency would still be limited due to the low degrees of BRICS' financial market development (and openness) and the inertia effect (Ito and Kawai, 2026). Its currency zone would still be smaller than that of the USD zone because only a limited number of economies are expected to stabilise their

5. As of 2025, Saudi Arabia, United Arab Emirates, Egypt, Ethiopia, Iran, and Indonesia have joined. This extended group is called "BRICS+".

exchange rates relative to the BRICS common currency. Second, analysis of optimum currency area (OCA) conditions reveals that the BRICS would not satisfy such conditions, making it difficult for the group to form a common currency.[6] Third, there is a lack of trust among some members, particularly China and India, as well as lack of a strong political commitment to a currency union among BRICS members.

Econometric analysis of the determinants of the shares of currencies used for various international purposes, including FX reserves, FX market trading, international payments, international debt issued, and anchor currency zones (outside the currency-issuing country or area), reveals the importance of the fundamental, supply-side factors affecting such currency shares (Ito and Kawai 2026). Especially, economic size (as a share of world GDP) and the degree of financial market development of the currency-issuing country, as well as inertia captured by the lagged dependent variable, tend to have statistically significant positive impact on the currency shares.

These results confirm that not only economic size but also financial market development (and possibly financial market openness) as well as inertia are critical for currency shares. The large inertia effect means that the wide use of the USD is likely to persist for a long time even though other fundamental factors, such as the economic size as a share of world GDP, point to a decline of the dollar. It also means that the emergence of a new currency is likely to face hurdles even though supply-side fundamentals such as the economic size of a challenger country or region favour the new emerging currency.

Lastly, even if a BRICS-5 currency union were created, other economies might be unwilling to closely stabilise their exchange rates against the new common currency. This implies that the determinants of a viable currency union—including those emphasised in the optimal currency area (OCA) framework—matter not only for original members, but also for prospective new entrants. As a result, the requirements for meeting these conditions may deter future membership.

7.3 Short- and Long-term Prospects

In the long-term, frustration with U.S. dollar prominence continues to build. The United States' relative position as the world's sole economic hegemon has been declining, while EMDEs are expanding their economic influence and increasingly resemble a system of multiple major powers. Relying on the national currency of a country whose relative economic weight is diminishing raises concerns about the long-run sustainability of the existing monetary order. These concerns are amplified by the fact that the U.S. monetary authorities have no mandate to consider the policy repercussions of their actions for the rest of the world, even though U.S. monetary decisions have large global spillovers.

6. For more details on whether the BRICS countries are suitable for a currency union from the OCA theory, refer to Ito and Kawai (2026).

In addition, the United States has been a net debtor since the late 1980s and is now the world's largest external debtor, with net liabilities exceeding 74% of GDP in 2023. This raises questions about both the long-term sustainability of U.S. debt and the credibility of the dollar as the world's most trusted international currency.

Despite these concerns, no viable alternative to the dollar has yet emerged. When the international monetary system shifted from the British pound to the USD occurred in the 1940s, the United States had already become the world's largest and most dynamic economy. The euro is regionally strong, particularly in trade invoicing, but the eurozone still bears the institutional scars of the 2010–2012 sovereign debt crisis, which serves as a reminder that deeper fiscal and political integration is necessary for the euro to become a full-fledged global anchor. The renminbi lacks capital-account convertibility, deep and liquid financial markets, and institutional transparency. Moreover, it remains closely tied to the dollar. Other nontraditional reserve currencies (e.g., CAD, AUD, CHF) are simply too small to function as global anchors despite recent increases in their reserve shares (Arslanalp et al., 2022; Weiss, 2022).[7]

Therefore, the most plausible long-run scenario is not an abrupt collapse of dollar dominance but rather a gradual and limited erosion of its relative position – consistent with a strong inertia effect. However, if U.S. fiscal profligacy persists, external debt continues to rise, and geopolitical frictions intensify between the U.S. and other countries, the credibility of the dollar could weaken further. Such developments would place additional strain on the system and could shorten the timeline for a potential regime shift in which the dollar's dominance gives way to a more multipolar currency order.

8. Summaries of SEACEN Participant Economies

Chapter 2: Cambodia

Cambodia exhibits a high level of dollarisation, with USD dominating trade invoicing, deposits, and loans. It is not the result of deliberate policy choice but rather reflects the history of turbulent political instability for over decade as well as a historical lack of public confidence in the national currency.

7. Weiss (2022) argues that even if reserve holdings shift modestly from the U.S. dollar toward nontraditional currencies, the volumes involved are small, and most alternative reserve currencies still belong to advanced, Western, and largely U.S.-aligned economies. As a result, such diversification would not constitute a meaningful geopolitical regime shift.

While currency stability due to the country's high dollarisation helps reduce transaction costs and exchange-rate risk, which promotes trade and FDI, it severely limits the National Bank of Cambodia's monetary policy independence and ability to respond to shocks. To strengthen long-term competitiveness and resilience, Cambodia should diversify invoicing currencies, reduce reliance on imported inputs, and promote the expansion of local-currency use in domestic payments.

Chapter 3: Chinese Taipei

The concentration of the U.S. dollar in Chinese Taipei's deposits, cross-border trade, and foreign exchange reserves has increased in recent years, alongside rising foreign institutional investors' securities holdings. Deeper exposure to global USD liquidity has made the FX market more sensitive to international policy uncertainty and shifts in investor sentiment, leading to greater overshooting and herd-driven movements. In response, the Central Bank, Chinese Taipei has implemented exchange-rate stabilisation measures, including two-way smoothing operations and real-time reporting of large FX transactions. Policymakers are encouraged to further refine macroprudential tools and strengthen communication to anchor expectations. Growing USD asset exposure among non-bank financial institutions, especially insurers, has also heightened hedging and liquidity risks, requiring enhanced monitoring of hedging flows and risk concentrations. Finally, strengthening FX reserve buffers, deepening domestic capital markets, and gradually diversifying currency use can help reduce long-term reliance on the USD.

Chapter 4: Vietnam

Vietnam's deep integration into global value chains has boosted trade performance but increased exposure to external monetary conditions. Despite declining domestic dollarisation, more than 90% of Vietnam's external trade is still invoiced in USD, well above regional and global averages and consistent with the broader patterns of SEACEN, where around 80% of merchandise trade is USD denominated, despite limited direct trade with the United States. Using national data from 2015–2024, the authors examine structural drivers of Vietnam's USD reliance, including global value chain pricing practices, the limited international use of the Vietnamese dong (VND), and underdeveloped local-currency hedging markets. The findings highlight vulnerabilities such as reduced effectiveness of exchange-rate adjustments, greater sensitivity to U.S. monetary policy, and persistent "original sin" in external borrowing.

The authors discuss policy options, including exchange-rate management, reserve diversification, local currency settlement frameworks, and emerging CBDC initiatives, to strengthen monetary autonomy and support gradual de-dollarisation.

Chapter 5: Malaysia

Malaysia's export sector has transformed dramatically since independence, shifting from primary commodities (rubber, tin, palm oil) in the 1960s to manufacturing-led exports from the 1980s onward, with manufactured goods exceeding 80% of exports by the late 1990s. In parallel, ASEAN has become more financially connected through stronger cross-border payment linkages (e.g., QR payments) and greater regional portfolio investment. Despite deeper integration, regional trade settlement remains dominated by major currencies due to network effects and path dependence. In Malaysia, about 82% of trade was settled in USD in 2024, and only 13.4% of intra-ASEAN trade used regional currencies. Firms prefer USD to match USD liabilities and support centralised treasury systems. Furthermore, commodities are typically priced in USD and SMEs also face low awareness and weak bargaining power.

Local currency settlement is further constrained by fragmented FX regulations, compliance burdens, thin liquidity, and limited hedging instruments. To address this, Bank Negara Malaysia has expanded ringgit settlement flexibility through FX policy reforms, the Appointed Overseas Office framework, and regional initiatives such as the Local Currency Transaction Framework, including RMB facilities with China.

Chapter 6: Thailand

This chapter examines dollar dominance in Thailand by focusing on export invoicing during 2007–2024. The authors analyse firm-level determinants—particularly exposure to imported inputs and competitors' invoicing behaviour—which generate strong invoicing rigidities over time. They also find that new exporters tend to invoice more in baht. In addition, macroeconomic conditions, including transaction costs in the importer's currency, exchange rate volatility, and inflation in destination countries, significantly influence invoicing choices.

To mitigate spillovers from major economies, especially the United States, Thai authorities have promoted the use of local currencies in trade settlements with regional partners. However, the Local Currency Settlement Framework (LCSF) with Malaysia and Indonesia only modestly reduces the likelihood of dollar invoicing. Given this limited impact, policymakers should better assess the incentives and constraints firms face—such as hedging motives, currency management costs, awareness of the framework, and whether existing incentives are sufficient to encourage currency switching.

Chapter 7: Republic of Korea

This study analyses why USD settlements remain persistently high in Korea's trade with major partners, focusing on firms' incentives and the transaction costs of foreign-currency use. Limited FX market liberalisation restricts market access, raises banks' risk-management costs, and increases firms' costs of using non-dollar currencies.

For firms deeply integrated into global value chains (GVCs), settling trade in regional currencies within a dollar-dominated system often requires additional FX transactions, generating indirect costs through extra trading legs and greater exchange rate risk.

Empirical results show that greater FX market liberalisation is associated with a lower share of dollar settlements, while stronger GVC linkages increase incentives to settle in dollars. Product differentiation, market power, and partner-currency use in global payments also affect currency choice. Overall, the wide use of the USD reflects economic incentives shaped by institutional constraints, GVC structures, and commodity pricing practices. The study concludes that reducing dollar reliance requires carefully sequenced FX liberalisation – improving convertibility, offshore spot liquidity, and transaction access – supported by robust legal and prudential safeguards.

Chapter 8: Philippines

The authors of this chapter examine USD prominence in the Philippines through a multi-dimensional lens, covering trade invoicing, cross-border financing, reserve composition, and network-based volatility spillovers. Using official statistics and original BSP survey evidence, they document sectoral and currency-specific patterns of dollar use and situate them within the ASEAN+3 and global financial architecture. Network results show that the Philippine peso remains structurally peripheral, with spillover risks transmitted mainly through the USD and increasingly via regional hubs such as the CNY. While dollar dominance provides liquidity, pricing efficiency, and access to deep markets, it also heightens exposure to external shocks, funding pressures, and exchange-rate volatility, especially during global uncertainty. To mitigate these vulnerabilities, the authors recommend deepening and diversifying local currency capital markets, further liberalising the FX framework, improving hedging and market infrastructure, strengthening regional payment connectivity (e.g., Project Nexus), and enhancing regional financial safety nets such as a reformed CMIM.

9. Conclusion

In the short-run, USD dominance is expected to persist. During periods of crisis, global demand for USD tends to rise, reinforcing the dollar's role. Even a depreciation of the USD can improve U.S. external balances, reducing pressure for systemic change.

In the long-run, however, structural tensions remain. As the United States declines in relative economic size and the Global South rises, pressure will grow for greater currency diversification of the international monetary system. Yet the barriers to meaningful de-dollarisation remain formidable. Institutional requirements, financial market depth, and credible policy frameworks take decades to build.

Dollar prominence has long been a concern for global policymakers. As the current IMS relies on the supply of a single national currency, it gives an exorbitant privilege to its issuer country (i.e. the U.S.). Yet the U.S. economy lacks any systemic pressure for macroeconomic policy discipline, allowing for the buildup of domestic imbalances which lead to global imbalances. As long as the U.S. maintains sound macroeconomic policies, strong financial regulatory framework, and a healthy and stable financial system, the system can work reasonably well. However, once U.S. economic and financial-system credibility is weakened, the global financial system can become very unstable. Such dependency on a single country to maintain the stability of the value of its currency and strength of its own financial system becomes a source of instability and uncertainty. Yet the EMEs who often bear severe and painful adjustment costs continue accumulating largely USD foreign reserves for self-insurance against financial crises.

The current IMS also distorts capital flows, which move from EMEs where the productivity of capital investment is higher, to advanced economies, especially the U.S., where the return to capital investment is lower. This distortion reduces the investment opportunities for developing countries to construct their infrastructure and industrial base for higher economic growth. The stock of foreign exchange reserves has steadily increased in both developed and developing economies, as growing international trade and financial transactions naturally require more international reserves to minimise frictions in foreign exchange markets. In recent years, increasingly volatile international financial markets have added further pressures on EMEs. With relatively low liquidity, emerging financial markets tend to be more vulnerable to greater capital mobility, which destabilises international reserve balances and foreign exchange rates.

An attempt to correct the global payment imbalances through currency realignment alone without remedying underlying causes is a potentially risky approach. Since there are multiple factors behind the current imbalances, they can only be addressed through collaborative balancing acts. If not, an abrupt decline in the USD and a subsequent rise in U.S. interest rates may severely disrupt global financial markets with serious adverse implications for the global and regional economy.

The balancing acts consist of several key components. First, fiscal discipline needs to restored in the U.S. Second, China needs to accelerate critical structural reforms to shift its growth engines from manufacturing and investment to services and consumption. Reforms should focus on boosting productivity, addressing high debt in property markets, and enhancing the social safety net to reduce savings, essential for both domestic sustainability and global rebalancing. Third, exchange rates need to play a pivotal role in facilitating economic adjustments in response to necessary shifts in global savings and investment. Some Asian economies took a meaningful step to free their exchange rates in this regard. But further actions will have to follow. Across the region, the exchange rate adjustments must be combined with measures to expand domestic demand. Such policy measures should involve a broad range of structural reforms to improve the investmentf climate and boost productivity.

During the transition, the impact of the dollar depreciation would vary significantly across Asia depending on the individual country's economic circumstances, such as relative exposure to the U.S. economy, overall export reliance, budgetary and external positions, and monetary conditions. While competitiveness effects through changes in real effective exchange rates are significant for demand shifts, structural and policy differences between countries play as important role in determining domestic price levels, and eventually domestic demand growth. In particular, prudent financial regulation and rigorous fiscal discipline can help stem a potential buildup of asset bubbles and consequently deflect financial instability in case of tightening global liquidity.

For SEACEN economies, understanding the mechanisms of USD dominance -- and the channels through which it affects trade, capital flows, and monetary autonomy -- is essential. The chapters that follow provide country-specific examinations of these issues, offering insights into how economies in the region engage with, adapt to, and are constrained by the dollar-based international monetary system.

Appendix: Procedures of identifying anchor currencies and computing major currency zones

Ito and Kawai (2025) calculated the economic size of currency zones formed by the major currencies (i.e., the USD, EUR, GBP, JPY, and RMB), using the estimated weights on anchor currencies and the root mean squared error (RMSE) obtained from the regression analyses proposed by Frankel and Wei (1994) and Kawai and Pontines (2016).[8] While basically adopting the procedure of Kawai and Akiyama (1998),[9] Ito and Kawai (2025) make advancements over the past studies in four key ways.

First, each major currency country or region (i.e., the United States, the Euro Area, the United Kingdom, Japan, or China) itself is assumed to be the core of a currency zone of its own. However, China is treated as a non-major currency country during 1980-1998 and as a possible major currency country from 1999 onward.

Second, as in the case of Tovar and Nor (2018), Ito and Kawai (2025) employ the three-step model of Kawai and Pontines (2016) to identify major anchor currencies including the RMB while addressing the issue of multicollinearity.

Third, unlike Tovar and Nor (2018) and Ilzetzki, Reinhart, and Rogoff (2019), they identify a basket of major anchor currencies over time, using rolling regressions with 36-month windows, rather than just a single, dominant anchor currency for each economy.

Fourth, they divide economies into different currency zones according to the estimated, statistically significant positive basket weights on major currencies.[10] The anchor currency coefficients which are estimated to be statistically significant and positive, at least at the 10% level, are interpreted as meaningful weights on major currencies.

8. See Appendix I of Ito and Kawai (2025) for more detailed explanation of the Frankel-Wei and Kawai-Pontines methods.

9. At the time of publication of Kawai and Akiyama (1998), the RMB was not considered as a major currency and the Kawai-Pontines method was not available.

10. More concretely, if an economy rigidly pegs its exchange rate to a particular major currency, its entire economy is classified as belonging to the currency zone formed by this major currency. If an economy stabilizes its exchange rate against a basket of major currencies, it is divided into different currency zones according to the estimated, positive currency weights. If an economy partially manages its exchange rate against a major currency or a basket of major currencies, it is considered as partially belonging to a major currency zone or several major currency zones and the rest not belonging to any major currency zone (thus belonging to a flexible rate regime). If an economy does not stabilise or manage its exchange rate against any major currency in a statistically significant way, its entire economy is considered as not belonging to any major currency and as adopting a flexible exchange rate regime.

A real innovation adopted here, going beyond the literature, is that when an economy stabilises or manages its exchange rate against a major currency or a basket of major currencies in a tight or loose way, the computation of the size of currency zones takes into account the degree of exchange rate stability (ERS). The ERS index is constructed by normalising the RMSE, which is inversely related to the explanatory power of the Frankel-Wei or Kawai-Pontines regression equation, so that its value ranges between zero (complete currency flexibility) and unity (complete currency pegging). In dividing an economy into different currency zones in accordance with the estimated currency weights, the weights applied now reflect the degree of ERS. For example, when an economy has a statistically significant and positive weight on a major currency with a very high degree of ERS (i.e., the economy's exchange rate is tightly stabilised), the full or almost full portion of the economy reflected by the currency weight is considered to belong to the zone formed by this major currency. When an economy has a significant and positive weight on a major currency with an intermediate degree of ERS (the exchange rate is loosely stabilised), less than the full portion of the economy reflected by the estimated weight is considered to belong to the zone of this major currency. When an economy has a significant and positive weight on a major currency with a very low degree of ERS (i.e., the exchange rate is largely flexible), no or almost no portion of the economy reflected by the currency weight is considered to belong to the major currency zone. In the last case, the economy is judged as having a highly flexible exchange rate regime, with its own unique currency zone, and thus does not belong to any major currency zone.

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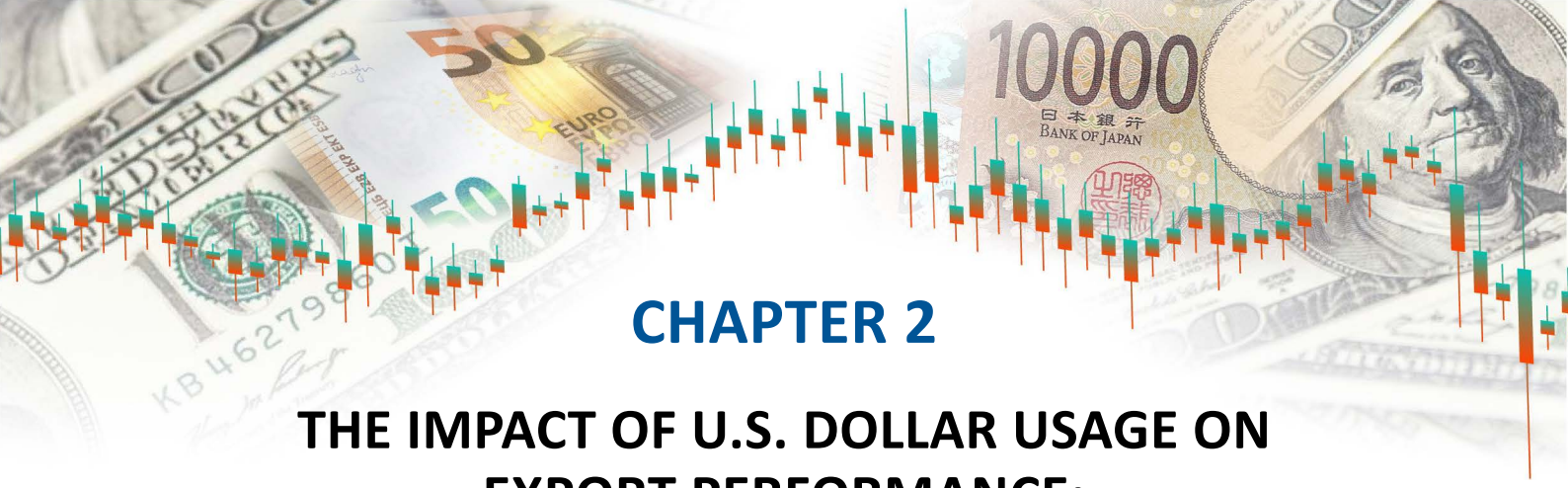


CHAPTER 2

THE IMPACT OF U.S. DOLLAR USAGE ON EXPORT PERFORMANCE: THE CASE OF CAMBODIA

Nem Makara and **Nget Sreynuch**

1. Introduction

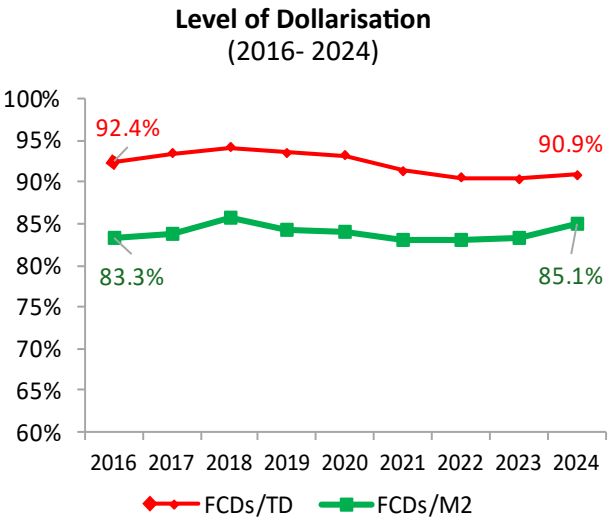
Cambodia has achieved a remarkable economic growth, averaging over 7% annually between 2001–2024 after having gone through turbulent political and civil wars for over decades. Recently, the level of dollarisation recorded 85.1% as of 2024. The widespread dollarisation in Cambodia is not the result of deliberate policy choices but rather a phenomenon that arises from a history marked by the lack of public confidence in its currency. In fact, the main drivers of the widespread use of the U.S. Dollar (USD) can be traced in the Khmer Rouge regime's (1975–1979) systematic destruction of financial institutions and the monetary system in the country, as well as in the late 1980s and early 1990s periods (Im and Dabadie, 2007) of political instability. In the early 1990s, following the UN peacekeeping mission (UNTAC) and increased foreign investment, dollar inflows surged. UNTAC paid salaries and expenses in USDs, further entrenching its use in the economy. Notwithstanding, the USD has been then a preferred currency for large transactions and payment, savings, and international trade. As a result, this monetary situation has had effects on the Cambodian economy, especially its trading sector as the trade deal is made and recorded in USD.

Cambodia's trade plays a crucial role in boosting its economic growth and development. The nation's economy has transformed from being primarily dependent on agriculture to becoming more integrated into regional and international markets. Cambodia has entered into several trade agreements including the Regional Comprehensive Economic Partnership (RCEP), the Cambodia-Korea Free Trade Agreement, the Cambodia-China Free Trade Agreements as well as World Trade Organization (WTO) since 2004, which have shaped Cambodia's international trade to be even more integrated into international market access despite the country being more vulnerable now to outside shocks and global competition. The mainstay of Cambodia's trade is exports, which are primarily directed to the U.S., EU, China, and ASEAN nations. These exports primarily comprise of textiles such as garments and footwear, travel accessories, and agricultural products like rice, rubber, cashews, cassava, and bananas (General Department of Customs and Excise of Cambodia, 2025). Despite the export competitiveness into the European Union market being challenged by the partial withdrawal of the trade agreement, Everything But Arms (EBA) in 2020, the EU

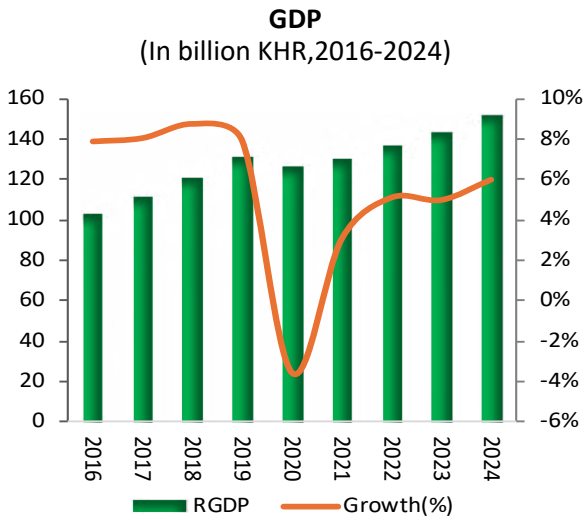
still remains a significant export destination for Cambodia in term of textiles, travel goods and bicycles. ASEAN's neighbouring markets, including Vietnam, and Singapore, primarily purchase agricultural products. On the other hand, most imports consist of machinery, fuel, consumer goods and raw materials for manufacturing. Cambodia imports a wide range of products that are needed for manufacturing production and daily consumption. China, Thailand, and Vietnam are the key suppliers following by Indonesia and Singapore.

In practice, a large share of Cambodia's export and import contracts are denominated and settled in USDs, which has contributed to the country's high level of dollarisation. Nevertheless, the exchange rate remained broadly stable, averaging 4,077 KHR per USD over 2016–2024, as shown in Figure 2.

Figure 1: Level of Dollarisation and GDP

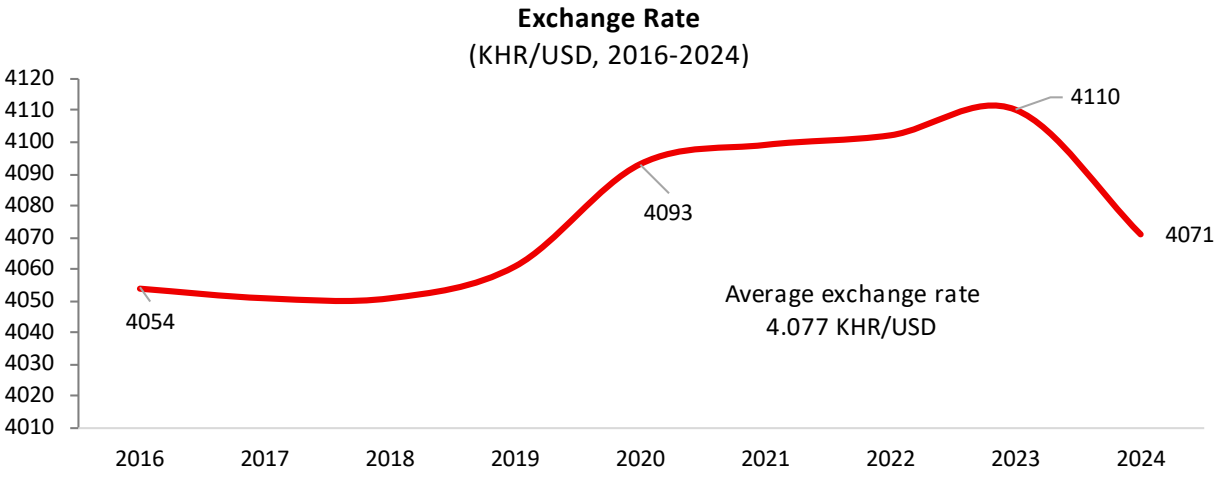


Source: National Bank of Cambodia.



Source: National Institute of Statistic and NBC's staff calculation.

Figure 2: Exchange Rate



Source: National Bank of Cambodia.

2. Research Objective

Although dollarisation has made international transactions easier in this context, its widespread use also makes things more challenging. Notwithstanding, it is difficult for the National Bank of Cambodia to manage its own monetary policy such as setting interest rates or manage the exchange rate to support the local economy or fix trade imbalances. This research study, thus, is aimed at empirically evaluating the relationship between the USD usage and export performance, evaluating whether dollarisation supports or undermines export performance and to explore the policy alternatives or adjustments in Cambodian context, while also considering the effects of dollarisation on the exchange rate. This study is conducted as part of the research project titled "Addressing USD Dominance in Trade Invoicing and Cross-border Investment in SEACEN Economies", organised by the Southeast Asian Central Banks (SEACEN) Research and Training Centre.

Understanding these dynamics is crucial for assessing the broader implications of dollarisation on Cambodia's trade performance and macroeconomic stability. Given the country's high level of dollarisation, the findings from this study are expected to provide meaningful insights into the policy options available to manage external vulnerabilities and enhance economic resilience.

The structure of the study is as follows:

- **Section 3:** Dollarisation
- **Section 4:** Overview of Cambodia's Trade
- **Section 5**: Degree of Trade Invoicing in Cambodia
- **Section 6:** Conceptual Framework
- **Section 7**: Empirical Methodology and Result and
- **Section 8:** Conclusion and Policy Implication

3. Dollarisation

In Cambodia, the level of dollarisation is defined as the degree of USD usage in the financial and monetary system alongside the local currency, the Khmer Riel. It illustrates the currency choice of using USD for savings, crediting, pricing and making payments as the USD is widely accepted. In this context, Cambodia remains highly dollarised country as the level of dollarisation remains high, which is measured by the ratio of Foreign Currency Deposits (FCD) to Broad Money (M2). The FCD/M2 ratio was 85.1% in 2024 (NBC, 2024), indicating that foreign currency deposits account for a large share of the money supply in the banking system. This high FCD/M2 ratio highlights the predominance of foreign currency in Cambodia's banking deposits as well as the limited role of local currency, the Khmer Riel, acts in storing value within the financial system.

As reflected, Cambodia's financial system is highly dollarised for which both loans and deposits are valued in USDs. The ratio of foreign currency deposits constitutes approximately 89% of the total deposits in the banking system, illustrating that the huge amount of savings is in USDs as of 2024. On the other hand, loan in foreign currency account for 87% of the total loan in the whole banking system. This firmly established structure of financial dollarisation has significant impacts on how monetary policy works, the risk of exchange rates, and financing situations faced by the firms in Cambodia.

The high FCD/M2 ratio indicates that dollarisation is deeply rooted in the financial system. Dollarisation can make trade and financial transactions easier in the short-term, but it limits the ability of monetary policy to work independently and the stability of the financial system. For example, a large reliance on foreign currency makes local monetary tools less effective and makes the economy more vulnerable to shocks from outside the country. Thus, understanding the pros and cons of dollarisation is crucial for studying its impact on the economy.

This paper will also illustrate the advantages and disadvantages of the dollarisation as following:

3.1 Advantages of Dollarisation

- Dollarisation has incentivised citizens to move away from using gold to using USDs as the means of payment or storing wealth in the early 1990s. The use of USDs has improved the market economy that relies on currency.

- Dollarisation has deterred the outflow of capital and promoted intermediation and financial depth. Dollarisation has provided the possibility of saving USDs within the country, thereby reducing the need for residents to deposit their funds in foreign countries. These capital sources have been utilised to finance investments and various initiatives that contribute to the development of Cambodia's economic and financial system.

- Dollarisation has reduced currency exchange risk and speculation from exchange rate fluctuations. Because the use of the riel is low, the monetary authority can control the circulation of the national currency and the exchange rate, and speculators in the foreign exchange market cannot profit much from fluctuations in the exchange rate. These factors contributed to Cambodia's ability to escape the Asian financial crisis of 1997-1998.

- The use of the dollar has facilitated the process of international trade integration because the dollar is used in international exchanges, both regionally and globally. The level of international trade openness of the Cambodian econom y (total exports and imports compared to GDP) increased from 84% in 2016 to 119% in 2024.

- Dollarisation has contributed to macroeconomic stability by maintaining price stability and strengthening fiscal discipline, especially during periods when the Cambodian economy has experienced macroeconomic instability. The dollar (hard currency) is considered a stable currency compared to other currencies, so the use of the dollar has also reduced the pass-through effect of the exchange rate on inflation. At the same time, the government will not rely on printing money to finance the budget deficit, which has a positive effect on controlling inflationary pressures and strengthening fiscal policy.

3.2 Disadvantages of Dollarisation

- The use of the dollar can lead to the loss of national identity. The national currency plays a role as a national identity representing the people and the nation. Therefore, the use of a single national currency is a matter of national pride and promotes nationalism, trust in the state and nation, and solidarity among the people in the society.

- Dollarisation has led to the use of multiple currencies in the Cambodian economy, which has led to losses in exchange transactions. The use of a single national currency will contribute to reducing transaction costs, especially currency exchange losses, in the economic and financial sectors.

- Dollarisation has limited the choice of instruments and the effectiveness of monetary policy. The wider use of the national currency in all sectors will allow the government to strengthen macroeconomic management to stimulate and sustain growth because the quantity of money supply has a direct impact on the physical economy (production and employment). The independence and effectiveness of monetary and exchange rate policies necessarily depend on the extent of the use of the national currency.

- Dollarisation causes Cambodia to lose revenue from printing banknotes (seigniorage). Seigniorage is the difference between the value of the currency and the cost of printing it. As the national currency is used more, the government will receive more seigniorage, which will allow the government to accumulate national wealth or use it for important national economic development.

- Dollarisation has reduced or eliminated the central bank's role as lender of last resort and exposed it to liquidity risks. The wider use of the national currency will allow the central bank to play a more effective role as lender of last resort to maintain financial stability. Strengthening this role will increase economic agents' confidence in the financial sector and enhance the central bank's crisis prevention capacity.

- Dollarisation has exposed the Cambodia banking system to balance sheet risks. Because dollarisation is incomplete, Cambodia banking and financial institutions will be vulnerable to the risks that arise from holding assets and liabilities in different currencies. The use of a single currency in the financial system will reduce these risks and strengthen the resilience of the financial system to crises.

4. Overview of Cambodia's Trade

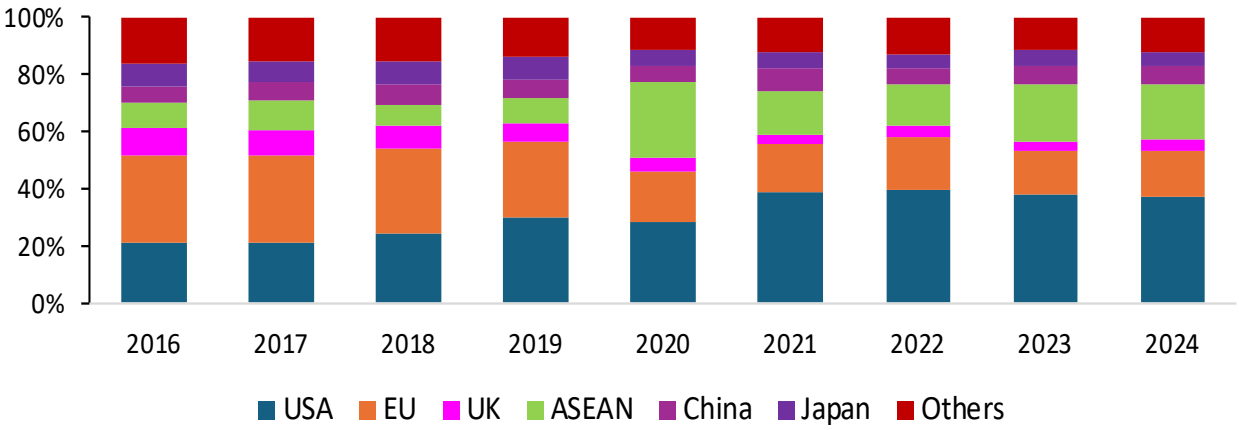
4.1 Export

As of 2024, exports remain a major contributor to Cambodia's economic growth, with total export value reaching USD 26.6 billion, representing a 13.6% increase over 2023. The Garment, Footwear, and Travel (GFT) sectors continue to dominate, accounting for approximately 52.2% of total exports (~USD 13.9 billion), reflecting a nearly 23.4% rise from the previous year.

In terms of trade partners, the United States remains the leading exporter of Cambodian goods, with exports valued at around USD 9.9 billion — approximately 37.2% of total exports. Vietnam and China follow as the next largest export destinations.

Figure 3: Export

Share of Export by Countries and Region
(2016- 2024)



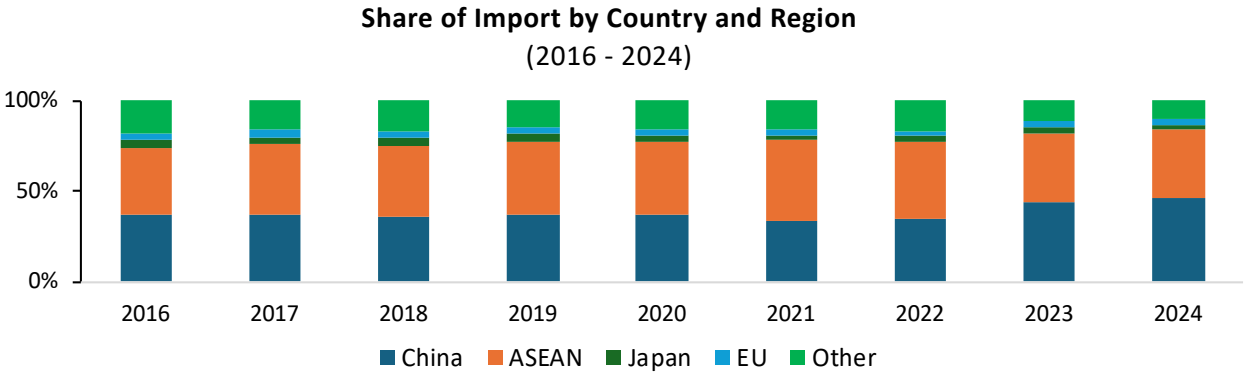
Source: General Department of Customs, and Excise of Cambodia and NBC 's staff calculation.

4.2 Import

Cambodia's imports increased dramatically in 2024 because of growing industrial activity and domestic demand. The total amount imported was 28.54 billion USD, an 18% increase over 2023. An official Customs report mentioned that Cambodia's trade volume in 2024 was $54.74 billion, of which $28.54 billion was imported volume.

China remains the largest import supplier, providing raw materials, electronics, construction inputs, machinery, and a wide range of consumer goods (B2B Cambodia, 2025). Vietnam and Thailand follow as other significant import partners, supplying both intermediate goods and final products which are necessary to support Cambodia's domestic consumption and production chain (Xinhua News Agency, 2025).

Figure 4: Import



Source: General Department of Customs, and Excise of Cambodia, and NBC staff's calculation.

5. Degree of Trade Invoicing in Cambodia

Cambodia's exports and imports are overwhelmingly invoiced in USDs, reflecting the country's high degree of dollarisation. According to global trade invoicing data, trade invoicing is recorded in USDs in most countries, especially developing countries and emerging economies (Boz et al., 2022). Regionally, the USD is also used for trade invoicing in the ASEAN+3 region, as well as for trade transactions between trading partners in the region. Most Cambodian export goods are also priced in USDs as well, similar to global and regional patterns (AMRO, 2022). Trade invoicing currencies can also be affected by trading partners' patterns, as in the case of Cambodia. For example, trade with Vietnam or Thailand may use local currencies on a marginal scale, but the bulk of trade is still denominated in USDs, reflecting the dollar's wide use in the ASEAN region (AMRO, 2022; Boz et al., 2022).

6. Conceptual Framework

Following the literature review, this section develops a conceptual framework that links firm resources, strategy, and context to export performance. At the macro level, export performance denotes an economy's success in global markets and is typically assessed by a dashboard of indicators—export growth, export market share (relative to external demand), diversification/quality upgrading, and domestic value added in exports (UNCTAD, 2022). Conceptually, it remains a multidimensional construct—the country analogue of firm-level economic and strategic outcomes—so analyses often combine growth and market-share metrics with composition/quality and value-added indicators (Sousa, Martínez-López, and Coelho, 2008).

Potential Bilateral Causality between USD Reliance and Export Performance

There may be a reciprocal relationship between export performance and reliance on the USD. According to Calvo and Végh (1992), increased usage of the USD can help exports by stabilising prices, minimising exchange-rate risk, and lowering transaction costs, especially in economies with weak monetary credibility. The USD's prominence in global trade can help export transactions and cross-border payments move more smoothly, according to evidence from the trade invoicing literature (Gopinath, Itskhoki, and Rigobon, 2010; Gopinath et al., 2020). However, increased export quantities could also increase dependency on the USD. Businesses are more motivated to price, invoice, and finance their operations in USD as they increase exports, particularly in markets where trade is mostly invoiced in USD, to lower balance-sheet risk and currency mismatch. According to empirical research, financial dollarisation frequently rises naturally in tandem with export activity and trade openness (De Nicolo, Honohan, and Ize, 2005; Levy-Yeyati, 2006). All things considered, these findings point to the possibility of bilateral causality, suggesting that exports and USD reliance may reinforce one another. This emphasises how crucial it is to take endogeneity into consideration when conducting an empirical analysis of how dollarisation affects export success.

6.1 Empirical Studies

Empirical Evidence

Calvo and Végh (1992) argue that in economies with weak monetary credibility, high inflation, and policy inconsistency, the adoption of a foreign currency—particularly the USD—serves as a nominal anchor that stabilises expectations and protects the real value of prices and contracts. By substituting into a credible foreign currency, economic agents reduce inflation uncertainty, transaction costs, and exchange-rate risk, thereby facilitating international trade in the short-run, especially where domestic currency instability discourages long-term contracting. However, the authors also emphasise that reliance on a foreign currency constrains monetary policy flexibility, suggesting that while dollarisation may temporarily support trade and macroeconomic stability, it can limit long-term economic adjustment (Calvo and Végh, 1992).

De Nicolo, Honohan, and Ize (2005) examine financial dollarisation, emphasising the widespread use of foreign currency in bank deposits and loans as an endogenous response to macroeconomic instability, weak institutions, and low confidence in domestic monetary policy. While foreign currency usage enhances credibility by providing a stable store of value and unit of account, the authors argue that it also alters risk allocation by increasing currency mismatches in firms' and banks' balance sheets. As a result, real exchange rate adjustments become less effective, reducing the responsiveness of prices and real activity to exchange-rate movements. In the context of trade, this implies that when exports are priced or financed in USDs, domestic currency depreciation does not translate into sustained competitiveness gains, thereby weakening the traditional

expenditure-switching mechanism and dampening export responses to exchange-rate changes (De Nicolo et al., 2005).

Levy-Yeyati (2006) shows that in highly dollarised economies, exchange-rate movements have a limited effect on prices and exports. Because many financial contracts and prices are set in foreign currency, depreciation of the domestic currency does not lead to strong competitiveness gains. As a result, exchange-rate adjustments become less effective in stimulating exports and economic activity (Levy-Yeyati, 2006).

- **Salvador:** Trade growth was limited. Official dollarisation in 2001 reduced rates and inflation, but if regional patterns are taken into account, fixed-effects and gravity evidence do not clearly demonstrate advantages in trade-openness; instead, prices and employment, not the exchange rate, were used to react to shocks (Levy Yeyati, 2021)
- **Peru:** Empirical studies on Peru show that dollarisation weakens the short-run effect of exchange rate depreciation on exports. Although Peru operates under a flexible exchange rate regime, a large share of exports is invoiced in USDs, which limits the immediate price competitiveness gains from depreciation. As a result, depreciation tends to raise export revenues mainly through valuation effects rather than through strong increases in export volumes in the short-run. Over the longer term, export performance adjusts through changes in production, contract renegotiation, and external demand conditions, indicating that dollarisation shifts the export response from short-run price effects to medium- and long-run real adjustments (Armas and Grippa, 2006; IMF, 2015; Adler et al., 2020).
- **Uruguay:** In Uruguay, where financial dollarisation is high, empirical evidence indicates that exchange rate depreciation provides only limited short-run support to exports. Because many exports are priced in foreign currency, depreciation does not immediately lower export prices faced by foreign buyers, reducing its impact on export volumes. Instead, short-run effects are observed mainly through changes in exporters' profit margins rather than through quantity expansion. In the medium- to long-run, export responses evolve as firms gradually adjust prices, production decisions, and market strategies, suggesting that dollarisation dampens the short-run export response while allowing adjustment to take place over time through non-price channels (Bergara and Lluberas, 2016; IMF, 2018; Boz et al., 2020).
- **Ecuador:** Ecuador provides a clear case in which full dollarisation eliminates the exchange rate–export channel entirely. Since the USD is the legal tender, nominal exchange rate depreciation is not possible, and exports cannot benefit from short-run currency movements. Empirical assessments show that Ecuador's export performance depends primarily on global demand, international commodity prices, and domestic cost and productivity adjustments rather than on exchange rate changes. Consequently, dollarisation removes any short-run export boost from depreciation and forces export growth to occur only in the long-run through structural and real-sector adjustments (IMF, 2015; IMF, 2019).

Empirical Evidence from Asia

- **Laos:** partial de-dollarisation with shock trade-offs. Dollar use remains high (FX lending ~50%; FX deposits ~54% in 2019), with authorities aiming to strengthen the kip; depreciation in 2022–2023 improved export price competitiveness but fuelled inflation and debt burdens (IMF, 2023).
- **Mongolia:** USD-centric trade without full dollarisation. Firms invoice heavily in USD (even with Russia/China), while the banking system keeps meaningful FX exposure (~28–33% of liabilities around 2020–2021); exchange-rate swings (e.g., 2016, 2022) aid exporters in local currency but raise FX-debt risks (World Bank, 2022; IMF, 2025).

7. Empirical Methodology and Result

To analyse the effects of dollar usage on export performance, we applied a **Vector Error Correction Model (VECM)**-based impulse response analysis. This approach enables us to examine both the long-term equilibrium relationship between variables and the short-term dynamics of their interactions. Specifically, we investigate how a one-time standard deviation shock to the export variable propagates over time in response to changes in dollar usage and other relevant variables. The VECM captures the co-movement and adjustment process among the variables, allowing us to understand the speed and nature of their convergence to equilibrium after shocks. The impulse response functions (IRFs) derived from the VECM trace the response of export performance to shocks in dollar usage, providing insights into the temporal effects and policy implications.

$$\mathbf{Exp_t=\beta_0+\beta_1 Dus_t+ \beta_2 Exc_t + control + \epsilon_t}$$

Where Exp_t represents the export as the percentage to GDP. It serves as the primary dependent variable in the analysis, reflecting the country's export performance over time. Dus_t denotes dollar usage, measured by ratio of foreign currency deposits to M2 (FCD/M2), this ratio captures the extent to which the economy relies on USDs in domestic transactions and financial assets. Exc_t indicate exchange rate (Riel/USD). This is the nominal exchange rate between Riel (KHR) and the USD. It is included to account for price competitiveness in international trade. Moreover, ϵ_t is the error term capturing unobserved shock.

To account for external influences on Cambodia's export performance, we extend the model by including exogenous control variables such as trade agreements and the impact of the COVID-19 pandemic. A dummy variable is included that captures the presence of major trade agreements signed by Cambodia during the sample period. A value of 1 is assigned for periods when trade agreements are active, and 0 otherwise. A dummy variable is also included to indicate the quarters affected by the COVID-19 pandemic, typically starting from Q1 2020. This variable captures the exogenous shock due to global trade disruptions. The extended model considering these controls can be expressed as:

$$\mathbf{Exp_t=\beta_0+\beta_1 Dus_t+\beta_2 Exc_t+\gamma_1 TradeAgreement_t+\gamma_2 COVID_t+\epsilon_t}$$

Stationarity Test

To stabilise variance and guarantee linearity in the VAR model, all the time series were converted into logarithmic form (log) when necessary and seasonally adjusted when appropriate. Before estimating the VAR model, we conducted a unit root test using the Augmented Dickey-Fuller (ADF) test to assess the stationarity of all variables included in the model. For many time series models and statistical tests, stationarity is an essential premise.

The ADF test uses the following hypothesis:

- Null Hypothesis (H_0): The variable has a unit root (i.e., non-stationary)
- Alternative Hypothesis (H_1): The variable is stationary

We reject the null hypothesis if the ADF test statistic is smaller (more negative) than the critical value, indicating that the variable is stationary.

$$H_{0:}\ Y=0$$
$$H_{1:}\ Y<0$$

Seasonal Adjustment

The adjustment was carried out using **JDemetra+** software, applying the **TRAMO–SEATS** methodology. TRAMO (Time Series Regression with ARIMA Noise, Missing Observations, and Outliers) was used to model the series, correct for calendar effects, and identify outliers, while SEATS (Signal Extraction in ARIMA Time Series) decomposed the series into trend–cycle, seasonal, and irregular components. This approach ensures a statistically consistent decomposition and allows the seasonally adjusted series to more accurately reflect the underlying dynamics relevant for the empirical analysis.

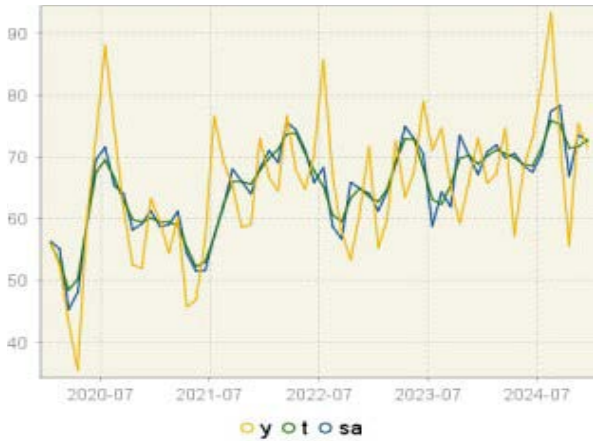
Identifying the Seasonal Present

Summary

Data have been differenced and corrected for mean

Test	Seasonality
1. Auto-correlations at seasonal lags	YES
2. Friedman (non parametric)	YES
3. Kruskall-Wallis (non parametric)	YES
5. Periodogram	YES
6. Seasonal dummies	YES
6bis. Seasonal dummies (AMI)	YES

Seasonal Adjustment



Data Collection

We compiled a monthly time series dataset covering the period from 2020 to 2024, using data obtained from reliable and authoritative sources. Monthly export data were collected from the General Department of Customs and Excise of Cambodia (GDCE). Moreover, as GDP figures are available only on an annual basis, we applied linear interpolation to convert the values into a monthly frequency for consistency with other variables in the analysis. Dollarisation, a common proxy for dollar usage in highly dollarised economies, was extracted from National Bank of Cambodia (NBC). The nominal exchange rate (KHR/USD) was obtained from the NBC, reflecting the value of the KHR against the USD monthly. All variables were transformed to ensure consistency in frequency and scale. Where necessary, seasonal adjustments and logarithmic transformations were applied to stabilise variances and improve the accuracy of the VAR model estimation. Despite the robustness of the data sources, some limitations remain—particularly the need to interpolate annual GDP data to a monthly frequency. This introduces potential estimation error that should be considered when interpreting the results.

Results and Discussion

This section presents the results of the stationarity tests conducted using the Augmented Dickey-Fuller (ADF) method, followed by an analysis of the dynamic relationship between dollar usage and export performance using VECM-based Impulse Response Functions (IRFs).

- **Augmented Dickey-Fuller Test**

Table 1 presents the results of the Augmented Dickey-Fuller (ADF) test for all variables included in the model. The test statistics for Export (Exp), Dollar Usage (Dus), and Exchange Rate (Exc) are all more negative than their respective critical values at the 1% significance level, as indicated by the triple asterisks (***). This suggests that the null hypothesis of a unit root is rejected for all three variables, implying that they are stationary in levels.

Table 1 : Augmented Dickey-Fuller Test

Variables	t-Statistics	Significant
Exp	-7.288401	(***)
Dus	-6.808851	(***)
Exc	-5.195722	(***)

Note: significant at 1% (***), 5% (**) and 10% (*), not significantly at any level (-).

- **Cointegration Test**

The Johansen cointegration test was conducted to examine the presence of long-run relationships among the variables. The results show that the trace statistics exceed the corresponding critical values at the 5% significance level, indicating the existence of at least one cointegrating relationship among the variables. This suggests that the variables are cointegrated and move together in the long run.

Johansen Cointegration Test

Date: 12/13/25 Time: 15:04
Sample (adjusted): 2020M05 2024M12
Included observations: 56 after adjustments
Trend assumption: Linear deterministic trend
Series: DLOG_EXC DLOG_EXP DLOG_FCD
Exogenous series: TRADE COVID
Warning: Critical values assume no exogenous series
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

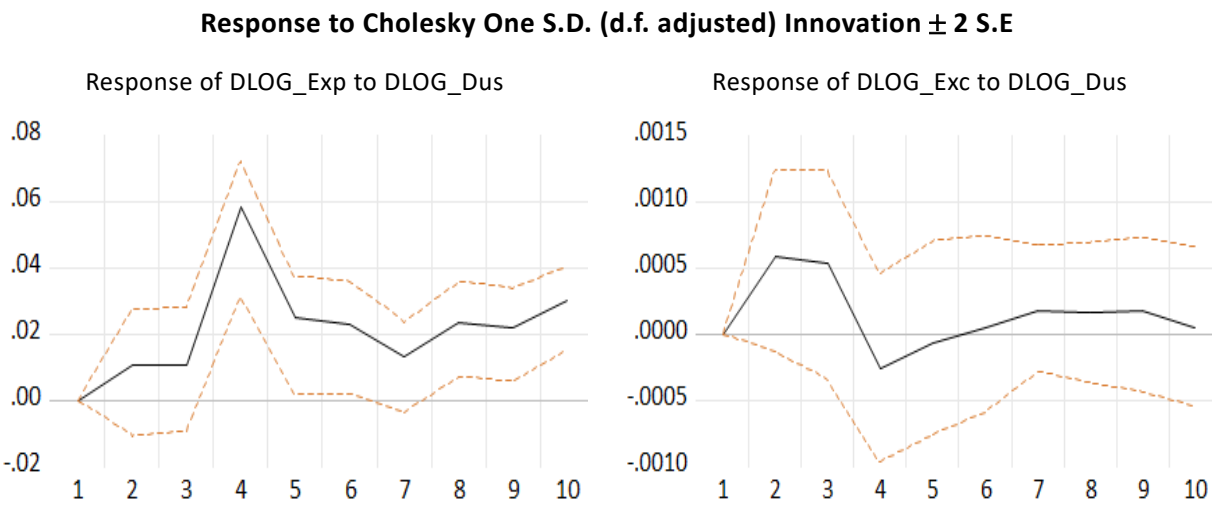
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.563081	85.91994	29.79707	0.0000
At most 1 *	0.367601	39.55158	15.49471	0.0000
At most 2 *	0.219674	13.89042	3.841465	0.0002

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

- **Result From VAR by Applying Impulse Response**

This section provides the results of applying impulse response on dollar usage on export performance. Figure 4 shows the effect of endogenous variables on export for 5 years consecutively. The impulse response functions (IRFs) in Figure 4 illustrate the dynamic effects of a one standard deviation point increase in dollar usage (DLOG_Dus) on the exchange rate (DLOG_Exc) and exports as a percentage of GDP (DLOG_Exp). The impulse response analysis indicates that a positive shock to USD usage (DUS) in Cambodia leads to a noticeable increase in exports, measured as the share of total exports to GDP (EXP). Following an increase in dollar usage, exports respond positively and reach a peak within the first few periods, suggesting that greater reliance on the USD facilitates export activity in the short-run. This positive response may reflect reduced exchange rate uncertainty and lower transaction costs associated with dollarisation, which enhance trade competitiveness. The effect gradually declines over time but remains positive for several periods, indicating some persistence. Meantime, an increase in dollar usage which initially leads to a mild depreciation of the Riel in the short-run, can be reflected by an increase in dollar usage which put pressure on Riel, followed by an appreciation in subsequent periods reflecting the reduction in exchange rate volatility and more stable currency environment. However, the exchange rate response is relatively small and statistically weak.

Figure 4: Impulse Responses of Dollar Usage on Cambodia's Export Performance (period: 2000-2024)



Panel Data Analysis

This study also employs panel data analysis using data from seven countries—Cambodia, Mongolia, El Salvador, Ecuador, Indonesia, Malaysia, and Vietnam—covering the period from 2000 to 2023. These countries were selected because they represent a mix of fully dollarised and partially dollarised economies. The use of panel data enables us to observe within-country changes over time, while also controlling for unobserved, time-invariant country-specific characteristics, such as geography, institutional quality, or long-standing trade relationships. We begin our analysis with VAR panel data-based Impulse Response Functions (IRFs) by including fixed effect model.

Fixed Effects Panel Regression Equation

$$\mathbf{Exp}_t = \alpha_i + \beta_1 \mathbf{Dus}_t + \beta_2 \mathbf{Exc}_t + \epsilon_t$$

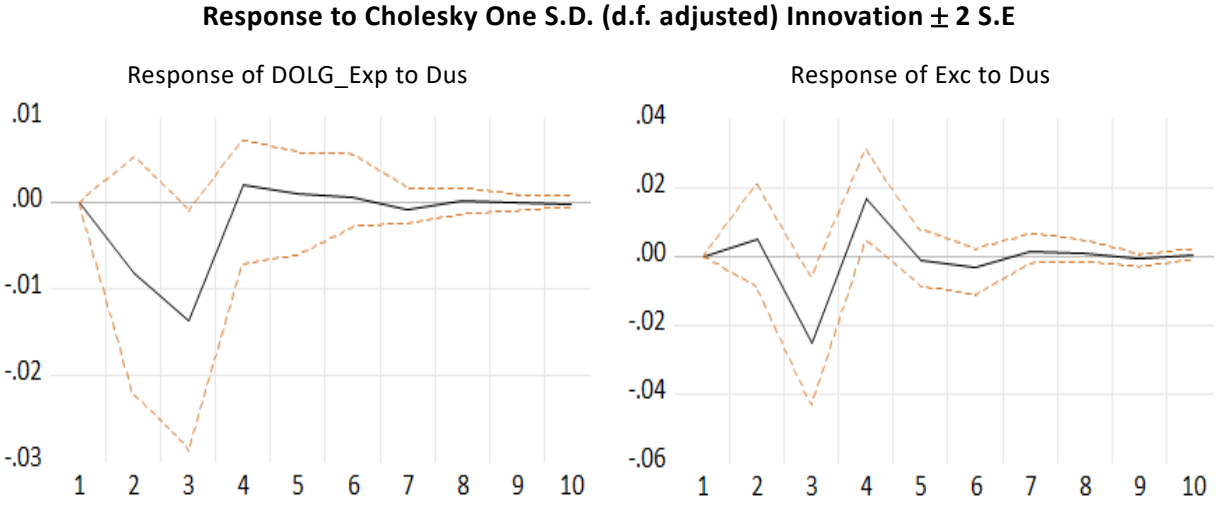
Where Exp_t represents the export as the percentage to GDP, Dus_t denotes dollar usage, Exc_t indicate exchange rate and α_i country-specific fixed effect - controls for unobserved, time-invariant differences between countries.

- **Result from VAR by Applying Impulse Response**

This section presents the results of the impulse response analysis examining the impact of dollar usage on export performance using panel data. Figure 5 illustrates the dynamic effects of a one standard deviation increase in dollar usage over a 20-year period. The impulse response functions (IRFs) demonstrate that a positive shock to dollar usage (Dus) temporarily influences both the exchange rate and exports, but the effects are short-lived. The exchange rate initially experiences a small negative response to a

positive shock in dollar usage around period 2 and quickly reverses, becoming slightly positive in subsequent periods (around periods 3 and 4). After period 5, the effect gradually dissipates and converges to zero, indicating the shock's temporary impact on the exchange rate. Moreover, exports show an initial sharp negative reaction to the shock in dollar usage around period 2. This is followed by a pronounced positive response peaking around period 3. Similar to the exchange rate, the effect gradually diminishes, approaching zero by around period 7. Overall, the findings suggest that while increased dollar usage can influence export performance and exchange rate dynamics in the short-term, the effects are not sustained. Persistent or excessive dollarisation may lead to negative consequences such as reduced competitiveness, inflationary pressures, or broader macroeconomic imbalances. However, in the long-run, the economy tends to adjust, and the variables revert to equilibrium.

Figure 5: Impulse Responses of Dollar Usage on Export Performance
(period: 2000-2023)



Overall, the impulse response analysis indicates that an increase in dollar usage has a positive and statistically significant effect on export performance in Cambodia, particularly in the short- run. This suggests that dollarisation facilitates export activity by reducing exchange rate uncertainty and transaction costs. However, increased dollar usage also constrains exchange rate adjustment, reflecting reduced monetary policy flexibility in a highly dollarised economy.

This study's findings align with the general theory that dollarisation significantly benefits trade and investment by effectively eliminating exchange rate risk and reducing associated transaction costs. This advantage is particularly salient for an export-oriented economy like Cambodia, given its high reliance on USD-denominated contracts across key economic sectors. The adoption of the dollar provides Cambodian exporters with greater certainty regarding their foreign-currency revenues, which inherently encourages and facilitates international trade.

These results are consistent with an extensive body of theoretical and empirical literature emphasising the positive influence of exchange rate stability on export performance. Prior research indicates that exchange rate uncertainty acts as a deterrent to trade by increasing revenue volatility and transaction costs, a challenge acutely felt by developing economies with restricted access to financial hedging instruments. Dollarisation mitigates these detrimental effects by sharply reducing currency risk and fostering enhanced price certainty. Furthermore, empirical evidence from dollarised and developing economies confirms that increased reliance on the USD facilitates trade integration, even in circumstances where nominal exchange rate adjustments are limited.

The observed outcomes also resonate with the arguments advanced by Calvo and Végh (1992) and De Nicolo, Honohan, and Ize (2005), who suggest that the use of a foreign currency—particularly the USD—functions as a powerful commitment device in economies struggling with weak monetary credibility, thereby stabilising expectations and promoting commerce. Additionally, Gopinath, Itskhoki, and Rigobon (2010) highlight the pervasive dominance of the USD in global trade invoicing, which serves to dampen the impact of exchange rate fluctuations on export volumes. Feige et al. (2002) provide evidence that dollarisation improves trade integration in transition economies by lowering currency risk. However, it is noteworthy that Obstfeld, Shambaugh, and Taylor (2005) contend that highly dollarised economies face a "policy trilemma" constraint, which ultimately restricts their ability to adjust the exchange rate. Menon (2008) and Kang et al. (2019) reinforce the view that while dollarisation promotes trade in small open economies by lowering transaction costs, this benefit is realised at the expense of domestic policy flexibility.

8. Conclusion and Policy Implication

In the context of a highly dollarised economy, Cambodia has gained both economic advantages and disadvantages. Cambodia has derived significant benefits, particularly in relation to export performance. One of the key advantages is the reduction in transaction costs for trade and investment, as the widespread use of the USD eliminates the need for currency conversion and minimises exchange rate risk. This stability not only encourages smoother trade operations but also creates a favourable environment for foreign direct investment (FDI), as investors perceive lower financial risk in a dollar-based economy. Despite these benefits, dollarisation presents significant macroeconomic challenges, particularly for the NBC. Chief among these is the loss of independent monetary policy. Without control over its own currency, the NBC cannot regulate the money supply, set interest rates, or respond effectively to domestic economic shocks—limiting its ability to stabilise the economy in times of crisis.

The empirical findings suggest that increased dollar usage is associated with a temporary appreciation of the exchange rate and a modest short-term boost in export performance. However, these effects are not sustained over the medium- to long-term, and the impact of dollarisation shocks diminishes rapidly. Given these dynamics, there is a pressing need for strategic policy interventions to improve Cambodia's external competitiveness and manage its vulnerability to global dollar cycles, and a more nuanced approach to managing its effects—particularly on trade— is essential to ensure long-term economic resilience and sustainable export growth in an increasingly interconnected global market. To safeguard long-term growth and improve export competitiveness, Cambodia must adopt a balanced policy mix that addresses both the risks and benefits of dollarisation, while gradually building capacity for greater monetary independence such as : (i) encouraging diversified currency invoicing in trade contracts, particularly with non-dollar partners, (ii) reducing dependence on imported inputs by strengthening regional supply chains and promoting domestic sourcing, (iii) enhancing non-price competitiveness through investment in quality, branding, and logistics, and (iv) exploring gradual de-dollarisation measures, including the promotion of local currency usage where feasible, especially in domestic payments.

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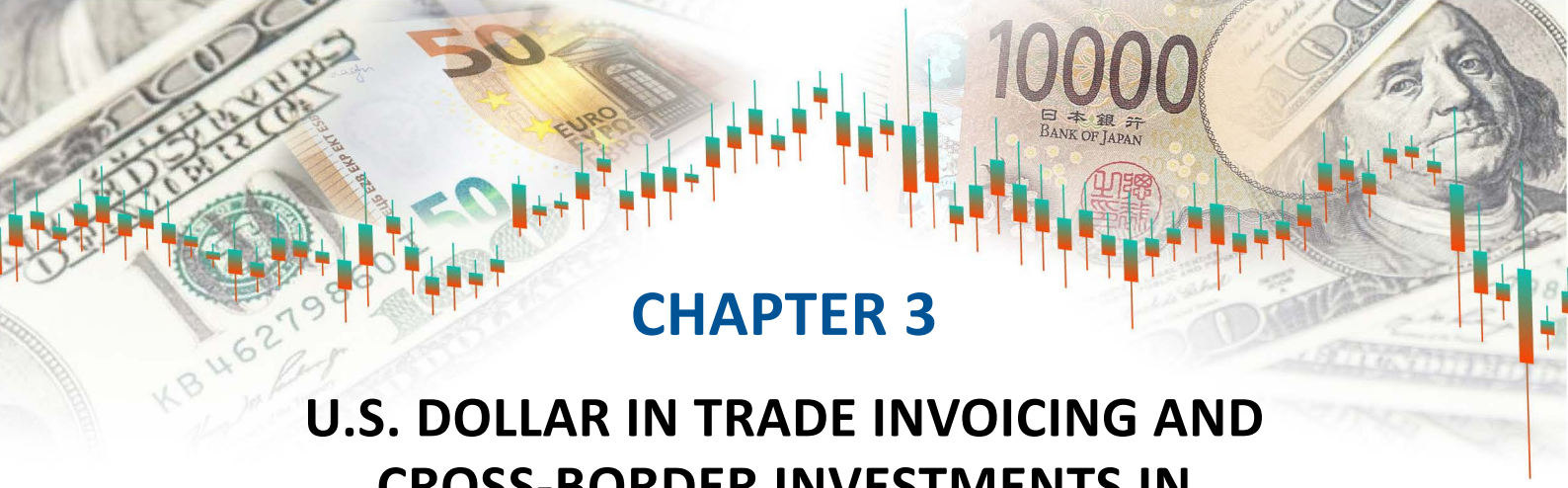


CHAPTER 3

U.S. DOLLAR IN TRADE INVOICING AND CROSS-BORDER INVESTMENTS IN CHINESE TAIPEI

Hsin-Mien Wang[1]

1. Introduction

Despite relatively limited direct trade with the U.S., Chinese Taipei relies on the USD (U.S. dollar) for trade invoicing and cross-border financial transactions. More than 90% of customs export invoices and around 80% of import invoices are denominated in USD, even though less than 35% of customs export declarations and less than 20% of import declarations are to or from the U.S. This heavy reliance on the USD has shaped Chinese Taipei's financial structure, especially accumulation of USD-denominated deposits within Chinese Taipei's banking system as well as CBCT's (Central Bank, Chinese Taipei) foreign exchange reserves.

Therefore, some issues associated with USD dominant pricing and financing have arisen. First, the USD-denominated trade of goods is sensitive to foreign exchange (FX) volatility. Second, Chinese Taipei's economy is exposed to financial vulnerabilities stemming from fluctuations in the U.S. monetary policy and global USD liquidity conditions. Third, demand for USD funding is reinforced by global USD-denominated trade and investment activities, further entrenching the wide use of the U.S. dollar.

This chapter aims to investigate the underlying causes and consequences of USD dominance in trade and finance in Chinese Taipei. It will explore the USD channel, assess its macroeconomic implications and identify policy options, which reduces vulnerabilities and supports financial stability.

2. USD Channel in Chinese Taipei

2.1 Trade of Goods

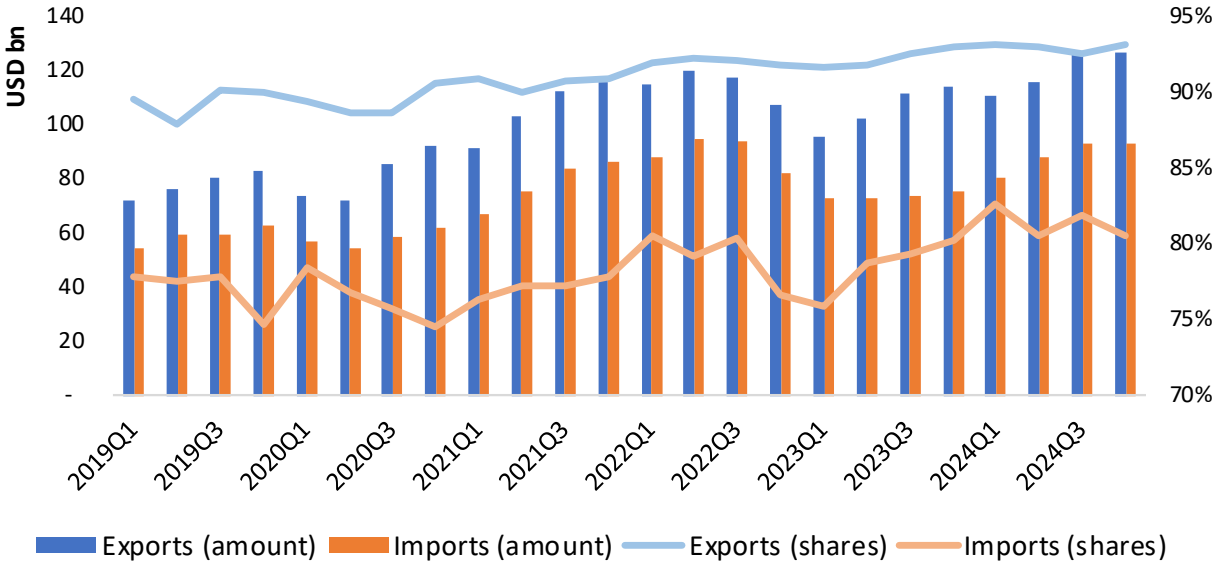
The USD serves as the primary vehicle currency for Chinese Taipei's companies engaged in exporting and importing goods, particular with non-U.S. countries. The USD share as the invoice currency for customs export and import declarations has increased

1. The author is an Economist at the Department of Foreign Exchange, Central Bank, Chinese Taipei. The views expressed in this paper are those of the author and do not necessarily represent the official stand of the Central Bank. The content underwent revisions as part of the editorial process.

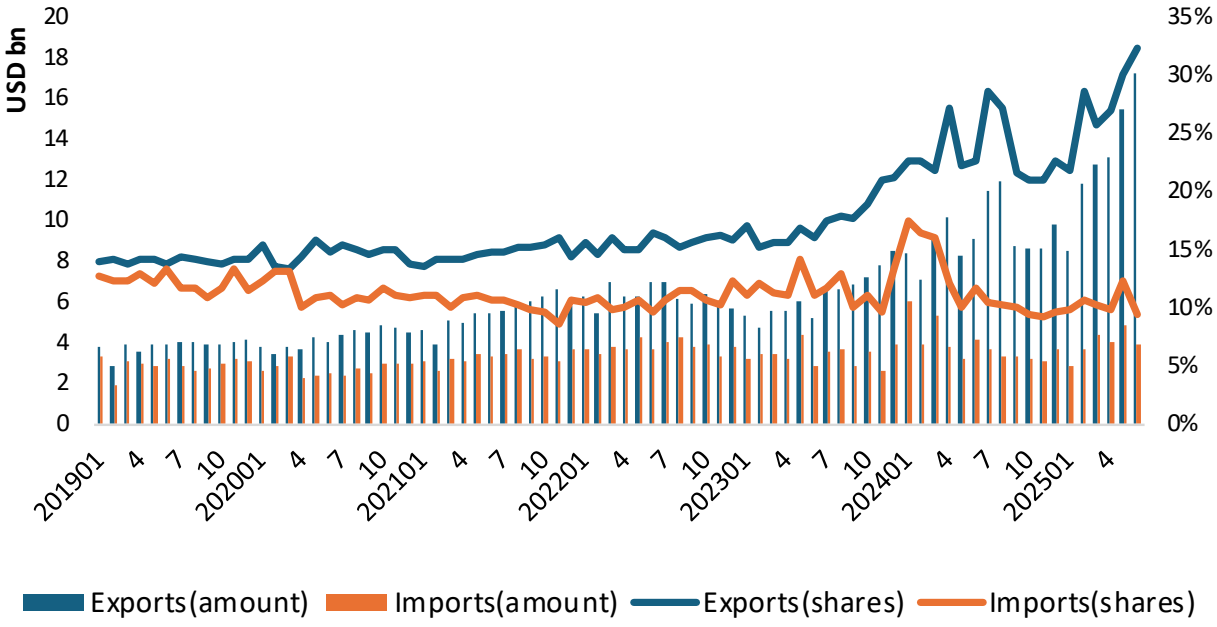
to above 90% and 80%, respectively (Figure 1a). However, less than 35% of customs export declarations goes to the U.S., and less than 20% of imports comes from the U.S. (Figure 1b). Since November 2023, the share of exporting to the U.S. rose to exceeding 20%; the share reached a new high at 32% in June 2025. Although exports and imports are largely denominated in USD, the related trade of goods is significantly linked to non-U.S. countries.

Figure 1: Customs Export and Import Declarations

a. USD invoice amount and shares



b. Origin/destination from/to the U.S.



Source: CPT, Ministry of Finance, Chinese Taipei.

2.2 Banking System

The significant inflow of USD related to trade in goods with non-U.S. countries has contributed to the accumulation of USD-denominated deposits within Chinese Taipei's banking system. According to data on the claims and liabilities of banks located in Chinese Taipei[2], domestic firms account for 58% of banks' USD-denominated deposit liabilities.[3] At the same time, Chinese Taipei's banks provide USD-denominated loans to foreign firms, with non-U.S. firms accounting for 58% of banks' loan claims (Table 1).

In fact, NTD (New Taiwan Dollar)-denominated loans and deposits remain the major components of claims and liabilities of Chinese Taipei's banks. In recent years, loan demand has primarily come from NTD. While the share of NTD-denominated loan claims has increased, the share of USD-denominated loan claims has declined (Figure 2).

On the other hand, the USD share of banks' deposit liabilities increased to above 25% (Figure 2), while the NTD share has remained stable at 66~68%. The composition of foreign currency deposits has shifted in recent years, with USD increasingly prominent. This rise in USD-denominated deposit liabilities is largely driven by the higher volume of USD-denominated exports of goods.

Throughout this period, banks' USD deposit liabilities have consistently exceeded their USD loan claims due to high levels of USD savings. This has led to a currency mismatch between assets and liabilities. To manage this imbalance, interbank transactions between Chinese Taipei's banks and non-U.S. banks have become frequent. Banks from non-U.S. countries account for more than 60% of both banks' loan claims and deposit liabilities in Chinese Taipei (Table 1).

Table 1: Counterparty Country Shares of Chinese Taipei banks' USD-denominated Loan Claims (LC) and Deposit Liabilities (DL) in 2025Q1

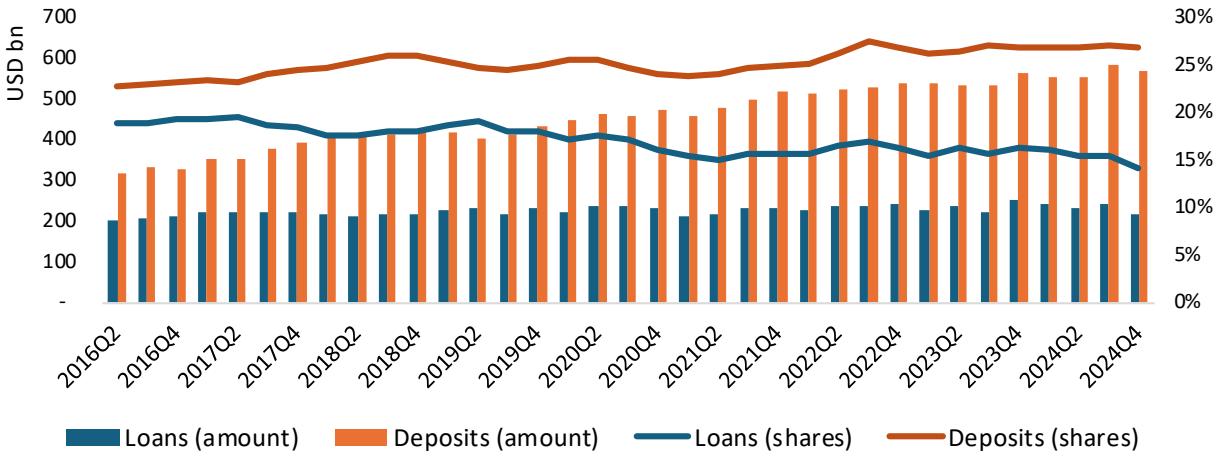
Sectors	Firms		Banks	
Shares	**LC**	**DL**	**LC**	**DL**
U.S.	3%	5%	11%	2%
Chinese Taipei	39%	**58%**	26%	38%
Non-U.S. countries	**58%**	37%	**64%**	**61%**

Sources: BIS.

2. The data is based on BIS LBS statistics, which is compiled according to the residence of banks on an unconsolidated, standalone basis.

3. Firms are defined as non-financial corporations excluding governments and household.

Figure 2: Banks' USD-denominated Loan Claims and Deposit Liabilities in Chinese Taipei

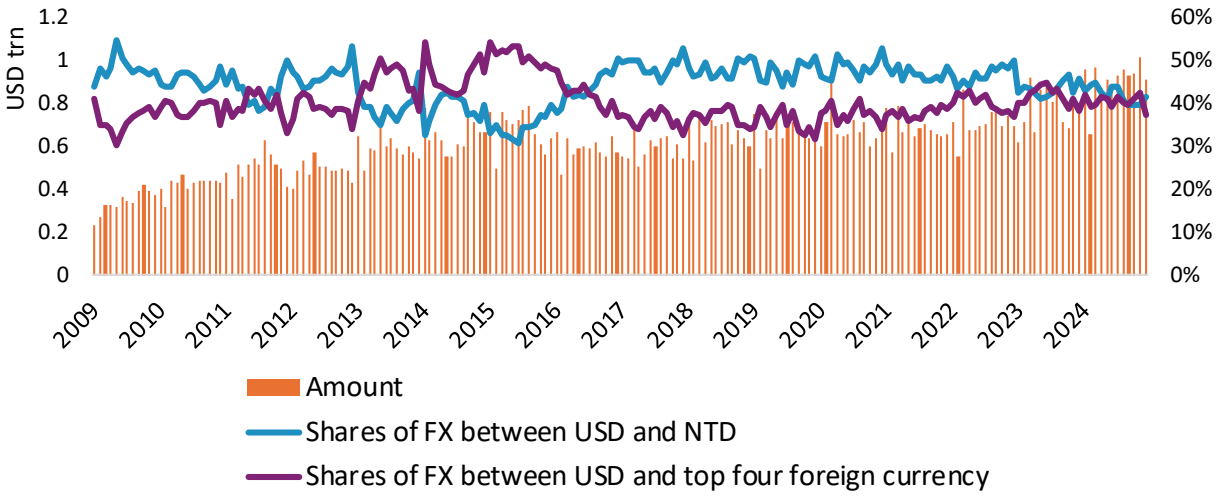


Source: BIS.

2.3 Foreign Exchange Market in Chinese Taipei

In Chinese Taipei's foreign exchange market, USD is the most actively traded currency, exchanged either against NTD or other foreign currencies. Although NTD is commonly used within Chinese Taipei, the foreign exchange trading volume of USD transactions unrelated to NTD exceeded those involving NTD during the period from 2013 to 2015 (Figure 3). As Chinese Taipei's industry is highly concentrated in international business, USD is frequently used as a vehicle currency and is sometimes traded more often against other foreign currencies than against NTD.

Figure 3: FX Transactions Between USD and Local/Foreign Currency



Sources: CBCT.

Note: EUR, JPY, AUD and GBP ranked top four in terms of USD FX transactions in Chinese Taipei's FX market before 2012; EUR, JPY, RMB and AUD become the top four currency starting from 2013 until now.

The major participants in Chinese Taipei's foreign exchange market include domestic firms selling USD generated from exports, domestic NBFIs (non-bank financial institutions) buying USD for overseas investments and FINIs (foreign institutional investors) selling USD to invest in Chinese Taipei's stock market.[4] The foreign exchange market is highly sensitive to signals in global financial markets, particularly due to the investment activities of domestic NBFIs and FINIs.

Capital flows from FINIs, significantly originating from the U.S. (Table 2), are strongly influenced by the U.S. monetary and fiscal policies. Their movements are closely linked to the stock market performance in Chinese Taipei. On the other hand, while domestic NBFIs such as pension funds and insurance companies invest globally in portfolios denominated in USD, their direct counterparties are primarily located at non-U.S. countries (Table 2), particularly the UK and Hong Kong, with a strong emphasis on bond investments.

Table 2: Source/Destination Country Shares of FINI's and NBFIs' USD-denominated Inflow/Outflow related to NTD/USD FX Market in 2025Q1

	FINIs		Domestic NBFIs	
Shares	**inflow**	**outflow**	**inflow**	**outflow**
U.S.	**71%**	**93%**	15%	9%
Non-U.S. countries	29%	7%	**85%**	**91%**

Source: CBCT.

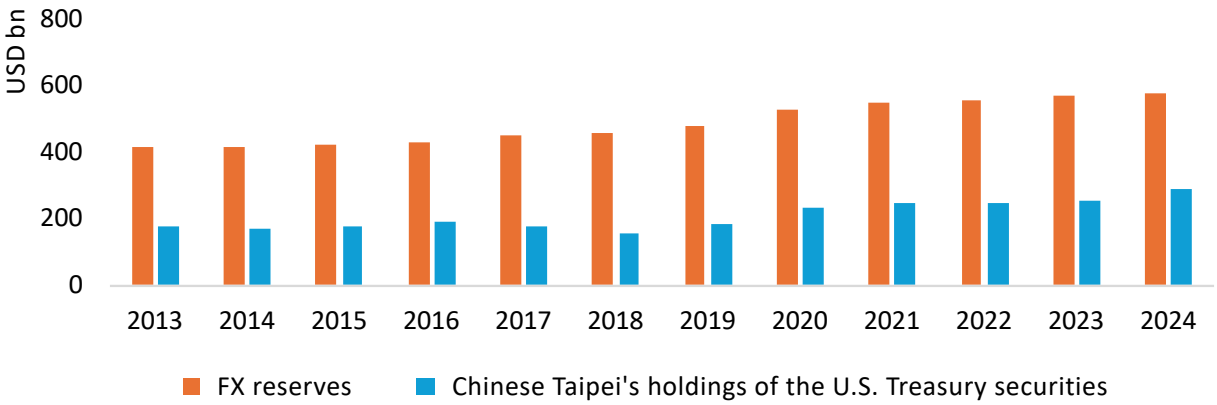
2.4 Reserve Management

Given domestic exporters' demand for NTD to pay tax/salary/capex and FINIs' demand for NTD to invest Chinese Taipei's equities, CBCT plays a key role as a provider of NTD. At the same time, CBCT maintains foreign exchange reserves with a significant portion held in USD. U.S. Treasury securities widely regarded as risk-free investment make up the majority of CBCT's portfolio.

CBCT's foreign exchange reserves have increased in recent years; at the same time, Chinese Taipei's holdings of the U.S. Treasury securities have also increased (Figure 4). In fact, as NTD does not function as an international reserve currency, it is unlikely to draw on a swap line with the Fed. The U.S. Treasury securities may serve as credible collateral to secure USD liquidity via repos. Within CBCT's reserve mix, the U.S. Treasury securities represent the largest and most liquid component, reflecting global reserve-currency role of the USD.

4. Non-bank financial institution is defined as private or public financial institutions other than banks such as hedge funds, securities brokers, pension funds, insurance companies, financial leasing corporation etc. They provide financial services and activities as financial intermediation including fund management.

Figure 4: CBCT's Foreign Currency Reserves and Chinese Taipei's Exposure to the U.S. Treasury Securities



Source: U.S. Treasury International Capital (TIC) and CBCT.

Note: Chinese Taipei's holdings include the holdings of both Chinese Taipei's private and public sectors; the U.S. Treasury securities include both short-term and long-term securities.

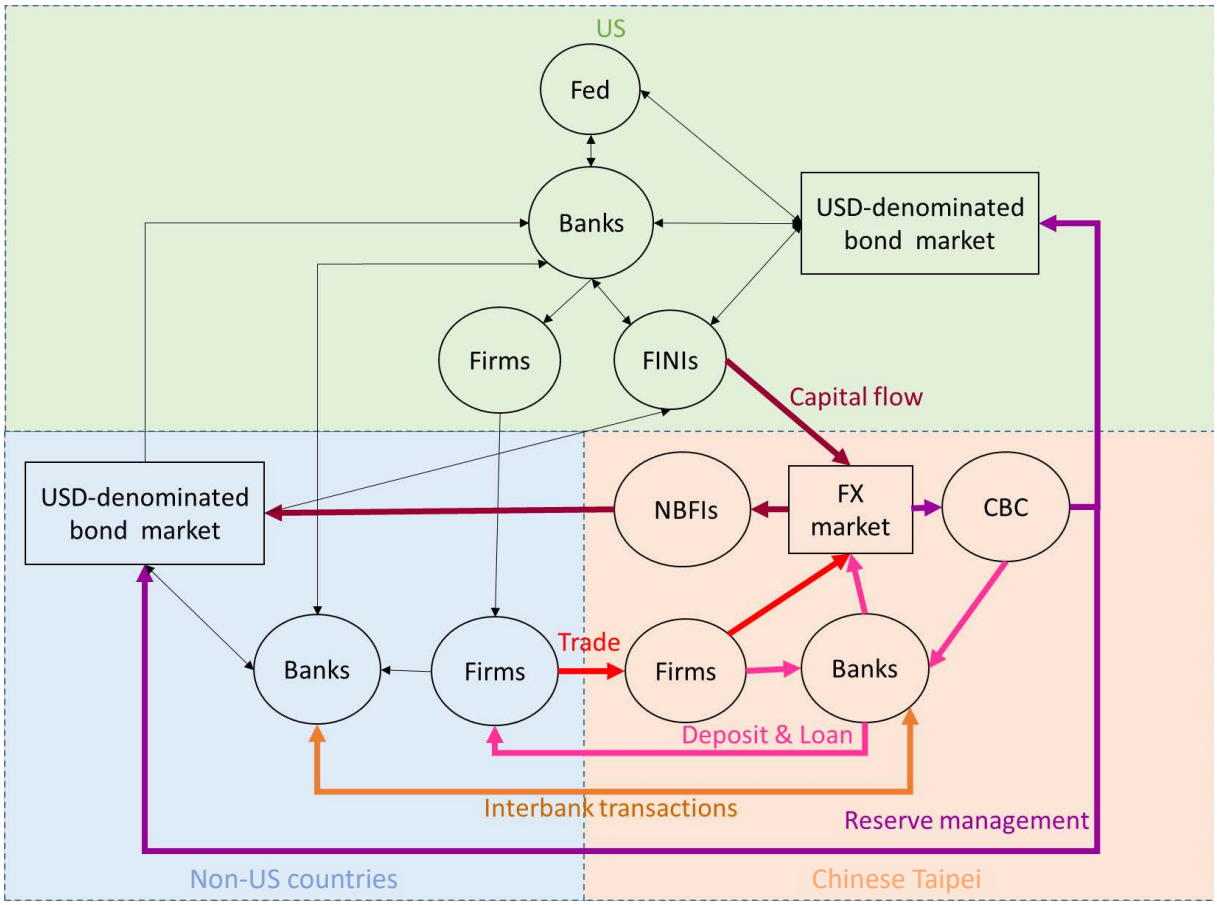
2.5 The Major USD Channel in Chinese Taipei

Overall, significant USD inflows related to the trade of goods from non-U.S. countries contribute to the accumulation of USD-denominated deposits within Chinese Taipei's banking system. These USD flows may return to non-U.S. countries through banks providing USD loans and engaging in interbank transactions. Within the trade and banking system, USD primarily flows between Chinese Taipei and non-U.S. countries.

Another key USD channel is related to the investment market. Chinese Taipei's stock market attracts significant interest from FINIs, particularly those from the U.S.. As FINIs convert USD to NTD to invest in Chinese Taipei's equities, they act as USD sellers in the foreign exchange market. Meanwhile, domestic NBFIs such as insurance companies and trust funds are major buyers of USD, primarily for investing in USD-denominated bonds. To manage the currency risk associated with their USD-denominated portfolios, NBFIs commonly use NTD/USD swaps, which is one kind of financial instrument that functions similarly to a USD loan provided by domestic banks. These investment activities result in USD outflows to non-U.S. countries.

Given the predominant role of USD in Chinese Taipei's foreign exchange market, CBCT's reserves are largely denominated in USD. Therefore, CBCT manages its reserves primarily by investing in USD-denominated bonds, including U.S. Treasury securities (Figure 5).

Figure 5: The Major USD Channel in Chinese Taipei



Source: Created by the author.

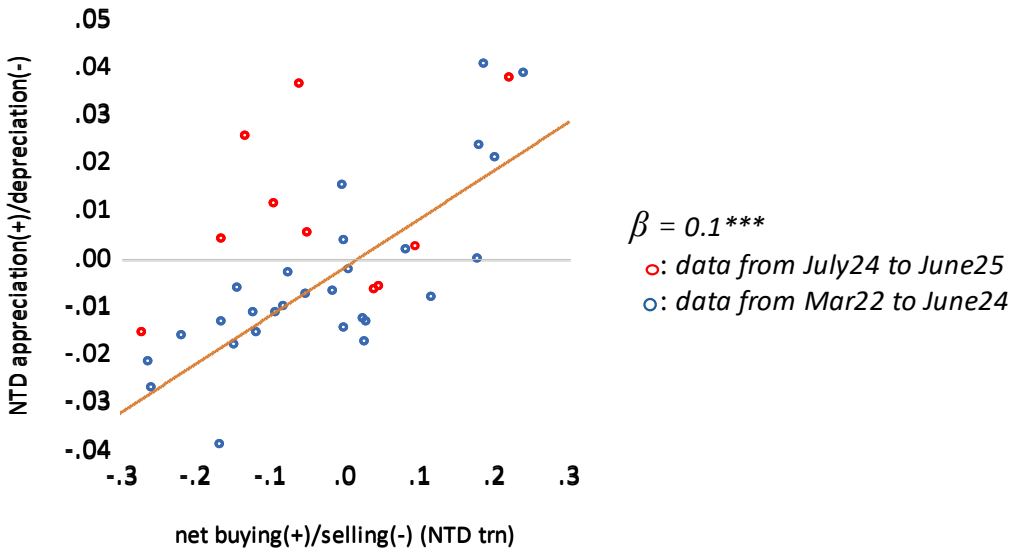
3. The Impact of the USD Dominance

3.1 Foreign Exchange Volatility and Trade Volume Amid Rising Global Uncertainty

Capital flows from FINIs into domestic securities account for 44% of the foreign exchange trading volume excluding FX swaps and CCS in the first half of 2025. In general, 20 highly active FINIs represent around 50% of all FINIs. They frequently enter and exit the market with large and concentrated transactions. Their movements often dominate the foreign exchange markets, which drive the appreciation or depreciation of NTD.

Prior to the announcement of Donald Trump's candidacy for a second U.S. presidential in July 2024, FINIs' movements in the Chinese Taipei's stock market exhibited a linear correlation with changes of NTD/USD rate (Figure 6). Beginning in March 2022, the Fed's monetary tightening prompted FINIs to withdraw from Chinese Taipei's stock market. As a result, NTD came under depreciation pressure due to substantial selling of NTD in exchange for USD. When the Fed adopted a more dovish stance, FINIs resumed net purchases of Chinese Taipei's stocks, increasing demand for NTD and leading to appreciation pressure on the currency.

Figure 6: FINIs' Net Buying/Selling Equities and the Change of NTD/USD Rate



Note: 1. *FINIs exclude foreign dealers.*
2. ****denotes statistical significance at the 1% level of monthly data from March 2022 to June 2024; regression results see Appendix Table A.*

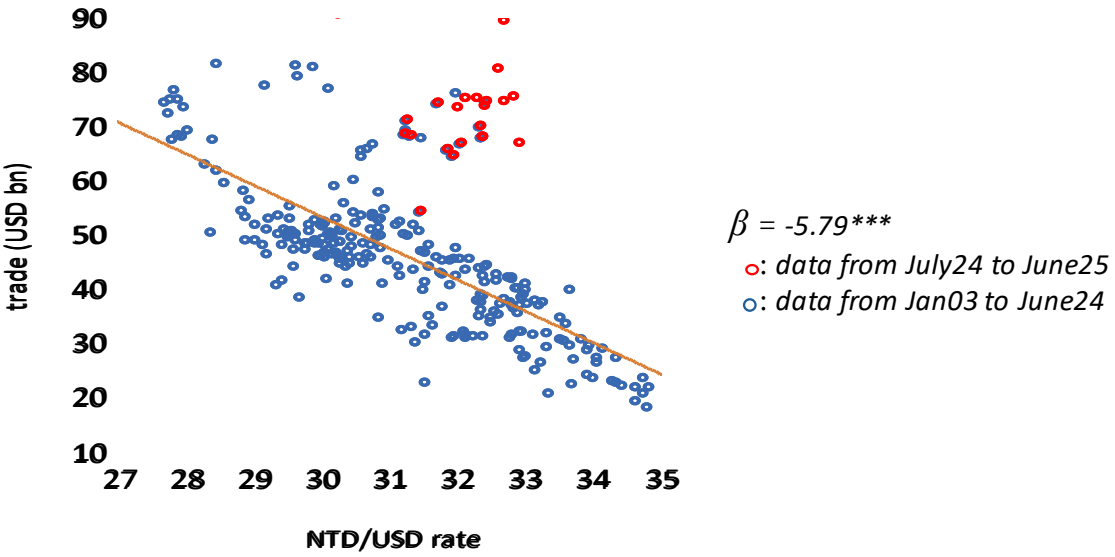
Source: *TWSE.*

However, following Trump's second-time presidential candidate, policy unpredictability and global market uncertainty have increased foreign exchange market volatility. Since the second half of 2024, the traditional correlation between FINIs' net buying/selling activity and the NTD/USD rate has weakened. Despite FINIs engaging in net selling Chinese Taipei's stocks, NTD has appreciated at times. These decoupling is partly driven by herding behaviour in the FX market. Market participants react collectively to market signals based on incomplete information, which leads to overshooting of exchange rates and deviations from fundamental values. Their collective actions result in rapid and synchronised trades that amplify market volatility particularly under uncertainty. Since Trump's election victory, this herding behaviour has become more frequent as market participants grow increasingly sensitive to market signals.

The uncertainty stemming from global financial markets and FINIs' unpredictable behaviours have significantly impacted the NTD/USD rate. This volatility introduces price uncertainty for Chinese Taipei's exporters and importers. According to Gopinath et al. (2020), appreciation of USD tends to depress global trade volumes even for countries not directly trading with the U.S. under the DCP (Dominant Currency Paradigm). When a large share of global trades (even between non-U.S. countries) is invoiced in USD, the cost of imports rises on USD appreciation due to price stickiness in USD-denominated contracts. Non-U.S. countries that often heavily rely on intermediate goods may face production contraction under import price pressure. The tendency for firms to use the same invoicing currency across their industry or supply chain reinforces USD dominance, amplifying the impact of USD movements on global production networks.

Empirical data before July 2024 when Trump announced his candidacy shows that Chinese Taipei's trade volume declined during periods of USD appreciation, in line with the DCP.[5] The trade volume is closely correlated with the NTD/USD rate (Figure 7).

Figure 7: Chinese Taipei's International Trade Volume and the NTD/USD Rate



Note: ****denotes statistical significance at the 1% level of monthly data from January 2003 to June 2024; regression results see Appendix Table B.*

Source: *Ministry of Finance, Chinese Taipei.*

However, since July 2024, the link between the NTD/USD rate and Chinese Taipei's trade volume has weakened due to substantial uncertainty surrounding import prices following Trump's tariff policies. In addition, market noises caused by the herding behaviour has further distorted the NTD/USD rate signal, which complicates price decisions of trade of goods.

In fact, Lee et al. (2023) empirically investigate the invoicing currency choices of Chinese Taipei's firms. They find that importers are more likely to use a vehicle currency when dealing with total substituted imported goods, when the imports represent a higher share of Chinese Taipei's total import volume, and when imports come from a greater number of countries. Chang's (2024) empirical analysis indicates that exporters tend to adopt USD invoicing due to higher proportion of competitors using USD and a larger USD share in import invoicing. Overall, the currency choice of Chinese Taipei's exporters and importers depends significantly on the vehicle currency commonly used within the industries. In the short-run, USD may continue to dominate Chinese Taipei's international trade market. However, in the long-term, Trump's tariff policies may reduce the U.S. engagement in global trade. Coupled with the potential political interference affecting the USD liquidity, the degree of USD dominance is likely to gradually decline.

5. Chinese Taipei follows the DCP model given 90% and 80% of USD share of invoice currency for customs exports and imports declaration, respectively. See the statistics in the previous paragraph of the USD-trade channel in Chinese Taipei.

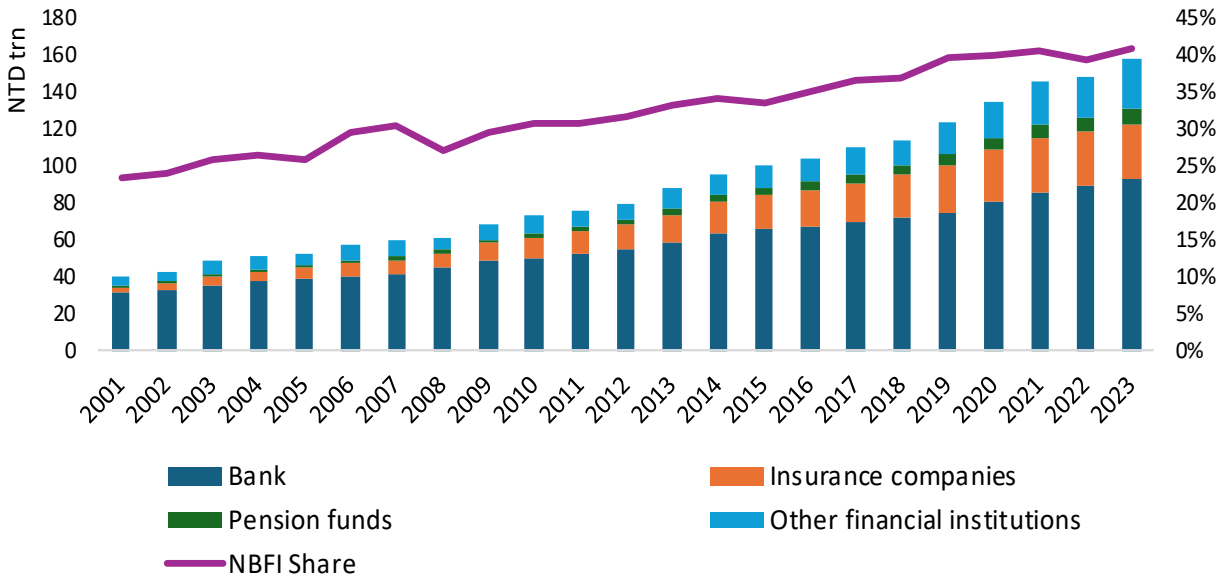
3.2 The Rise of Non-bank Financial Institutions and USD Risks in Chinese Taipei's Financial System

According to the BIS Annual Economic Report 2025, the global financial structure has gradually shifted from a conventional banking system focusing on private sector lending such as mortgages to a model dominated by financial intermediation through NBFIs focusing on portfolio investment. Following the persistent and large fiscal deficits since the Great Financial Crisis and fiscal expansions during the COVID era, the growth of sovereign bond markets has outpaced that of bank loans and non-financial corporate bond markets. NBFIs, especially collective investment vehicles, such as mutual funds, ETFs, pension funds and insurance corporations are key participants in the growth of the sovereign bond market.

In Chinese Taipei, flow of funds data shows that the share of NBFIs in the financial sector's total financial assets has increased since 2001 (Figure 8A).[6] Compared to banks, NBFIs have experienced more rapid asset growth. 45% of NBFIs' financial assets is tied to foreign investments. The expansion of foreign deposits and outward securities investment/issuance has been driven in large part by the growth of insurance companies (Figure 8B). As a result, the connection between Chinese Taipei's financial system and global financial markets has deepened through the rising foreign investment activities of domestic insurance companies.

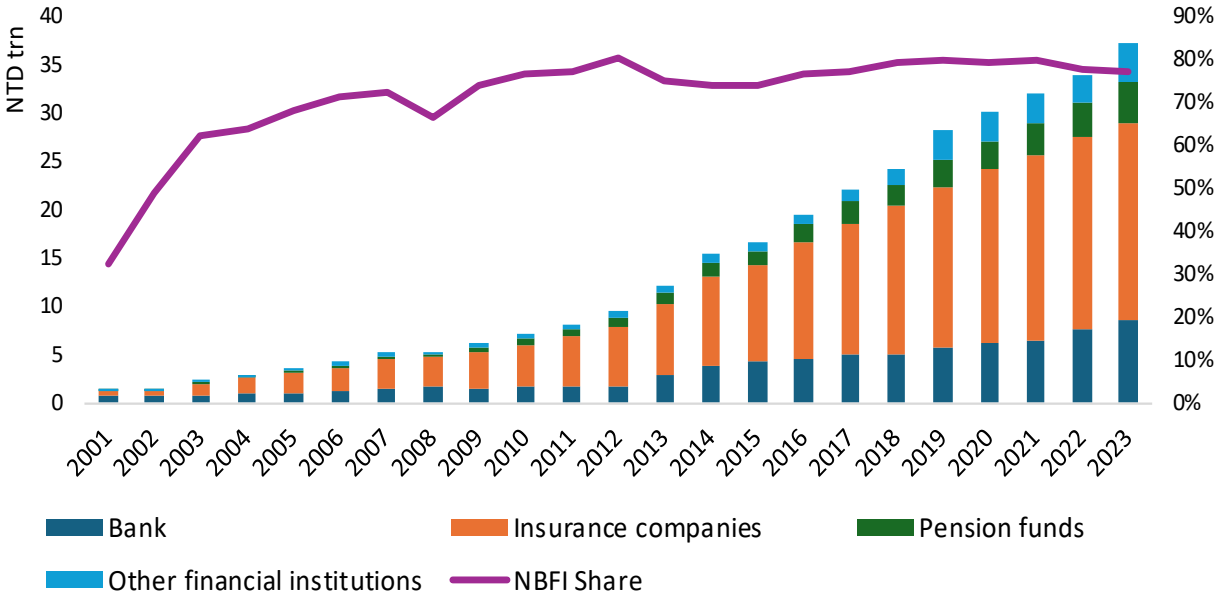
Figure 8: Financial Assets of Financial Sectors in Chinese Taipei

A. All transaction item



6. CBCT annually releases flow of funds statistics, which includes flow of funds matrix, financial assets & liabilities of all sectors and year-end amounts outstanding of financial transaction items.

B. Foreign deposits and outward securities investment and issuance



Source: CBCT.

Note: 1. Banks include Central Bank, OBUs, credit department of cooperative associations etc.; NBFIs indicate insurance companies, pension funds and other financial institutions such as mutual funds, securities/futures and other auxiliary financial businesses.

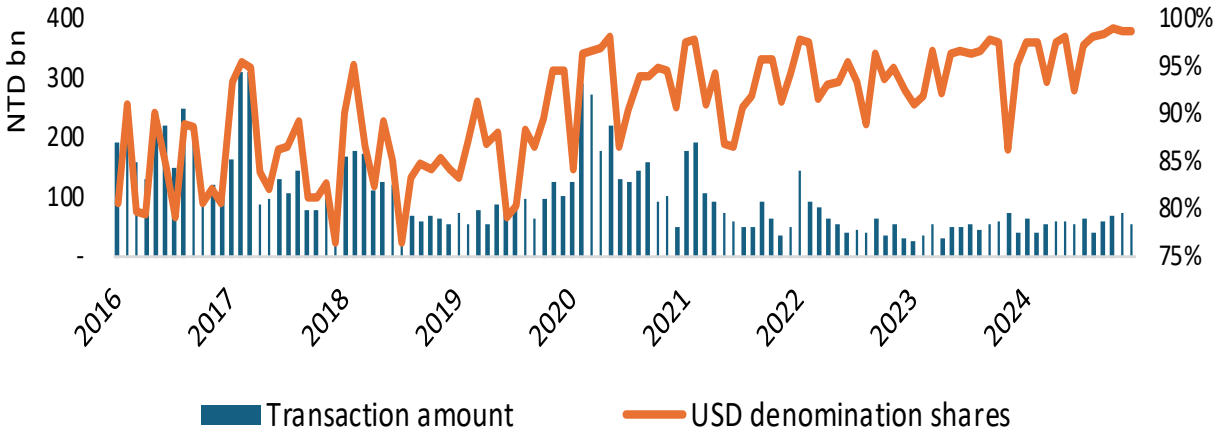
2. The transaction items of foreign deposits and outward securities investment and issuance do not include RP/RS transactions of foreign securities.

In the international bond market in Chinese Taipei, domestic insurance companies account for more than 50% of investments in USD-denominated international bonds.[7] Although the overall transaction volume of international bonds has declined, the share of USD-denominated bonds has increased to approach 100% (Figure 9A). From 2016 to 2021, over 25% of international bond investments were financed through FX swaps as domestic insurance companies serve domestic clients holding NTD. Meanwhile, the transaction volume of NTD-denominated bonds has declined due to a decrease in Chinese Taipei's government bonds (Figure 9B). Under the Public Debt Act, a strict ceiling on government debts limits the size of government bond issuance, which is typically denominated in NTD. Although corporate bond transactions have grown, they have not been sufficient to offset the decline in government bonds. As a result, domestic insurance companies have increasingly turned to overseas bond investment.

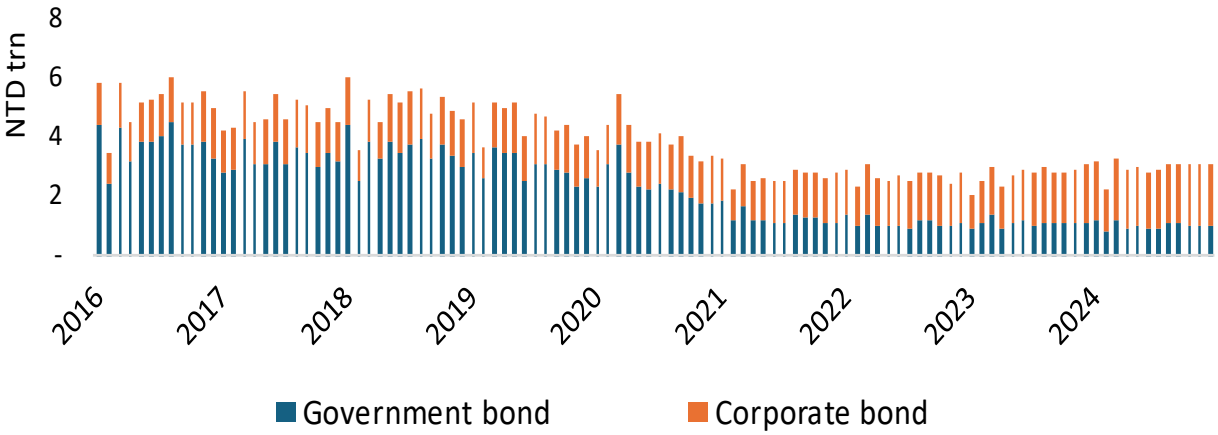
7. International bonds are foreign currency-denominated bonds issued by domestic/foreign corporations and financial institutions, and listed on the Taipei Exchange.

Figure 9: The Bond Market in Chinese Taipei

A. Foreign-currency international bonds



B. The transactions of NTD bonds

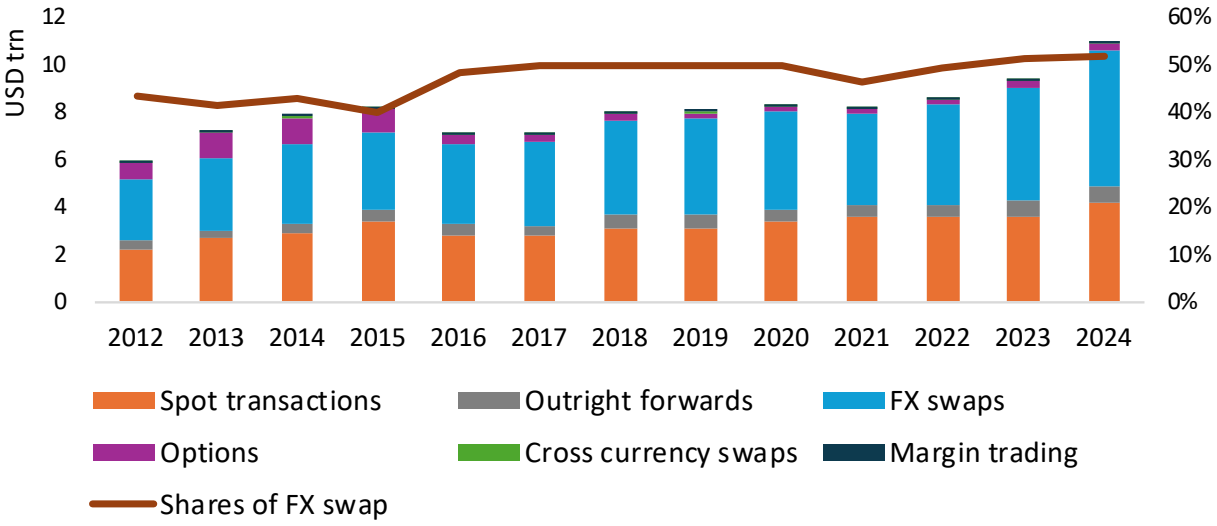


Source: Taipei Exchange.
Note: The transactions include Repo, R-Repo and outright.

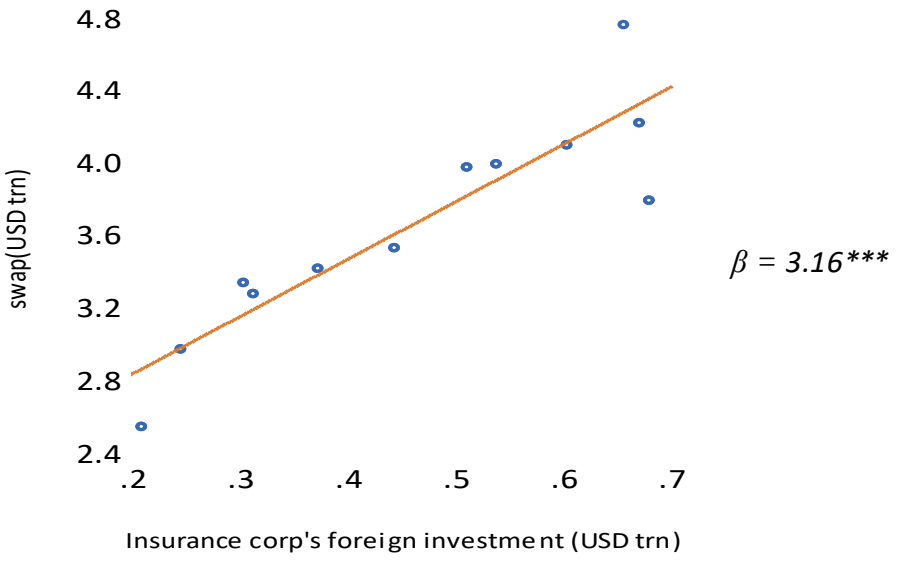
These insurance companies manage asset portfolios denominated in foreign currency particularly USD while serving domestic clients holding NTD. FX swaps are their most commonly used hedging tool. The share of FX swap transactions in Chinese Taipei's foreign exchange market has grown significantly, now accounting for 52% of the total volume, which surpasses spot market transactions (Figure 10A). FX swap volumes are highly correlated with insurance companies' foreign asset holdings such as deposits and securities investments (Figure 10B).

Figure 10: FX Swap And Insurance Companies' Foreign Financial Assets

A. FX swap trading volume



B. Foreign deposits and outward securities investment and issuance



Source: CBCT.

*Note: ***denotes statistical significance at the 1% level of yearly data from 2012 to 2023; regression results see Appendix Table C.*

Foreign bonds make up more than 50% of the portfolio investments of Chinese Taipei's top four insurance companies, with USD-denominated bonds comprising the majority. Adjustments in their portfolios often result in corresponding shifts in their hedging positions typically NTD/USD swaps positions, thereby influencing the foreign exchange market. In fact, this implies that insurance companies are actively engaging in short-term USD borrowing to invest in long-term USD-denominated bonds. This strategy involves rollover hedging, where FX swap contracts are continuously renewed until the underlying bond matures.

However, in the event of market shocks, insurance companies with mismatches between USD-denominated assets and NTD-denominated liabilities may face rising hedging costs as they seek to secure USD liquidity. To comply with capital and solvency requirements, they may be forced to sell assets, which further destabilises financial markets. At the same, given the over-hedging on portfolios with value declines, insurance companies may not rollover the matured swap contracts but instead, they may turn to the spot market to adjust their hedging positions, which leads to significant pressure in the FX market. As the USD-denominated bond market and NTD/USD swap transactions continue to grow, the currency mismatch may result in a more vulnerable FX market.

3.3 Reserve Management Challenges under Market Uncertainty and FINIs' Behaviour in Chinese Taipei

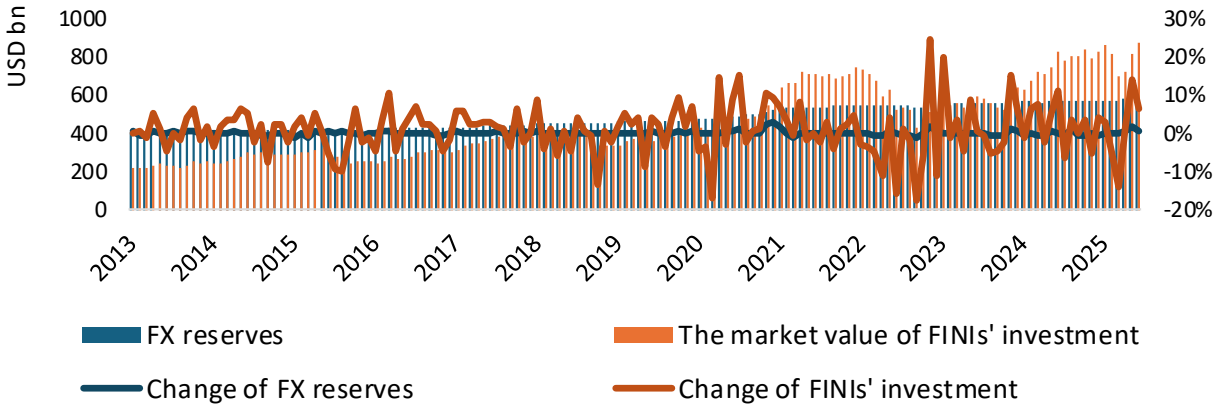
The majority of foreign exchange reserves are denominated in USD, reflecting the USD dominant role in global trade and financial markets. As a result, the foreign exchange reserves portfolio is naturally concentrated in USD-denominated assets, posing a potential risk during periods of USD volatility or external shocks. USD volatility may affect central banks' capability to stabilise the domestic foreign exchange market and generate spillover effects on the domestic financial system.

The previous paragraph has shown that the uncertainty stemming from global financial markets and FINIs' unpredictable behaviours have significantly impacted Chinese Taipei's foreign exchange market. Large capital flows by FINIs have posed considerable challenges for CBCT in stabilising the NTD/USD rate. CBCT may intervene more frequently to stabilise the foreign exchange market, which further complicates its reserve management.

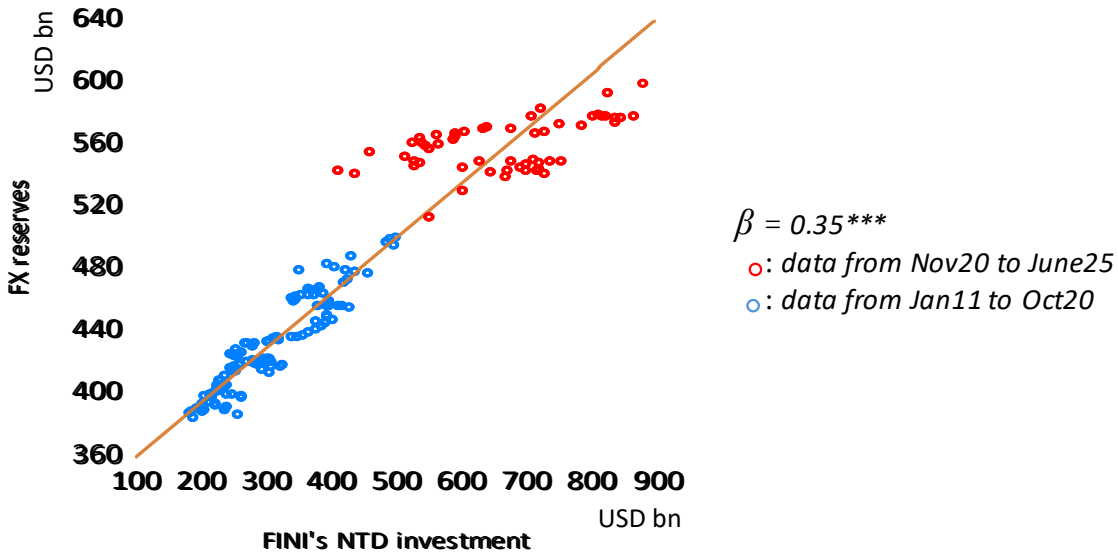
Since the end of 2020, the market value of FINIs' securities holdings and their NTD deposits has experienced significant fluctuations, with monthly changes occasionally exceeding 15% (Figure 11A). While foreign exchange reserves have generally trended in line with FINIs' investments, a deviation has emerged since late 2020 (Figure 11B). In the event of a financial shock, FINIs may quickly withdraw from Chinese Taipei's capital markets. Under such circumstances, foreign exchange reserves may respond to FINIs' foreign currency, particularly USD, redemption needs. Given the persistently volatile environment and the growing scale of FINIs' capital flows, CBCT may face increasing challenges in maintaining market stability and managing reserves.

Figure 11: FX Reserves and FINIs' Investment in Chinese Taipei

A. The monthly amount and fluctuation



B. Relations between reserves and FINIs' investment



Sources: CBCT.

Note: 1. FINIs' securities investment and the NTD deposits are estimated as market values.

*2. ***denotes statistical significance at the 1% level of monthly data from January 2011 to October 2020; regression results see Appendix Table D.*

4. Policy Implications

As USD dominates global trade and capital flows, Chinese Taipei's foreign exchange market is significantly influenced by the activities of exporters/importers, FINIs and domestic NBFIs. In an environment of policy unpredictability and global market uncertainty, the foreign exchange market has experienced distortions driven by herding behaviour. Such volatility introduces noise into exchange rate movements, complicating price-setting for trade of goods by exporters and importers.

To enhance the resilience and stability of the foreign exchange market, CBCT has implemented two-way smoothing operations as warranted to safeguard the dynamic stability of foreign exchange rate. Additionally, CBCT introduced the Real-Time Reporting System for Large-Amount FX Transactions, requiring banks to promptly report the amount of large-value foreign exchange transactions and provide supporting documents. This measure aims to curb foreign exchange speculation. A more stable foreign exchange environment helps exporters and importers maintain price consistency.

The growth of Chinese Taipei's insurance companies implies an increase in foreign investments and associated currency hedging activities. As the insurance companies become more globally interconnected, the domestic financial system is increasingly exposed to global markets. Furthermore, as FX swap positions are recorded off-balance sheet, the related risks may not be readily visible in the financial statements.

At the same time, regulatory authorities have taken steps to improve transparency around off-balance sheet FX swap positions. CBCT publishes monthly data on FX swap transactions and provides data on local banks' derivatives holdings including off-balance sheet FX swaps to BIS analysing the FX swap market. CBCT continues to strengthen monitoring efforts and track changes in FX swap activities, especially as insurance companies' hedging demands grow.

In recent years, the market value of FINIs' deposits and securities investments in Chinese Taipei has fluctuated significantly given the persistently uncertain environment. To prepare for potential capital flight or large-scale USD liquidity needs during times of market stress, CBCT has considered building additional USD liquidity buffers by funding agreements with major international financial institutions. Meanwhile, CBCT has consistently conducted regular monitoring of capital flows and has developed early-warning systems to detect sudden shifts in FINIs' behaviour that can destabilise the exchange rate or deplete reserves.

Given the predominant role of USD in reserves, CBCT's portfolio is highly exposed to fluctuations in the USD-denominated bond market. The accounting system has incorporated a financial buffer mechanism, aligned with international practices, to address unrealised valuation losses of the balance sheet resulting from shocks. At the same time, CBCT consistently evaluates the composition of its reserve portfolios with an emphasis on diversification to reduce concentration risks. Maintaining sufficient foreign exchange reserves is critical to preserving monetary stability and sustaining investor confidence in times of volatility.

5. Conclusion

The concentration of USD in deposits, cross-border trades and foreign exchange reserves has increased in recent years. The market value of FINIs' securities holdings has also increased, and the related capital flow has impacted the FX market stability. As Chinese Taipei's exposure to global USD liquidity deepens, international policy uncertainty and rapid sentiment shift more frequently to impact Chinese Taipei's FX market. Overshooting and herd-driven movements have risen. CBCT has introduced exchange-rate-stabilisation mechanisms: two-way smoothing operations and Real-time Reporting System for Large-Amount FX Transactions to ensure the market stability. Policymakers are further advised to refine macroprudential tools to address the destabilising effects of sudden capital flows and enhanced communication with timely guidance, which helps anchor expectations and reduce speculative pressures during periods of high uncertainty.

Due to the growing USD-asset exposure of Chinese Taipei's NBFIs, especially insurance companies, their needs of hedging activities and liquidity risks have risen. As they expand their holdings of USD–denominated bonds, under market stress, their shift from swap-based hedging to spot market can intensify currency volatility and strain liquidity. Policymakers are advised to strengthen monitoring systems that capture hedging flows, maturity gaps and risk concentrations across institutions. CBCT has enhanced disclosure requirements of FX swap trading volume, which helps support earlier detection of systemic pressures and enable more timely supervisory responses.

FX reserve management aims at stabilising the FX market amid rapid capital movements during periods of high uncertainty. Given Chinese Taipei's high exposure to USD, CBCT holding sufficient U.S. Treasury securities may support the USD liquidity in Chinese Taipei's FX market during stress. Policymakers are advised to build additional buffers and frequently review the FX reserve composition. Over the longer term, efforts to deepen domestic capital markets and gradually diversify currency use in trades and financing may help reduce structural dependence on USD.

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Lee, Y., Wu, C., Fung, L., & Liu, J. (2023). Firm heterogeneity and invoicing currency choice for imports: An empirical analysis of Taiwanese firms. Taiwan Economic Review, 51(4), 463–490.

Appendix

Regression Results

A. NTD/USD Rate Volatility with respect to FINIs' Net Buying/Selling

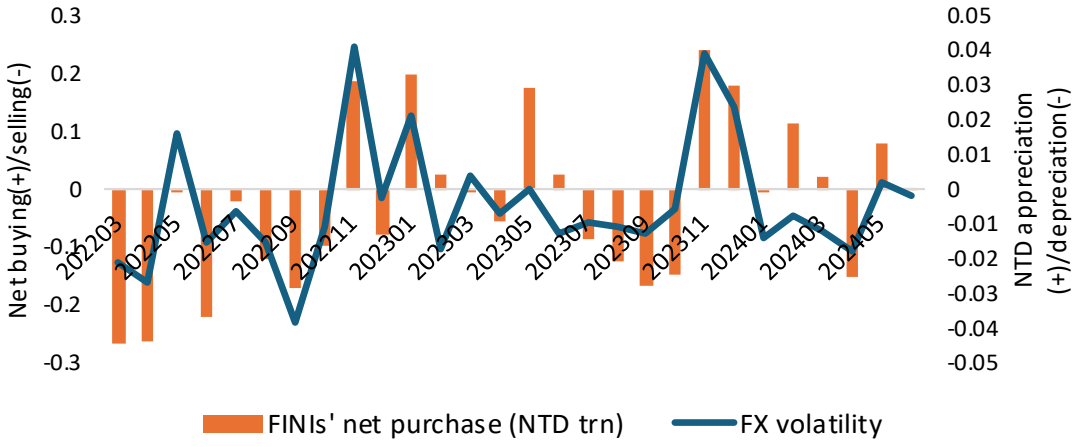
To demonstrate that FINIs' net buying of Chinese Taipei's stock market positively drives NTD/USD appreciation, a simple linear regression was performed using FINIs' net purchases of Chinese Taipei's stock market as the explanatory variable, based on monthly data from March 2022 to June 2024. The monthly net purchase data, sourced from the Taiwan Stock Exchange (TWSE) report on foreign and other investors' trading values, covers regular, odd-lot, after-hour fixed price, and block trading, while excluding auctions, tender offers and foreign dealers' trades. Values are based on original transactions without brokerage adjustments.

Table A: NTD/USD Rate Volatility with Respect to FINIs' Net Buying/Selling

Dependent Variable: FXV
Method: Least Squares
Date: 09/11/25 Time: 17:01
Sample: 2022M03 2024M06
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NET_FINI_NTD_TRN	0.100857	0.015553	6.484687	0.0000
C	-0.001548	0.002195	-0.705445	0.4868

R-squared	0.617935	Mean dependent var	-0.004030
Adjusted R-squared	0.603240	S.D. dependent var	0.018154
S.E. of regression	0.011435	Akaike info criterion	-6.035560
Sum squared resid	0.003400	Schwarz criterion	-5.940402
Log likelihood	86.49784	Hannan-Quinn criter.	-6.006469
F-statistic	42.05116	Durbin-Watson stat	1.293358
Prob(F-statistic)	0.000001		



B. Trade Volume with Respect to NTD/USD Exchange Rate

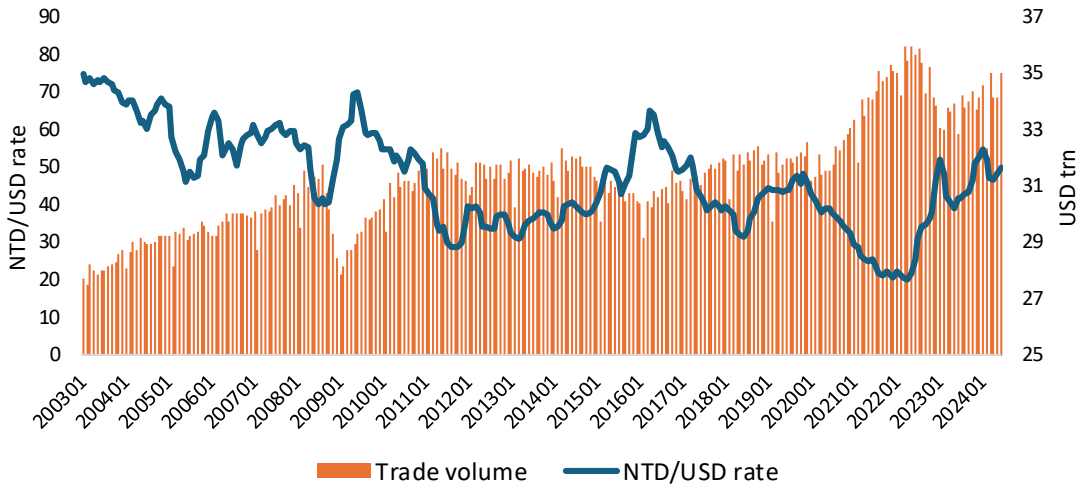
To demonstrate Gopinath's DCP effect that Chinese Taipei's trade faces pressure under USD appreciation against NTD, a simple linear regression was conducted using the NTD/USD rate as the explanatory variable, based on monthly observation from January 2003 to June 2024. Trade volume data, sourced from Customs Administration (CPT) of the Ministry of Finance, Chinese Taipei, covers C.I.F values for (re-)imports and F.O.B. values for (re-)exports, recording from customs declarations.

Table B: Trade Volume with respect to NTD/USD Exchange Rate

Dependent Variable: TRADE
Method: Least Squares
Date: 09/11/25 Time: 16:14
Sample: 2003M01 2024M06
Included observations: 258

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FX	-5.789106	0.356460	-16.24056	0.0000
C	227.6670	11.14313	20.43116	0.0000

R-squared	0.507461	Mean dependent var	46.95268
Adjusted R-squared	0.505537	S.D. dependent var	13.54085
S.E. of regression	9.521667	Akaike info criterion	7.352739
Sum squared resid	23209.51	Schwarz criterion	7.380281
Log likelihood	-946.5033	Hannan-Quinn criter.	7.363814
F-statistic	263.7557	Durbin-Watson stat	0.322624
Prob(F-statistic)	0.000000		



C. FX Swap with respect to Insurance Companies' Foreign Investment

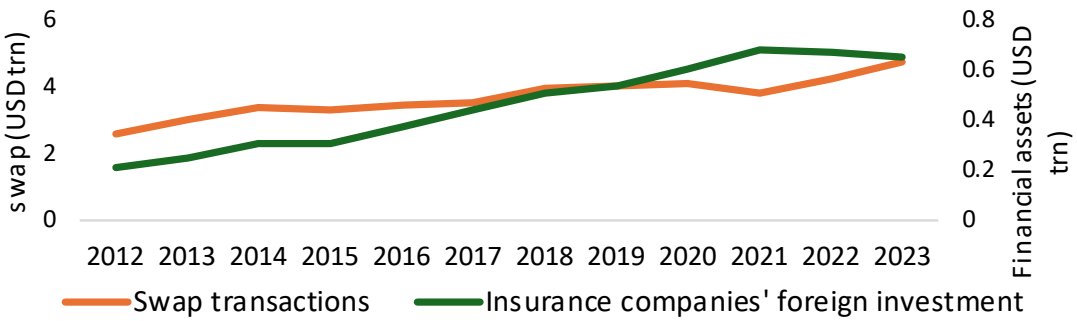
To demonstrate that FX swap transactions increase with larger foreign financial assets held by Chinese Taipei's insurance companies, a simple linear regression was conducted using insurance companies' foreign investment, comprising financial assets of deposits and outward securities investment/issuance, as the explanatory variable, based on annual data from 2012 to 2023. The data, sourced from the Flow of Funds annual report by CBCT, covers foreign deposits and outward securities investment and issuance under the financial assets of insurance companies (e.g., life insurance companies, property and casualty insurance companies, reinsurance corporation and deposit insurance corporation), recorded as year-end stock values at market prices or fair value. Foreign deposits refer to deposits placed abroad. Outward securities investment and issuance refer to investments in foreign equities, claims, mutual funds, securities issued overseas by domestic sectors (e.g., ECBs) and securities issued domestically by foreign entities such as offshore funds.

Table C: FX Swap with Respect to Insurance Companies' Foreign Financial Assets Related to Foreign Deposits and Outward Securities Investment and Issuance

Dependent Variable: SWAP_USD_TRN_
Method: Least Squares
Date: 09/11/25 Time: 15:05
Sample: 2012 2023
Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FI_USD_TRN_	3.164587	0.476930	6.635328	0.0001
C	2.215872	0.233540	9.488209	0.0000

R-squared	0.814909	Mean dependent var	3.675568
Adjusted R-squared	0.796400	S.D. dependent var	0.601853
S.E. of regression	0.271568	Akaike info criterion	0.381806
Sum squared resid	0.737493	Schwarz criterion	0.462623
Log likelihood	-0.290834	Hannan-Quinn criter.	0.351884
F-statistic	44.02758	Durbin-Watson stat	1.458342
Prob(F-statistic)	0.000058		



D. FX Reserves with respect to FINIs' Investment

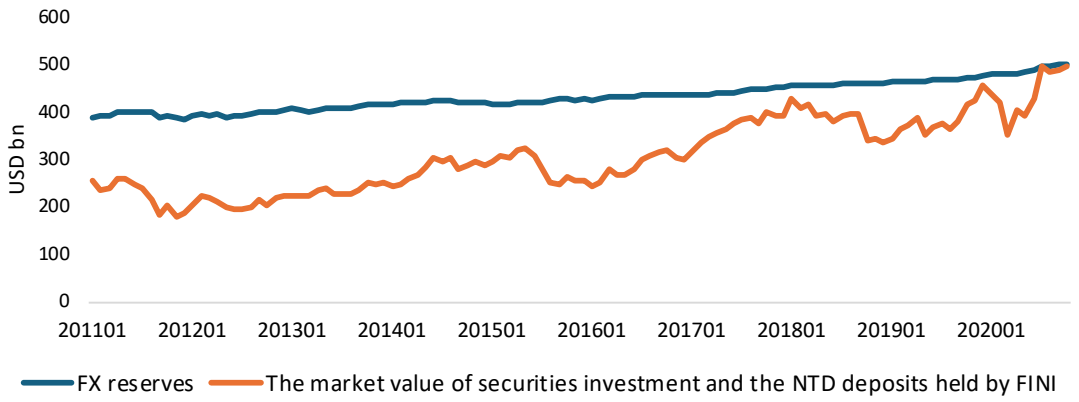
To demonstrate that FINIs' investment in Chinese Taipei's stock market contributes to FX reserves, a simple linear regression was conducted using the market value of securities investment and the NTD deposits held by foreign portfolios, as the explanatory variable, based on monthly data from January 2011 to October 2020. The data of FINI's investment and FX reserves, sourced from CBCT's monthly release of foreign exchange reserves, are recorded as monthly-end stock values at market prices or fair value.

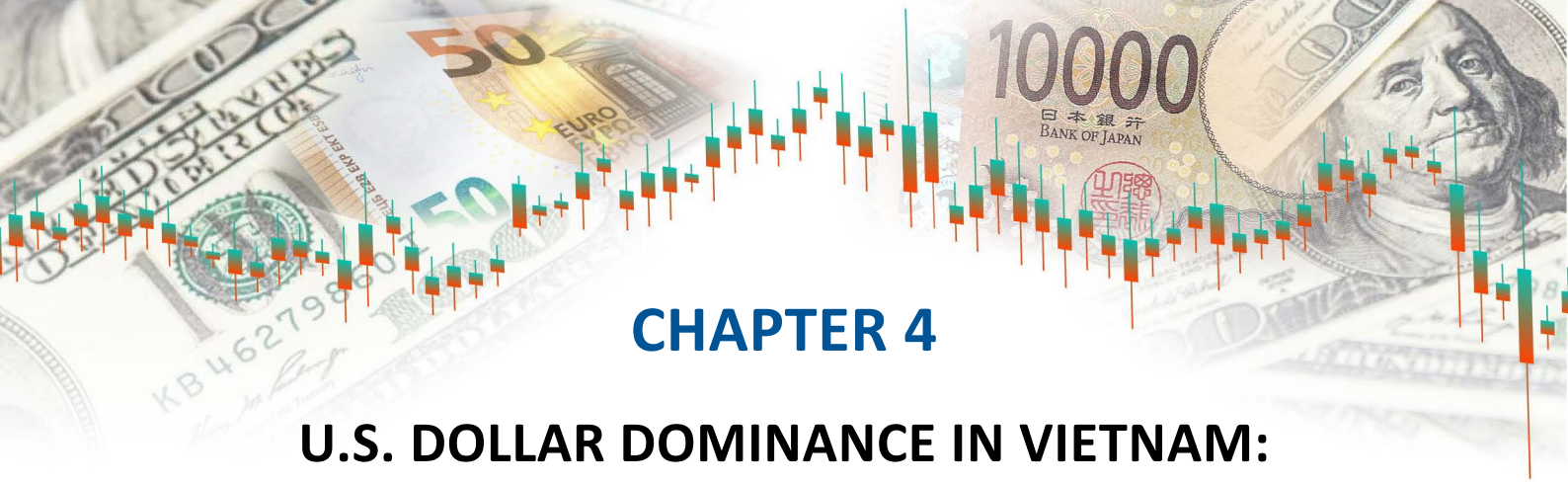
Table D: FX Reserves with respect to FINIs' Investment

Dependent Variable: FX_RESERVES
Method: Least Squares
Date: 09/11/25 Time: 11:43
Sample: 2011M01 2020M10
Included observations: 118

Variable	Coefficient	Std. Error	t-Statistic	Prob.
THE_MARKET_VALUE_OF_NTD_INVESTMENT_HELD_BY_FINI	0.352718	0.012399	28.44651	0.0000
C	323.9178	3.932470	82.37005	0.0000

R-squared	0.874622	Mean dependent var	432.2984
Adjusted R-squared	0.873541	S.D. dependent var	29.74776
S.E. of regression	10.57860	Akaike info criterion	7.572348
Sum squared resid	12981.20	Schwarz criterion	7.619309
Log likelihood	-444.7685	Hannan-Quinn criter.	7.591415
F-statistic	809.2041	Durbin-Watson stat	0.289593
Prob(F-statistic)	0.000000		





CHAPTER 4

U.S. DOLLAR DOMINANCE IN VIETNAM: CHALLENGES AND THE PATH TO DIVERSIFICATION[1]

Hang Thu Do[2]

1. Introduction

Vietnam's rapid economic transformation over the past decade has been driven by its deep integration into global trade and investment networks. Leveraging its strategic location, competitive labour force, and proactive trade policies, Vietnam has emerged as a vital player in international supply chains. From 2015 to 2024, trade openness rose from 137% to 166% of GDP, underscoring the success of its export-led growth model and expanding role in global commerce.

However, this openness has also heightened Vietnam's exposure to external financial pressures, particularly the overwhelming wide use of the U.S. dollar (USD) in trade invoicing, foreign investment, and external debt. With over 90% of cross-border transactions invoiced in USD, Vietnam's economy is acutely exposed to currency volatility and shifts in U.S. monetary policy. This paper examines the implications of dollar reliance for Vietnam's trade performance and financial stability, analyses the structural drivers of dollar prominence compares Vietnam's currency usage with that of regional peers, and evaluates policy options for diversification and resilience in an evolving global monetary landscape.

To fully appreciate the extent of Vietnam's exposure to external financial pressures, it is essential to examine the nation's evolution in trade openness and performance between 2015 and 2024. This historical context provides the foundation for understanding both Vietnam's economic achievements and the vulnerabilities that accompany its deepening integration into global markets.

1. The views and analysis expressed in this paper are those of the authors, and do not necessarily represent the views of the State Bank of Vietnam.
2. From Banking Academy of Vietnam.

2. Vietnam's Trade Openness and Performance (2015–2024)

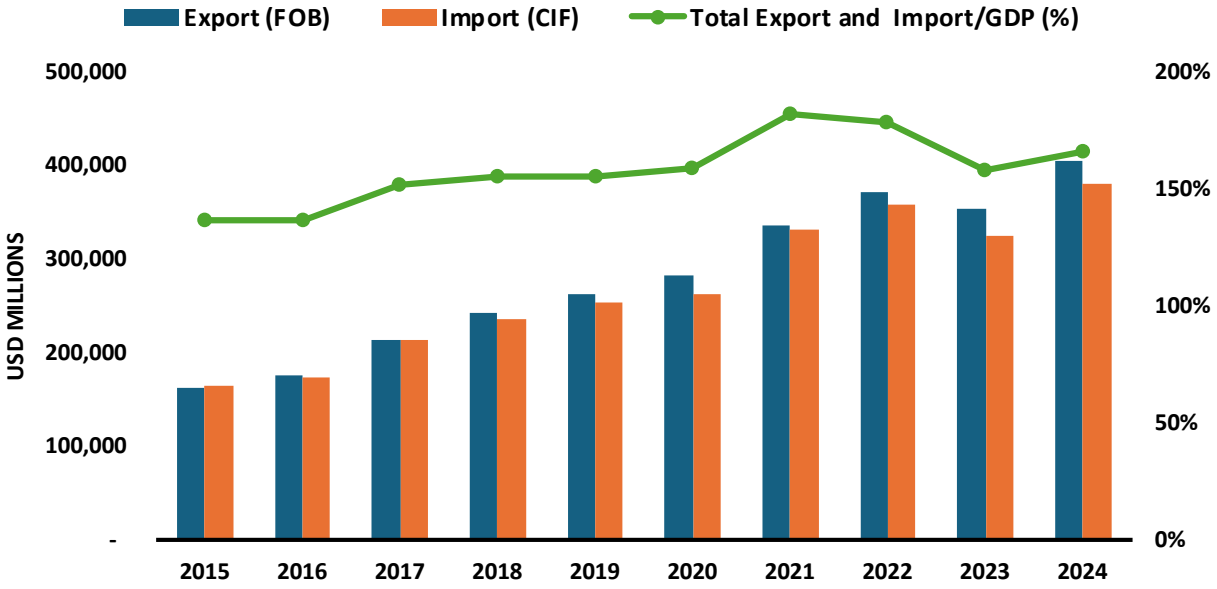
2.1 Trade openness of Vietnam[3]

Vietnam's economy is among the most globally integrated in Asia, with its success closely linked to international trade and investment flows. Between 2015 and 2024, trade openness increased from 137% of GDP to 166%, underscoring Vietnam's deepening participation in global supply chains and its growing sensitivity to external economic fluctuations.

Trends in Trade Openness (2015–2024)

From 2015 to 2020, Vietnam's Trade Openness Index rose steadily from 137% to over 159%, driven by robust export growth in electronics, textiles, and agricultural products. The index reached a peak of 183% in 2021, reflecting both the post-pandemic rebound in global demand and Vietnam's strengthened position as a manufacturing hub amid supply chain diversification away from China. Trade activity, however, softened in the following years: the index declined to 178% in 2022 and further to 159% in 2023, weighed down by global inflation, tighter monetary policies, weaker demand from the U.S. and EU, supply chain disruptions, and geopolitical tensions. Looking ahead, early signals for 2024 point to stabilisation and modest recovery, supported by Vietnam's trade agreements and strategic investments in logistics infrastructure.

Figure 1: Vietnam's Trade Openness Index 2015 - 2024



Source: MOF, SBV.

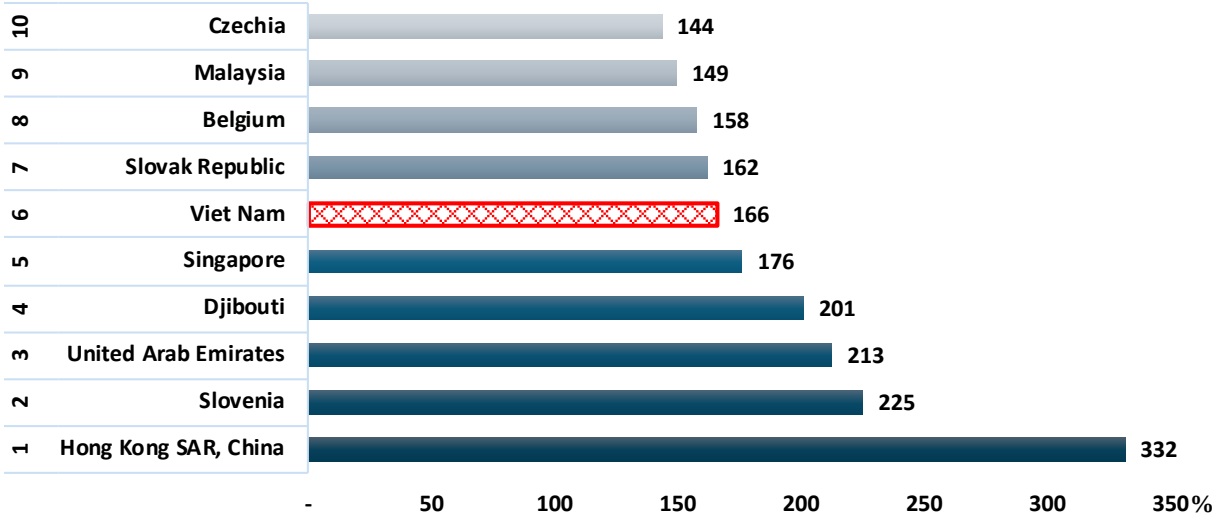
3. Trade openness ratio, which is calculated by adding its total exports and imports and dividing the sum by its GDP.

Comparative Perspective

Vietnam's trade openness substantially exceeds the global average of approximately 95%, underscoring its exceptional integration into international markets. Within ASEAN, Vietnam consistently ranks above Thailand and Indonesia, though it remains below Singapore, which is widely recognised as a regional outlier in openness. In 2024, Vietnam was ranked sixth globally in trade openness, a position reflecting both the scale of its external trade flows and its increasing role in global value chains. This elevated degree of openness has materially shaped Vietnam's trade performance over the past decade. Export growth has been concentrated in electronics, textiles, and agricultural commodities, while persistent trade surpluses have reinforced external stability.

At the same time, high openness amplifies exposure to exogenous shocks, including global inflation, monetary tightening in advanced economies, and geopolitical disruptions. The IMF's 2024 Article IV Consultation emphasised that Vietnam's external sector remains highly sensitive to global demand fluctuations and supply chain realignments. Similarly, the World Bank's Viet Nam 2045: Trading Up in a Changing World report stresses that sustaining growth will require structural reforms, diversification into higher value-added manufacturing, and stronger resilience against external volatility. These dynamics highlight the imperative for Vietnam to pursue resilient trade and financial strategies, including diversification of export markets, strengthening of domestic supply chains, and prudent macroeconomic management.

Figure 2: Top 10 countries by Trade Openness Index, 2024



Source: World Bank and MOF (Vietnam).

Building on Vietnam's comparatively high level of trade openness, the following section examines how this integration has translated into concrete trade performance outcomes, particularly shifts in the trade balance between 2015 and 2024.

2.2 Trade Performance in Vietnam

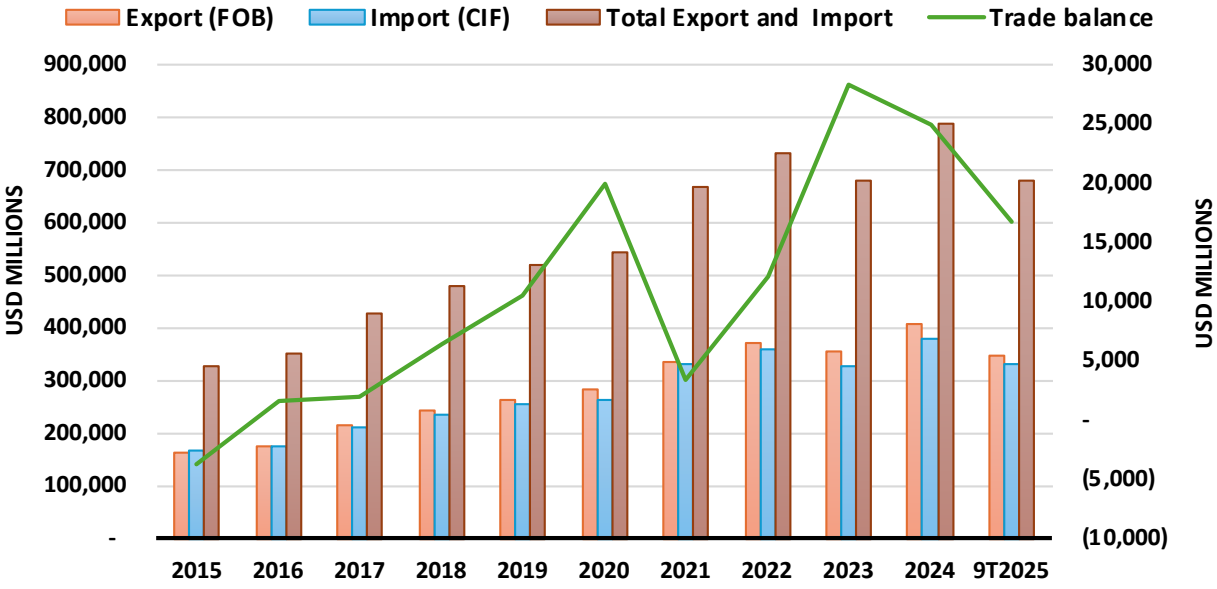
Vietnam's Trade Balance from 2015 to 2024: Positive Shifts and Strategic Integration

Between 2015 and 2024, Vietnam's trade balance saw significant improvements, with steadily increasing import-export turnover, consistent trade surpluses since 2016, a shift toward more efficient trade structures, and effective implementation of free trade agreements (FTAs).

Rapid Trade Growth Supporting GDP Expansion

Between 2015 and 2024, total import-export turnover surged 2.4 times, from USD 327.8 billion in 2015 to USD 786.9 billion in 2024. Specifically, Exports (FOB) rose from USD 162 billion (2015) to USD 405.9 billion (2024), with an average annual growth rate of 10.7%, reflecting expanded production capacity and improved global market access. Imports (CIF) increased from USD 165.8 billion to USD 381 billion, growing at an average of 10.4% annually, indicating rising domestic demand for raw materials and consumer goods.

Figure 3: Vietnam's International Trade Flow, 2015–2024



Source: MOF, SBV.

Thanks to faster export growth, the trade balance shifted from a deficit of USD 3.76 billion in 2015 to nine consecutive years of surplus, reaching USD 24.95 billion in 2024. Notably, 2023 recorded the highest surplus at USD 28.36 billion, highlighting effective trade policy management and enhanced competitiveness. This surplus trend has positively supported Vietnam's current account balance.

Vietnam's Merchandise Exports Achieve Breakthroughs and Set New Records

Vietnam's merchandise exports have made remarkable strides, reaching new milestones at an accelerating pace. After years of effort, export turnover surpassed USD 100 billion in 2012, doubled to USD 200 billion by 2017, and exceeded USD 300 billion in 2021. By 2024, the country achieved several historic records in trade. The total value of merchandise trade approached the USD 800 billion threshold, hitting a record USD 786.9 billion, higher than the previous peak in 2022. Notably, exports crossed the USD 400 billion mark for the first time, just three years after the last milestone, underscoring Vietnam's persistent drive to expand international trade.

Equally significant, 2024 marked the first time a single product category exceeded USD 100 billion in turnover. Electronics, computers, and components led the way, with imports reaching USD 107.1 billion, a sharp 21.7% increase from 2023, accounting for 28.1% of total imports. On the export side, the category contributed USD 72.6 billion, bringing its combined import-export turnover to USD 179.7 billion, up 23.6% year-on-year. This robust growth highlights Vietnam's ongoing transition from raw goods to high-value-added products, particularly in processing, manufacturing, and high-tech industries. The expansion of electronic components, robotics, and software production vividly illustrates this transformation, positioning Vietnam as a rising hub in global technology supply chains.

Positive Shifts in Trade Structure

The structure of Vietnam's import and export goods has shifted positively: the proportion of exports consisting of raw materials, semi-processed goods, and mineral fuels has gradually declined, replaced by processed and manufactured products. Imports have maintained a healthy structure, with a large share made up of raw materials for export production and machinery and equipment.

Exports: From 2015 to 2024, the eight largest export categories include: seafood; wood and wood products; textiles and garments; various types of footwear; computers, electronic products and components; various types of phones; machinery, equipment, tools and spare parts; and transport vehicles. The export structure has shifted toward increasing the share of processed and manufactured goods while reducing the share of raw and semi-processed items. The rising proportion of processed goods in the export structure is a positive development, reflecting the growth of domestic production and contributing to higher export value and added value in recent years.

Imports: Between 2015 and 2024, the eight largest import categories include: plastic raw materials; plastic products; various types of fabric; various types of iron and steel; common metals; computers, electronic products and components; phones and components; and machinery, equipment, and spare parts. Similar to exports, imports are primarily concentrated in machinery, equipment, and raw materials used for export production.

These structural shifts in exports and imports are closely tied to Vietnam's relationships with key trading partners, whose evolving roles have influenced both the composition and direction of Vietnam's trade flows.

Key Trade Partners

Vietnam's international trade expanded strongly from 2015 to 2024, with major partners including the United States, China, Korea, Japan, the European Union (EU), and ASEAN.

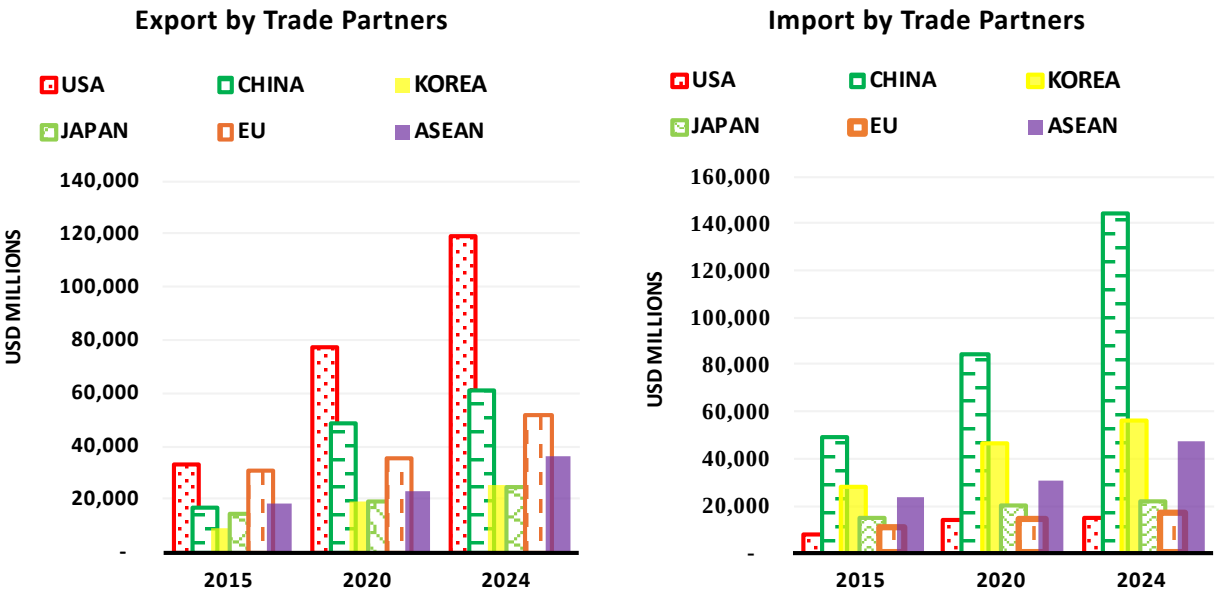
Export Market Overview

Vietnam's export landscape from 2015 to 2024 has undergone a significant transformation, marked by robust growth and strategic diversification. The United States emerged as the largest export destination, with its share rising from 20.7% in 2015 to 29.4% in 2024. Export value to the U.S. increased 3.6-fold, from USD 33.5 billion to USD 119.5 billion, reflecting strong demand for Vietnamese manufactured goods and favourable trade conditions.

China remained the second-largest export market, with exports increasing 3.6 times from USD 17.1 billion to USD 61.2 billion. The European Union (EU) also saw notable growth, with exports rising from USD 30.9 billion to USD 51.7 billion, largely driven by the EU-Vietnam Free Trade Agreement (EVFTA), which enhanced market access and tariff preferences.

Exports to ASEAN doubled from USD 18.2 billion to USD 36.5 billion, reinforcing regional trade integration. Korea's export share increased modestly from 5.5% to 6.3%, while Japan's share declined from 8.7% to 6.1%, indicating a shift in Vietnam's export priorities.

Figure 4: Key Trading Partners in Vietnam's International Trade (2015, 2020, 2024)



Source: MOF, SBV.

Import Market Overview

Vietnam's import structure reflects the country's industrial development needs, with a strong emphasis on raw materials, machinery, and intermediate goods to support export-oriented production. China remained the largest import partner, with its share rising from 30% to 37.8%. Import value from China tripled to USD 144 billion in 2024, underscoring Vietnam's reliance on Chinese inputs for both manufacturing and consumer goods.

Korea emerged as a critical supplier of electronics, machinery, and raw materials, with imports expanding from USD 27.6 billion to USD 55.9 billion, accounting for 14.7% of total imports in 2024. ASEAN ranked third, with imports nearly doubling from USD 23.8 billion to USD 47 billion, representing 12.4% of the import share.

Although the import shares of Japan, the EU, and the U.S. declined, their import values still rose significantly, reflecting sustained demand for high-quality inputs and advanced technology. Trade deficits were concentrated in China, Korea, and ASEAN, highlighting Vietnam's structural dependencies within its supply chain.

Vietnam's deepening integration into global trade networks has positioned it as a vital node in international supply chains. Over the past decade, the country has leveraged its strategic geography, cost-effective labour, and forward-looking trade policies to expand exports and attract foreign investment. Yet this openness also exposes Vietnam to external financial pressures, particularly due to its heavy reliance on the USD for cross-border transactions.

Addressing these challenges requires a strategic focus on diversifying currency usage, strengthening domestic production, and enhancing regional financial cooperation to build long-term resilience. Taken together, Vietnam's trade openness, performance, and partner dynamics reveal both impressive achievements and persistent vulnerabilities, setting the stage for a broader assessment of its trade balance and integration strategies.

Overall Assessment of Vietnam's Trade Balance (2015–2024)

Over the past decade, Vietnam has evolved into one of Asia's most open and globally connected economies. Its active participation in a wide range of bilateral and multilateral free trade agreements, such as the CPTPP, EVFTA, and RCEP, has significantly expanded market access, boosted foreign investment, and strengthened national competitiveness. This transformation is the result of effective international integration strategies, the rise of dynamic export-oriented industries in electronics, textiles, agriculture, and seafood, and robust inflows of foreign direct investment from developed nations, including the United States, Japan, Korea, and the European Union. These investments have played a vital role in facilitating technology transfer, creating jobs, and accelerating Vietnam's integration into global value chains. Yet alongside these gains, Vietnam faces mounting challenges that could undermine its progress, ranging from external shocks to structural dependencies on major markets.

Challenges Ahead

Despite its impressive progress, Vietnam continues to face several significant risks in its economic landscape. The country remains vulnerable to global shocks such as economic downturns, inflationary pressures, currency volatility, and geopolitical tensions, all of which can disrupt trade and investment flows. Additionally, Vietnam's heavy dependence on a few major markets, particularly the United States, China, and Korea, exposes it to potential instability stemming from policy changes or economic fluctuations in these countries. Furthermore, as global integration deepens, Vietnamese enterprises are under increasing pressure to compete on multiple fronts, including pricing, product quality, compliance with technical standards, and adherence to complex rules of origin. These challenges demand strategic foresight and adaptive policy responses to safeguard Vietnam's growth trajectory. Among these challenges, none is more pressing than Vietnam's reliance on the USD, which permeates trade, investment, and debt. This reliance magnifies the country's exposure to external financial risks.

Conclusion

Over the past decade, Vietnam has emerged as one of the most open and globally connected economies in Asia. Its trade openness rose from 137% of GDP in 2015 to 166% in 2024, far exceeding the global average and ranking sixth worldwide. This openness has been accompanied by rapid trade growth, consistent surpluses, and structural shifts toward higher-value manufacturing, particularly in electronics and technology-intensive industries.

Vietnam's trade performance reflects both diversification and concentration. Exports have expanded across major partners, with the United States, China, and the EU driving growth, while ASEAN integration has reinforced regional linkages. Imports remain heavily reliant on China, Korea, and ASEAN, underscoring Vietnam's dependence on external inputs for production. These dynamics highlight Vietnam's dual role: a competitive exporter in global value chains and a major importer of intermediate goods.

The country's achievements are impressive, including record export milestones, rising surpluses, and deeper integration into global supply chains. Yet vulnerabilities persist. Heavy reliance on a few partners, exposure to global shocks, and dependence on the USD for more than 90% of trade invoicing leave Vietnam sensitive to external financial pressures.

Taken together, Vietnam's openness, trade performance, and partner relationships illustrate both the opportunities and risks of deep integration. They provide the foundation for a broader discussion of the international monetary system, where the wide use of the USD continues to shape Vietnam's external stability and policy choices.

3. Condition of U.S. Dollar (USD) Dominance in Vietnam

3.1 Overview of USD Use in Vietnam's External Sector

3.1.1 The Wide Use of the USD in Vietnam's External Transactions

The USD plays a central role in Vietnam's international economic activities. According to the Department of Vietnam Customs, over 90% of the country's export and import transactions are invoiced in USD, even when trading partners are outside the United States. For instance, trade with Japan and ASEAN countries is predominantly conducted in USD, owing to its high liquidity and relatively low transaction costs.

Vietnam's foreign exchange reserves are similarly concentrated in USD-denominated assets. Although the SBV does not regularly disclose the currency composition of its reserves, international benchmarks such as the IMF's COFER database suggest that USD holdings account for approximately 70–80% of total reserves across Southeast Asia, including Vietnam. This reflects a strong reliance on the dollar to maintain external financial stability.

In terms of foreign borrowing, Vietnam's external debt is overwhelmingly denominated in USD. As of 2024, Vietnam's total external debt was estimated at USD 145.2 billion, with close to 79% denominated in USD instruments (World Bank, 2025). This structure exposes Vietnam to exchange rate risks, particularly during periods of global dollar appreciation or monetary tightening.

Cross-border banking and investment flows further reinforce dollar dominance. In 2024, foreign direct investment (FDI) disbursements into Vietnam totalled USD 25.35 billion, the highest on record, most of which were converted from USD into Vietnamese dong (VND) within the domestic financial system (GSO, 2025).

3.1.2 Stylised Facts: A Comparative Perspective

Despite increasing global interest in currency diversification, Vietnam's reliance on the USD remains significantly higher than that of many emerging markets. According to the SWIFT RMB Tracker (2025), the USD remained dominant in global trade payments, accounting for about 49% of transactions worldwide. Vietnam's reliance on the dollar was even more pronounced, with over 80% of its trade payments conducted in USD. By contrast, the Chinese yuan (RMB) rose modestly to around 4% of global payments, but Vietnam's RMB share remained below 2%.

Vietnam's international financial markets also exhibit limited depth in non-dollar instruments. As of 2024, Vietnamese entities issued approximately USD 2.1 billion in foreign currency-denominated bonds abroad, with more than 94% denominated in USDs (Asian Development Bank [ADB], 2025). Meanwhile, the Vietnamese dong (VND) plays a minimal role in international transactions. It is not freely convertible and remains absent from major global payment systems, thereby limiting its international utility and reinforcing the USD-centric nature of Vietnam's external economic engagements.

3.1.3 Structural Drivers of Dollar Reliance in Vietnam

Vietnam's persistent reliance on the USD in its external economic transactions is underpinned by a combination of structural and institutional factors:

Exchange Rate Regime: The State Bank of Vietnam (SBV) maintains a crawling peg system, with the USD serving as the central reference currency. Although a currency basket informs the daily exchange rate, the dollar remains the dominant anchor, reinforcing its role in trade invoicing and in corporate hedging practices.

Trade Composition and Settlement Norms: Vietnam's principal trading partners, including the United States, China, Korea, and Japan, predominantly settle transactions in USDs. Even in trade with non-U.S. counterparts, the dollar's entrenched network effects perpetuate its use as the default invoicing and settlement currency.

Liquidity and Market Confidence: The USD benefits from deep, liquid global financial markets, offering lower transaction costs and accessible hedging instruments. In contrast, Vietnam's capital account remains only partially liberalised, and the Vietnamese dong (VND) lacks international convertibility and market depth.

Limited Viable Alternatives: While the Chinese renminbi (RMB) has gained traction globally, its restricted convertibility and capital controls limit its appeal. Meanwhile, the Euro and Yen, though stable, are less economically and geographically aligned with Vietnam's trade and investment flows.

Collectively, these factors reinforce the prominence of the USD in Vietnam's external sector, despite growing policy interest in promoting currency diversification and enhancing monetary autonomy. The extent of this reliance becomes even clearer when examining Vietnam's trade invoicing practices, where the dominance of the USD is stark compared to other currencies.

3.2 Vietnam's Currency Usage in International Trade

3.2.1 Vietnam's Trade Invoicing and Dollar Dependence

Vietnam's international trade remains heavily reliant on the USD, which accounts for more than 90% of total export and import transactions. Although this reflects global norms, it exposes Vietnam to external monetary risks. Diversifying currency options and strengthening regional financial cooperation can improve trade resilience and lower transaction costs.

Table 1: Vietnam's Trade Settlement Currency Shares (2021Q1 – 2025Q2)

Quarter	USD (%)	EUR (%)	JPY (%)	Others (%)
2021Q1	95.28	2.36	1.28	1.08
2021Q2	95.6	2.11	1.35	0.94
2021Q3	95.03	2.21	1.11	1.65
2021Q4	95.36	1.94	1.16	1.54
2022Q1	95.65	1.81	1.21	1.33
2022Q2	95.86	1.61	1.1	1.43
2022Q3	95.71	1.63	1.07	1.59
2022Q4	95.21	1.78	1.21	1.8
2023Q1	94.7	2.04	1.24	2.02
2023Q2	94.77	1.87	1.14	2.22
2023Q3	95.03	1.91	0.96	2.1
2023Q4	95.11	1.77	1.0	2.12
2024Q1	94.59	1.9	0.94	2.57
2024Q2	94.59	1.72	0.9	2.79
2024Q3	94.63	1.63	0.94	2.8
2024Q4	95.01	1.53	1.03	2.43
2025Q1	95.18	1.59	0.96	2.27
2025Q2	94.78	1.44	0.95	2.83

Source: Vietnam Customs (MOF) and the Authors' calculation.

Between 2021 and 2025, Vietnam's trade payment landscape was marked by the overwhelming dominance of the USD, which consistently accounted for 94.59%–95.86% of transactions. The peak occurred in 2022Q2, followed by a gradual decline from 2023 onward, likely reflecting diversification efforts or broader shifts in global currency dynamics. Despite this dip, the USD remained the backbone of Vietnam's trade payments, underscoring both its global reserve status and Vietnam's strong ties with dollar-centric economies.

The Euro (EUR), ranging between 1.44% and 2.36%, peaked in 2021Q1 but trended downward overall, with brief upticks in 2023Q1 and 2024Q1. This decline suggests reduced reliance on the Euro, possibly due to exchange rate volatility or evolving trade patterns. Similarly, the Japanese Yen (JPY) saw a steady contraction, falling from 1.35% in 2021Q2 to 0.9% in 2024Q2, before a modest recovery in late 2024 and early 2025. This trajectory points to a shrinking role for the Yen, linked to Japan's prolonged economic stagnation and Vietnam's pivot toward other Asian partners.

By contrast, the "Others" category, comprising non-USD/EUR/JPY currencies such as the Chinese Yuan (CNY), Korean Won (KRW), and Singapore Dollar (SGD), expanded steadily from 0.94% in 2021Q2 to 2.83% in 2025Q2. Surpassing both the Euro and Yen from 2023 onward, this rise reflects Vietnam's strategic diversification and deeper integration into regional trade networks.

Taken together, these trends highlight a gradual shift in Vietnam's currency composition strategy: balancing its traditional reliance on the USD with growing engagement in regional currencies. This evolution underscores Vietnam's dual priorities, maintaining stability through the dollar while building resilience through diversified partnerships.

Table 2: Currency Usage in Vietnam's External Trade Settlements (2025Q1–Q2)

Quarter	USD (%)	EUR (%)	JPY (%)	CNY (%)	Others (%)
2025Q1 - Export	96.3%	1.6%	0.6%	0.5%	1.1%
2025Q1 - Import	94.1%	1.6%	1.3%	1.3%	1.6%
2025Q2 - Export	96.10%	1.25%	0.58%	0.68%	1.4%
2025Q2 - Import	93.41%	1.64%	1.33%	1.75%	1.9%

Source: Vietnam Customs (MOF) and the Authors' calculation.

Vietnam's trade payment data for Q1 and Q2 of 2025 revealed nuanced shifts in currency usage between exports and imports, underscoring strategic economic adjustments and evolving trade relationships. The USD continued to dominate, especially in exports, where its share remains exceptionally high, 96.3% in Q1 and 96.10% in Q2. This reflects Vietnam's strong reliance on USD-denominated markets and the dollar's role as the global trade standard. However, a subtle decline in import payments, from 94.1% in Q1 to 93.41% in Q2, suggests a gradual diversification in sourcing or settlement practices.

The Euro (EUR) maintains a relatively stable presence across both quarters, hovering around 1.6% for imports and slightly lower for exports. This consistency indicates that while the Eurozone remains a relevant trade partner, its influence is not expanding. The Japanese Yen (JPY), though modest in share, shows a slight uptick in imports (1.3% to 1.33%) and a marginal decline in exports (0.6% to 0.58%), suggesting Japan's role is more prominent in Vietnam's inbound trade, possibly due to machinery or technology imports.

The Chinese Yuan (CNY) presents a more dynamic picture. While its share in exports remains low (0.5% to 0.68%), its role in imports is growing, from 1.3% in Q1 to 1.75% in Q2. This increase likely reflects Vietnam's deepening integration with China's supply chain and the rising use of CNY in regional trade settlements. The "Others" category,

encompassing currencies like KRW, SGD, and potentially THB, shows consistent growth in both exports (1.1% to 1.4%) and imports (1.6% to 1.9%), reinforcing the trend toward multi-currency diversification and regional economic alignment.

Overall, while USD remains the cornerstone of Vietnam's trade payments, the data signals a deliberate and gradual shift toward broader currency adoption, particularly in imports. This strategy may enhance resilience against exchange rate volatility, reduce transaction costs with regional partners, and reflect Vietnam's evolving role in Asia's interconnected trade ecosystem. To fully appreciate the risks of this dollar concentration, it is useful to place Vietnam's currency usage in comparative perspective, both globally and regionally.

To better understand Vietnam's reliance on the dollar, it is useful to place these figures in a global and regional context.

3.2.2 Vietnam's Dollar Reliance in Comparative Perspective

The newly released IMF Trade Invoicing Dataset provides a comparative perspective on Vietnam's currency usage. Globally, the average share of USD invoicing in trade is approximately 70–75% over the past three decades (Boz, Gopinath, and Plagborg-Møller, 2025).

The Euro has held a consistent but secondary role, accounting for around 15–20%, primarily within Europe and parts of Africa. In contrast, the Chinese renminbi started from near-zero usage before 2010 but has shown a gradual and accelerating rise, reaching about 5% by 2023. This upward trend reflects China's growing influence in global trade, although the renminbi remains far from rivaling the dollar's supremacy. Notably, since 2021, geopolitical alignment has emerged as a significant factor in currency choice, with countries closer to China increasingly adopting the renminbi for trade invoicing, signaling a shift toward fragmentation in the global monetary landscape.

Regional comparisons further underscore this concentration risk. In Southeast Asia, from 2018 to 2023, Malaysia and Thailand exhibited distinct patterns in trade invoicing currency usage. Malaysia's exports were predominantly invoiced in USD, consistently above 82%, with modest shares in euros and a gradual rise in renminbi usage, especially in imports where RMB peaked at 3.75% in 2023. Home currency invoicing remained limited, suggesting continued reliance on foreign currencies. In contrast, Thailand demonstrated a more balanced structure: while USD still dominated, its share was lower than Malaysia's, and home currency usage was significantly higher, averaging around 15% for exports and over 8% for imports. Renminbi invoicing in Thailand also increased, particularly in imports, reflecting growing trade integration with China. These trends highlight Malaysia's stronger dollar dependence and Thailand's more diversified invoicing approach, shaped by domestic policy and regional dynamics.

These Southeast Asian cases highlight both the persistence of dollar dominance and the beginnings of diversification. Comparable trends can also be observed in countries of similar income levels, such as Bangladesh and the Philippines.

Comparisons with countries of similar income levels reveal a similar pattern.[4] From 2018 to 2023, Bangladesh's trade invoicing remained overwhelmingly dollar-centric, with over 97% of exports and more than 82% of imports invoiced in USD. The euro played a marginal role, particularly in imports, where its share ranged between 2.8% and 5%, while export invoicing in Euros declined below 1%. The renminbi began to appear in Bangladesh's invoicing structure only after 2022, reaching a modest 0.43% in imports by 2023. The absence or invalid reporting of home currency usage suggests either negligible domestic invoicing or limitations in data collection. Overall, Bangladesh's trade remains firmly anchored to the dollar, with only faint signs of diversification.

A similar pattern is observed in the Philippines. Between 2018 and 2023, trade invoicing was heavily concentrated in USD, with export shares consistently exceeding 96% and import shares ranging from 89% to 92%. The Euro accounted for around 1% of exports and 2–3% of imports. Renminbi usage in imports rose gradually, from 0.14% in 2018 to 0.88% in 2023, reflecting growing trade ties with China, though its role in export invoicing remained negligible. Home currency usage in imports hovered around 1%, while export data for domestic currency was either missing or invalid. These figures underscore the Philippines' classic dollar-dominant invoicing structure, with limited diversification and only modest signs of RMB adoption.

These country-level patterns did not evolve in isolation; they were shaped by broader geopolitical shocks and financial disruptions.

3.2.3 Geopolitical Context of Currency Shifts

The shifts in currency shares observed around 2022 coincide with major geopolitical disruptions, most notably the Russia–Ukraine conflict. The conflict triggered unprecedented sanctions on Russia, including restrictions on access to the SWIFT payment system and limitations on dollar- and euro-denominated transactions (Vermeiren, 2022; Greene, 2022). These measures accelerated efforts by sanctioned economies to seek alternatives to the USD and Euro, thereby increasing the relative use of regional currencies such as the Chinese yuan (RMB) in cross-border settlements. Russia, for example, expanded RMB invoicing in trade with China, and similar patterns were observed in energy transactions with other Asian partners (von Beschwitz, 2024; von Essen, 2023).

4. According to World Bank data, in 2024, Vietnam had a GDP of approximately 476 billion, the Philippines $462 billion, Bangladesh $450 billion, and low-income countries collectively around $467 billion.

Beyond sanctions, the war contributed to heightened global financial volatility, including a sharp appreciation of the USD in 2022 as investors sought safe-haven assets. This surge in dollar strength raised transaction costs for emerging markets, prompting some economies to experiment with local currency invoicing or diversify toward regional currencies to mitigate exchange rate risks (World Bank, 2022; Habib & Mehl, 2022).

Other geopolitical developments also played a role. Rising U.S.–China tensions and supply chain realignments encouraged ASEAN economies to deepen regional financial cooperation, including initiatives under the ASEAN+3 framework and bilateral local currency settlement agreements. At the same time, the European Union's energy crisis and inflationary pressures reduced the attractiveness of Euro invoicing in some trade flows, further reinforcing the dollar's prominence but also opening space for gradual diversification (Boz et al., 2025).

Taken together, these dynamics suggest that the shifts in currency shares observed around 2022 cannot be attributed solely to Vietnam's domestic policies or trade patterns. Instead, they reflect broader geopolitical shocks—sanctions, safe-haven flows into the dollar, and regional responses to financial fragmentation—that altered the incentives for currency usage in international trade. While the magnitude of these changes in Vietnam's invoicing practices remains modest, the mechanisms highlight the vulnerability of dollar-dependent economies to external shocks and underscore the strategic importance of diversification.

Conclusion

Vietnam's trade invoicing remains overwhelmingly dependent on the USD, with more than 94% of transactions settled in USD between 2021 and 2025. While the Euro and Yen have declined, regional currencies, particularly the Chinese yuan, are slowly gaining ground, especially in imports. Comparative evidence from Southeast Asia and peer economies shows similar dollar concentration, with Malaysia and Bangladesh highly reliant, while Thailand and the Philippines display modest diversification. Geopolitical shocks since 2022, including sanctions and U.S.–China tensions, have reinforced dollar dominance but also encouraged incremental shifts toward regional currencies.

4. The Merits and Demerits of the USD-dominant International Monetary System

The persistence of USD dominance in Vietnam's trade settlements highlights a broader reality: Vietnam's external vulnerabilities are not merely domestic challenges but reflections of the global monetary order itself. To fully understand the implications of this reliance, it is necessary to situate Vietnam's experience within the wider context of the USD–centred international monetary system. Examining both the historical roots of dollarisation in Vietnam and the systemic merits and demerits of dollar dominance provides a clearer picture of why diversifying currency denomination, pricing and invoicing are so complex, and why credible policy pathways must balance national priorities with global financial dynamics.

4.1 Vietnam's Dollarisation Journey

Dollarisation in Vietnam refers to the widespread use of the USD in financial transactions, savings, and trade. This phenomenon became prevalent in the 1990s due to economic instability and weak confidence in the domestic currency (Srinivasan et al., 1996; Nguyen, 2024). Over the past three decades, however, Vietnam has made significant progress in reducing dollarisation, particularly within its domestic financial system.

Current Status of Dollarisation in Vietnam

Despite notable progress, dollarisation remains a structural feature of Vietnam's economy. As of 2024, USD deposits account for approximately 6% of total deposits, down from over 11% in 2014 (IMF, 2024). Similarly, USD loans have declined to about 3.6% of total credit, compared to more than 7% in 2019 (Vietnam Law Magazine, 2024). However, international trade continues to rely heavily on the USD, with 85–90% of transactions settled in USD (World Bank, 2024). Interbank USD trading also remains high, averaging around 22 billion USD per week in 2025 (Trading Economics, 2025). While domestic USD payments are subject to legal restrictions and tight regulations, the USD still plays a dominant role in external trade and financial flows.

Reducing Reliance

Vietnam has pursued a multi-pronged strategy to reduce reliance on the USD. Central to this approach is the legal prohibition of domestic USD payments under Decree 96/2014/ND-CP, which reinforces the role of the Vietnamese dong (VND) in everyday transactions (Government of Vietnam, 2014). Restrictions on foreign currency lending ensure that only qualified foreign exchange earners can access USD loans (SBV, 2024a). The State Bank of Vietnam has also maintained low USD deposit interest rates, close to zero, to discourage savings in foreign currency (SBV, 2024b). Complementary measures include communication campaigns aimed at building public trust in the VND and promoting financial literacy, as well as efforts to strengthen VND-denominated government bond markets (Dapice, 2021).

These policies have produced tangible results. The share of USD deposits and loans in the banking system has sharply declined (IMF, 2024), reducing financial vulnerability to exchange rate shocks. The VND/USD exchange rate has become more stable, supported by improved foreign exchange reserves (Trading Economics, 2025). Confidence in the domestic currency has increased among households and businesses (Nguyen, 2024). Importantly, monetary policy has become more effective, as reduced dollarisation has enhanced the State Bank of Vietnam's control over liquidity and interest rate transmission (SBV, 2024a).

Remaining Challenges

Despite progress, several challenges persist. The USD continues to dominate international trade and foreign direct investment (FDI) settlements (World Bank, 2024). The use of alternative currencies such as the Chinese Yuan (CNY), Japanese Yen (JPY), or Euro (EUR) remains limited (Nguyen, 2024). Public preference for the USD often resurfaces during periods of global uncertainty, reflecting lingering concerns about currency stability (IMF, 2024). In addition, informal foreign exchange markets remain difficult to fully eliminate (Nguyen, 2024).

Vietnam's domestic efforts highlight both progress and persistent external reliance. To place these developments in perspective, it is essential to examine the broader merits and demerits of the USD–dominant international monetary system, which shapes not only Vietnam's experience but also that of many developing economies.

4.2 The Merits and Demerits of the USD-dominant International Monetary System

4.2.1 Advantages of the USD-centred Monetary System for Developing Economies and Vietnam

The wide use of the USD in the international monetary system brings both substantial advantages and significant risks for developing economies, but its benefits are undeniable. On a global level, the USD provides stability, liquidity, and access to capital markets. Developing economies can issue debt in dollars, thereby reducing currency risk for investors and potentially accessing funds at lower costs (Siddiqui, 2020). The USD also acts as a store of value and a medium of exchange, supporting asset preservation in high-inflation countries and lowering transaction costs through dollarisation, even if this comes at the expense of monetary policy autonomy. Furthermore, borrowing in USD allows countries to tap larger lending pools under more favourable terms, as seen in economies that have officially adopted the dollar as legal tender (Cohen, 2000; Cohen, 2020). In recent years, the rise of USD-pegged stablecoins has added a technological dimension, offering faster and cheaper cross-border payments and remittances, particularly in regions with volatile local currencies.

Vietnam's experience illustrates these advantages in practice. For individuals and businesses, holding or depositing savings in USD has long been considered a tool for preserving value amid fluctuations in the Vietnamese dong (VND). The USD offers high liquidity and is widely accepted in international transactions, including tuition payments, overseas travel, and import activities (State Bank of Vietnam, 2020). Enterprises benefit from the deep liquidity and global acceptance of the USD, which reduces currency conversion costs and enhances trade efficiency. Borrowing in USD also supports Vietnam's access to international capital, particularly for financing large-scale infrastructure projects. More than 56% of Vietnam's public and government-guaranteed debt was denominated in USD in 2017, underscoring its role in debt management

(World Bank, 2017). In certain periods, anchoring trade and finance to the USD has provided stability, especially for firms integrated into global value chains denominated in dollars (Boz, Gopinath, and Plagborg-Møller, 2020). Finally, the State Bank of Vietnam (SBV) maintains sizable USD-denominated foreign exchange reserves to stabilise the exchange rate and cushion external shocks. Using the USD as an anchor currency under the managed float regime helps control imported inflation and sustain macroeconomic stability.

Yet the very features that make the USD attractive—its stability, liquidity, and global acceptance—also generate systemic vulnerabilities. For Vietnam and other emerging economies, these benefits come with high costs, which become clear when considering the disadvantages of dollar dominance.

4.2.2 Disadvantages of the USD-centred Monetary System for Developing Economies and Vietnam

While the USD–centred system provides global stability and liquidity, it simultaneously generates significant vulnerabilities for developing economies such as Vietnam.

One major challenge lies in monetary policy dependence and spillovers: U.S. Federal Reserve tightening cycles often trigger slowdowns in emerging markets, especially where foreign currency debt is unhedged, or inflation expectations are weakly anchored (Ahmed, Akinci and Queralto, 2024; Tombini, 2023). Central banks are frequently forced to raise interest rates or intervene in currency markets to counter imported inflation or capital outflows, even when such actions conflict with domestic priorities (Escayola et al., 2023). In Vietnam, this dynamic is particularly visible, as Fed rate hikes appreciate the dollar, exert depreciation pressure on the dong, raising import costs and increasing the burden of dollar-denominated debt (IMF, 2020).

A second vulnerability stems from debt and financial fragility, where wide use of the USD reinforces the "Original Sin" problem—most emerging economies cannot issue international debt in their own currency (Eichengreen and Hausmann, 1999). Vietnam exemplifies this, with more than half of its public and government-guaranteed debt denominated in dollars and a still underdeveloped domestic bond market, leaving it exposed to exchange rate shocks (World Bank, 2017).

Third, reliance on the dollar heightens capital flow volatility and opportunity costs: Fed easing often fuels surges of capital into emerging markets, while reversals trigger sudden outflows and instability. In Vietnam, these swings are compounded by structural policies such as capped dollar deposit rates and low-yielding foreign reserves, which reduce the efficiency of national resource allocation (State Bank of Vietnam, 2020).

Finally, dollar prominence within international institutions like the IMF and World Bank means financial assistance is typically denominated in dollars, raising debt servicing costs whenever the dollar strengthens (Escayola et al., 2023). For Vietnam, as for many emerging markets, this constrains fiscal space and growth prospects, underscoring the systemic vulnerabilities embedded in the dollar-centric global order.

Taken together, Vietnam's historical experience and the global merits and risks of dollar dominance underscore the complexity of diversifying currency denomination. The challenge lies in designing gradual, credible strategies that balance integration with resilience—an issue explored in the policy pathways that follow.

5. Policy Implications

5.1 Policy Measures to Promote Local Currency Use

Vietnam's heavy reliance on the USD in trade invoicing and external finance has created both opportunities and vulnerabilities. While dollar usage provides stability and access to global markets, it also exposes the economy to exchange rate risks, shifts in U.S. monetary policy, and concentration risks in reserves and debt. Policy measures must therefore focus on reducing overdependence on the USD and gradually promoting the use of the Vietnamese dong (VND) and other regional currencies in cross-border transactions.

5.1.1 Exchange Rate Management

Enhancing the Value of the VND and Stabilising the Exchange Rate

Since Vietnam's shift toward a more market-oriented exchange rate regime in 2016, the VND has generally depreciated against the USD, even during periods of global dollar weakness. This trend reflects limited confidence in the VND's value and underscores its vulnerability during financial instability (IMF, 2025). Strengthening the VND through coordinated policy measures is essential to easing exchange rate pressures and reinforcing monetary credibility.

Key Measures for Exchange Rate Management by the SBV

(i) Flexible exchange rate management within the broader monetary policy framework is vital to controlling inflation, stabilising the macroeconomy, and balancing economic interests (The Investor, 2025).

(ii) Development of risk-hedging instruments, gradual improvement of VND convertibility, and responsive foreign exchange interventions are necessary to stabilise the forex market and meet legitimate currency exchange needs. These interventions should be timely, appropriately scaled, and executed using tools such as open market operations (OMO), strategic interest rate adjustments, and targeted FX sales to maintain liquidity and prevent excessive volatility (IMF, 2025).

(iii) Liberalisation of current account transactions and gradual capital account liberalisation should proceed in line with international commitments, while maintaining oversight of foreign currency flows to safeguard financial security and support development funding (IMF, 2025).

(iv) Coordination with ministries and agencies is essential to formulate and implement solutions that strengthen the economy, stabilise the macroeconomic environment, and reinforce financial foundations. This includes discouraging foreign currency hoarding and advancing diversification and de-goldisation policies (Multidisciplinary Research Journal, 2024).

(v) Accelerating research on central bank digital currencies (CBDCs) and developing proposals for their implementation in Vietnam will be critical to integrating with future financial markets and international trade systems (BIS, 2025).

5.1.2 Strengthening Foreign Exchange Reserve Management

Efforts to improve foreign exchange reserve management should focus on ensuring national reserve capacity and effective oversight.

(i) Enhancing state foreign exchange reserves during favourable market conditions—such as accumulating USD when the dollar index drops—will help meet international standards and strengthen resilience against global financial volatility. The SBV should maintain a minimum reserve level equivalent to 3–4 months of imports, in line with IMF recommendations for emerging markets (IMF, 2025).

(ii) Improving the quality of foreign exchange reserves involves diversifying investment portfolios and strengthening asset management capabilities to optimise returns. This approach aligns with global trends toward diversification and the rise of digital currencies (PwC Vietnam, 2021).

(iii) Diversifying reserve holdings by increasing the share of currencies such as the Euro (EUR), Japanese Yen (JPY), Chinese Yuan (CNY), and IMF Special Drawing Rights (SDRs) can mitigate concentration risk and reduce exposure to U.S. monetary policy shifts. Vietnam's foreign exchange reserves remain heavily dollar-denominated. Diversifying reserve holdings into Euros, Yen, and regional currencies could hedge against dollar volatility and signal confidence in non-dollar invoicing. Participation in regional reserve pooling mechanisms, such as the Chiang Mai Initiative Multilateralization (CMIM), would further support liquidity in local currencies and reduce dependence on USD reserves. Commercial banks and enterprises should also be encouraged to use hedging instruments like currency swaps and forward contracts to manage exchange rate volatility (IMF, 2025).

5.1.3 Promotion of Local Currency Settlement

Encouraging the use of VND and regional currencies in trade settlements is essential. Bilateral agreements with ASEAN partners and major trading economies could establish frameworks for local currency invoicing. Pilot programmes for VND invoicing in industries such as textiles, agriculture, and seafood could demonstrate feasibility and build confidence among exporters. Linking Vietnam's domestic payment systems with regional platforms would reduce transaction costs and make local currency settlements more attractive.

5.1.4 Financial Market Development

Deepening domestic capital markets is critical to supporting local currency use. Expanding issuance of VND-denominated bonds, developing derivatives markets, and promoting local currency financing for foreign investors could gradually reduce reliance on USD instruments. Strengthening transparency and regulatory frameworks would enhance investor confidence and support broader adoption of VND in external transactions.

In conclusion, by focusing on exchange rate management, reserve diversification, and policies that directly promote local currency invoicing, Vietnam can align its macroeconomic strategy to reduce the wide use of the USD. These measures would not only mitigate external vulnerabilities but also lay the foundation for greater monetary autonomy and resilience in the evolving global financial landscape.

5.1.5 Building Confidence in the VND

Building confidence in the Vietnamese dong (VND) is a cornerstone of any effective strategy, as a stable and credible domestic currency increases public willingness to hold, price, and transact in VND rather than the USD. Maintaining low and predictable inflation is essential to reinforce the VND as a reliable store of value (World Bank, 2024). This requires strong fiscal–monetary coordination to prevent macroeconomic imbalances that fuel precautionary dollarisation (Nguyen, Phan, and Tran, 2022). Equally important is improving transparency and predictability in monetary policy, which strengthens both domestic and foreign confidence in the currency (IMF, 2024; State Bank of Vietnam, 2025). Expanding digital payment infrastructure also plays a critical role, as it embeds the VND more deeply into everyday financial activity and facilitates its use in both domestic and cross-border settlements (PwC, 2024; International Trade Administration, 2024).

While these reforms may not immediately alter day-to-day invoicing practices, they establish the monetary credibility necessary for long-term diversification. Structural reforms provide the enabling environment, while targeted measures in monetary policy,

exchange-rate management, reserve diversification, and payment systems serve as the primary levers. A coordinated approach that combines these dimensions can gradually shift Vietnam's trade and financial ecosystem away from its heavy dependence on the USD and toward a more resilient, VND-centred framework.

5.1.6 Trade Policy

Vietnam's current trade structure, marked by a high concentration of transactions with USD-centric partners and industries, continues to reinforce the predominance of the USD in export and import invoicing. While trade policy alone cannot immediately change firms' currency choices, it can shape the broader environment in which non-USD invoicing gradually becomes more viable. Strategic adjustments in trade orientation and market engagement, therefore, represent an important complementary pathway for advancing medium-term diversification. Key policy directions include:

(i) Diversifying export markets toward Asian and regional partners where local-currency usage is more common and where settlement frameworks—such as CNY, KRW, or THB-based transactions—are increasingly accepted.

(ii) Encouraging enterprises to negotiate contract terms in alternative currencies with partners in ASEAN, China, Korea, and India, particularly in sectors where supply-chain linkages and pricing conventions are less rigidly tied to the USD.

(iii) Strengthening firms' capacity in currency-risk assessment and management by providing analytical tools and training to evaluate the costs and benefits of invoicing in currencies other than the USD.

(iv) Deepening participation in regional value chains, thereby reducing dependence on USD-denominated intermediate inputs sourced from U.S.-oriented global supply networks.

Although these measures will not displace the USD overnight, they help create a more supportive environment for currency diversification. Over time, greater regional integration, stronger firm capabilities, and enhanced institutional support can make non-USD invoicing arrangements increasingly practical within Vietnam's trade sector.

5.2 Regional and Institutional Measures

Domestic reforms in exchange rate management, reserve diversification, and local currency promotion form the foundation of Vietnam's strategy, but they cannot succeed in isolation. The effectiveness of these measures depends on complementary regional and institutional initiatives that expand the practical channels for non-dollar invoicing and settlement. Strengthening cooperation with ASEAN partners, enhancing cross-border payment infrastructure, and exploring innovations such as central bank

digital currencies (CBDCs) are therefore critical next steps. Section 5.2 turns to these external dimensions, highlighting how Vietnam can embed its domestic policies within broader regional and global frameworks to accelerate currency diversification and reduce systemic dependence on the USD.

5.2.1 Regional Financial Cooperation

Vietnam's participation in ASEAN+3 frameworks offers opportunities to embed non-dollar currencies into trade and investment flows. Mechanisms such as the Chiang Mai Initiative Multilateralization (CMIM) and the Asian Bond Markets Initiative (ABMI) can be leveraged to promote settlement in regional currencies (Asian Development Bank, n.d.; ASEAN Plus Three, n.d.; AMRO, 2022). Bilateral swap lines with China, Korea, and Singapore provide liquidity buffers and encourage invoicing in RMB, KRW, and SGD, complementing domestic reserve diversification by creating institutional pathways for non-dollar usage (Yin, 2022).

5.2.2 Cross-Border Payment Infrastructure

Reducing transaction costs and improving efficiency in local currency settlements requires interoperable payment systems. Vietnam can accelerate efforts to link its domestic payment networks with ASEAN peers, enabling real-time settlement in regional currencies. Initiatives such as ASEAN Payment Connectivity and regional QR code standardisation could facilitate small and medium enterprises (SMEs) in adopting local currency invoicing, broadening the base of diversification beyond large corporates (ASEAN Secretariat, 2023; Bank of Indonesia, 2022; Boston Consulting Group, 2021). Vietnam's payment system should evolve in line with global trends and international best practices.

(i) Establishing swap lines with major partners such as Japan, Korea, and the European Union can supplement liquidity during export downturns (SBV, 2025).

(ii) Accelerating participation in ASEANLink—a regional payment rail framework involving Indonesia, Malaysia, Thailand, the Philippines, Singapore, and Vietnam—will support local currency transactions and reduce intermediary costs (ASEAN, 2023).

(iii) Evaluating the use of IMF SDRs as an additional liquidity channel can help mitigate risks associated with USD dependency (IMF, 2025).

(iv) Exploring the implementation of the multi-CBDC Bridge model proposed by the BIS Innovation Hub could connect VND-CBDC with CNY, EUR, or JPY, expanding Vietnam's international payment channels (BIS, 2025).

5.2.3 Central Bank Digital Currencies (CBDCs) and Their Potential Role

Global interest in Central Bank Digital Currencies (CBDCs) has intensified. Economies seek faster, safer, and more efficient cross-border payments. For Vietnam, which has long pursued a policy of reducing dollarisation and strengthening the role of the Vietnamese dong (VND), CBDCs represent a potentially important policy tool. A well-designed VND-CBDC could complement existing measures by expanding the usability, convenience, and credibility of the VND in both domestic and international transactions (Ho Chi Minh National Academy of Politics, 2025; State Bank of Vietnam, 2025).

At the regional level, initiatives such as mBridge, a multi-CBDC platform involving the BIS Innovation Hub, Hong Kong, China, Thailand, and the UAE, demonstrate the feasibility of conducting cross-border payments directly in local currencies without relying on the USD–based correspondent banking system (Bank for International Settlements, 2024; Hong Kong Monetary Authority, 2023; Central Bank of the UAE, 2023). These developments are particularly relevant for Vietnam's long-term strategy, as they reduce settlement costs, enhance transparency, and create new pathways for local-currency invoicing in regional trade. Similarly, ASEAN's Regional Payment Connectivity (RPC) initiative is exploring CBDC interlinkages that may facilitate local currency settlements among member states, further supporting the region's shift toward diversified settlement mechanisms that do not depend on the USD (ASEAN Secretariat, 2023; AMRO, 2025; ERIA, 2025).

CBDCs provide several advantages that align closely with Vietnam's objectives. First, a wholesale VND-CBDC could strengthen the international usability of the VND by enabling direct settlement with trading partners, thereby reducing reliance on the USD as an intermediary. This is consistent with Vietnam's longstanding policy direction of expanding the role of the VND in cross-border trade and investment (State Bank of Vietnam, 2025). Second, CBDCs can enhance payment system efficiency, transparency, and resilience. Their programmability and traceability may reduce settlement risks, curb informal dollar usage, and support electronic invoicing systems aligned with Vietnam's diversification and digital transformation agendas (Vietnam Law Magazine, 2022; Banking Academy of Vietnam, 2022).

In addition, CBDCs can complement Vietnam's Local Currency Settlement (LCS) efforts. By integrating a future VND-CBDC with regional CBDC networks—such as mBridge or future corridors with China, Korea, or Japan—Vietnam could expand the practical scope for local-currency-denominated trade and reduce structural dependence on USD transactions (Asian Development Bank, 2023; State Bank of Vietnam, 2025). Over time, this integration may also help mitigate elements of the "Original Sin" problem by enhancing investor confidence in VND-denominated financial assets and improving the liquidity of domestic-currency instruments (Bank for International Settlements, 2023; Han, 2024).

Although Vietnam remains in the exploratory phase of CBDC development, proactive engagement by the State Bank of Vietnam (SBV) in international research forums and cross-border CBDC pilots will be essential for shaping an effective policy framework (Human Rights Foundation, 2025). Any future CBDC strategy should align with Vietnam's broader goals of strengthening monetary sovereignty, enhancing foreign-exchange management, and reducing the predominance of the USD in both domestic financial intermediation and cross-border settlements.

Conclusion

Vietnam's path toward diversification requires a balanced strategy that integrates domestic reforms with regional and institutional cooperation. At home, measures such as exchange-rate diversification, reserve management, local-currency settlement, and financial market development can gradually reduce reliance on the USD while strengthening confidence in the Vietnamese dong (VND). Regionally, deeper engagement with ASEAN+3 frameworks, interoperable payment systems, and innovations like central bank digital currencies (CBDCs) provides the infrastructure and partnerships needed to operationalise these reforms.

Taken together, these complementary approaches form a coherent roadmap: domestic policies establish the credibility and resilience of the VND, while regional and technological initiatives expand the channels through which non-dollar currencies can be used in practice. By pursuing this dual track, Vietnam can mitigate external vulnerabilities, enhance monetary sovereignty, and position itself more securely within an evolving global financial system.

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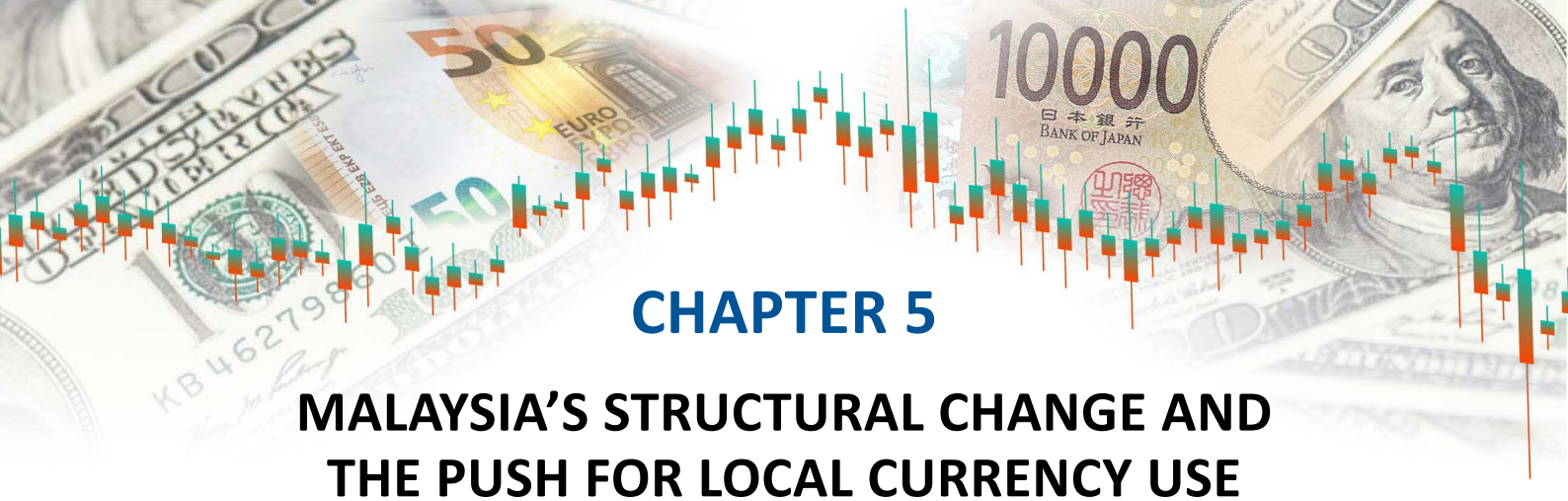

CHAPTER 5

MALAYSIA'S STRUCTURAL CHANGE AND THE PUSH FOR LOCAL CURRENCY USE

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Introduction

The global trade and financial landscape have undergone significant transformation over the past decades, driven by industrialisation, the rise of emerging markets in the region, and the strengthening of regional supply chains. These structural shifts have altered the flows of trade, investment, and capital, particularly within Asia.

Malaysia's evolution from a commodity-based economy with traditional linkages to advanced economies, to a more diversified and regionally integrated hub, mirrors the broader economic trajectory of many ASEAN countries. The progressive diversification of Malaysia's export product composition and destinations, together with deepening financial linkages within the region, reflects both the opportunities and challenges presented by this evolving global landscape.

These developments have reinforced the case for greater use of local currencies to facilitate trade and investment, while promoting regional economic stability. Beyond improving transactional efficiency and reducing reliance on external currencies, wider local currency use also contributes to building more resilient regional financial systems.

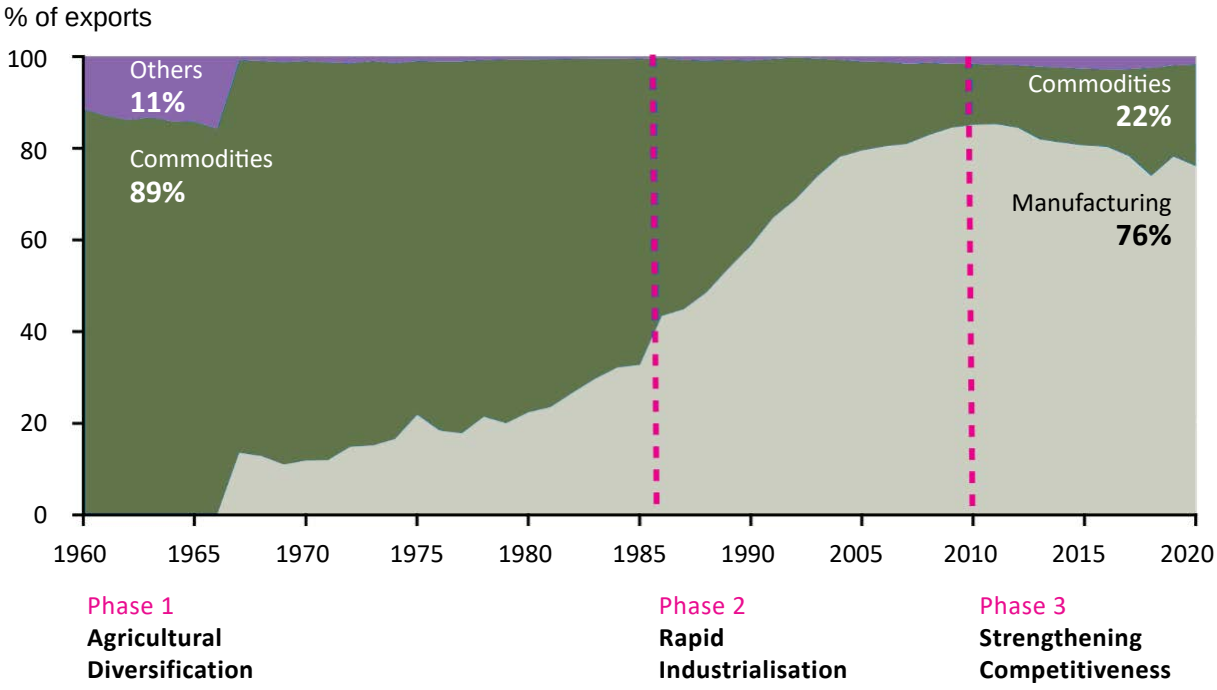
This paper examines Malaysia's experience — particularly through the implementation of the Local Currency Transaction Framework ("LCTF") — as part of ASEAN's broader integration journey. Ultimately, it highlights how the greater use of local currencies complements ongoing regional developments, underpinning ASEAN's long-term vision of a more interconnected and resilient financial ecosystem.

1. Economic Transformation and Export Diversification

Malaysia's export sector has undergone substantial transformation over the past six decades, consistent with the broader structural shifts in the economy since independence. In the 1960s, exports were predominantly composed of primary commodities, particularly rubber, tin, and palm oil. This reflected the economic structure inherited from the colonial period, in which production was largely oriented toward supplying upstream core commodities to advanced economies with limited domestic downstream activity.

In the years following independence, Malaysia progressively reoriented its economy towards industrialisation. Successive development strategies from the 1970s onwards catalysed a gradual transition from a commodity-based economy to one driven by manufacturing. The rapid expansion of export-oriented industries, particularly during the 1980s and 1990s, saw the share of manufactured goods rise to over 80% of total exports by the end of the 1990s. Manufactured products have since remained the dominant component of Malaysia's export base. (see Figure 1)

Figure 1: Malaysia has Evolved from Being a Major Commodities Exporter to Being Primarily an Exporter of Manufactured Goods



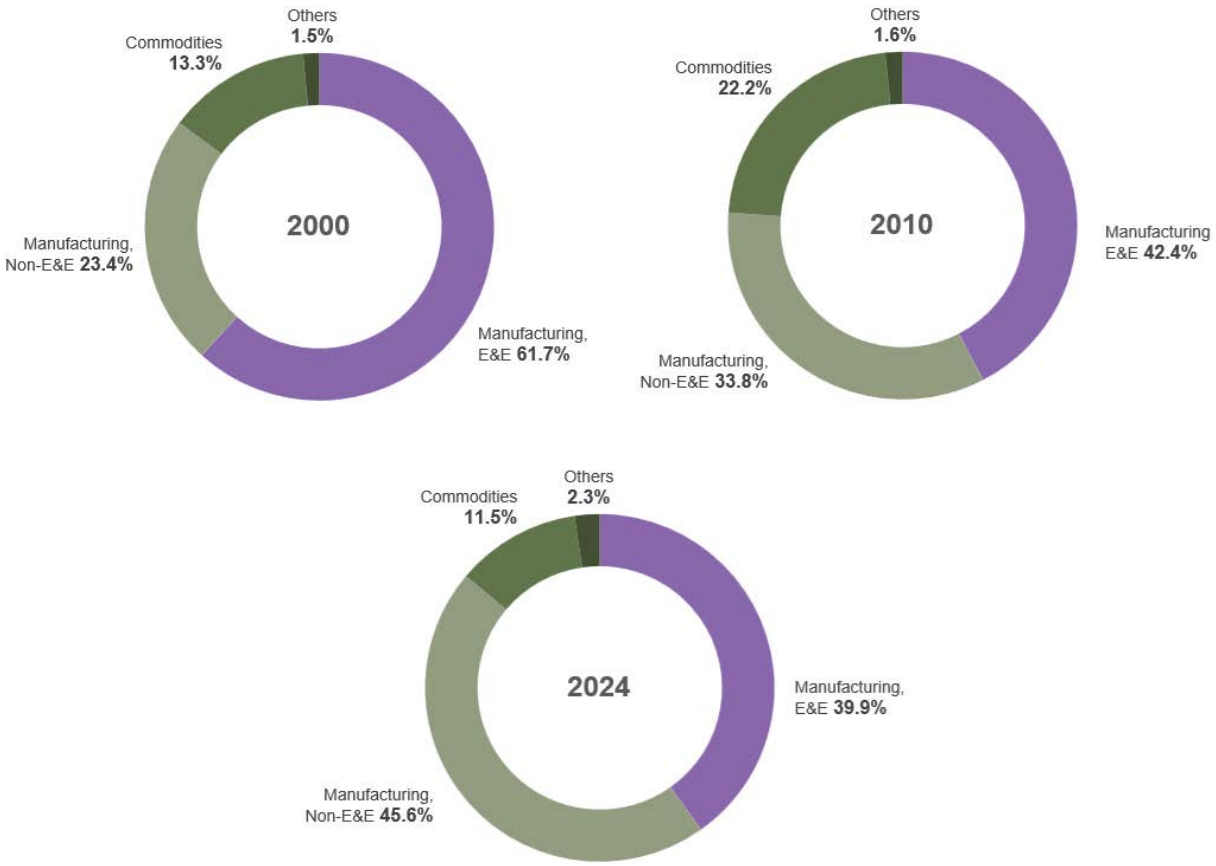
Source: Department of Statistics Malaysia and Bank Negara Malaysia.

In the 2000s, Malaysia's export composition began to diversify further, reflecting both the maturing of its industrial base and changing global demand patterns. The export sector gradually shifted away from heavy concentration in electrical and electronics ("E&E") products toward two new growth pillars: (1) non-E&E manufactured products[1]; and (2) natural resources (commodities).[2]

1. The non-E&E industries-particularly chemicals, refined petroleum, and rubber products-have grown rapidly and contributed significantly to total manufactured exports. This stronger focus on higher value-added downstream activities is reflected in the increasingly capital-intensive nature of the manufacturing sector, with Capital Investment Per Employee ("CIPE") in approved manufacturing projects rising from RM381,450 in 2000 to RM557,894 in 2011 and RM2.4 mil as at Q1 2024.
2. Owing to rising global demand for natural resources such as palm oil, liquefied natural gas ("LNG"), crude oil and natural rubber, particularly from fast-growing Asian economies. These commodities accounted for most of the increase in commodity exports post-2000s.

Figure 2: The Share of E&E Manufacturing as a % of Total Exports Have Gradually Shifted into the Non-E&E Manufacturing Sector Over This Recent Decade

Figures indicate the share (%) of Malaysia's total exports by sector

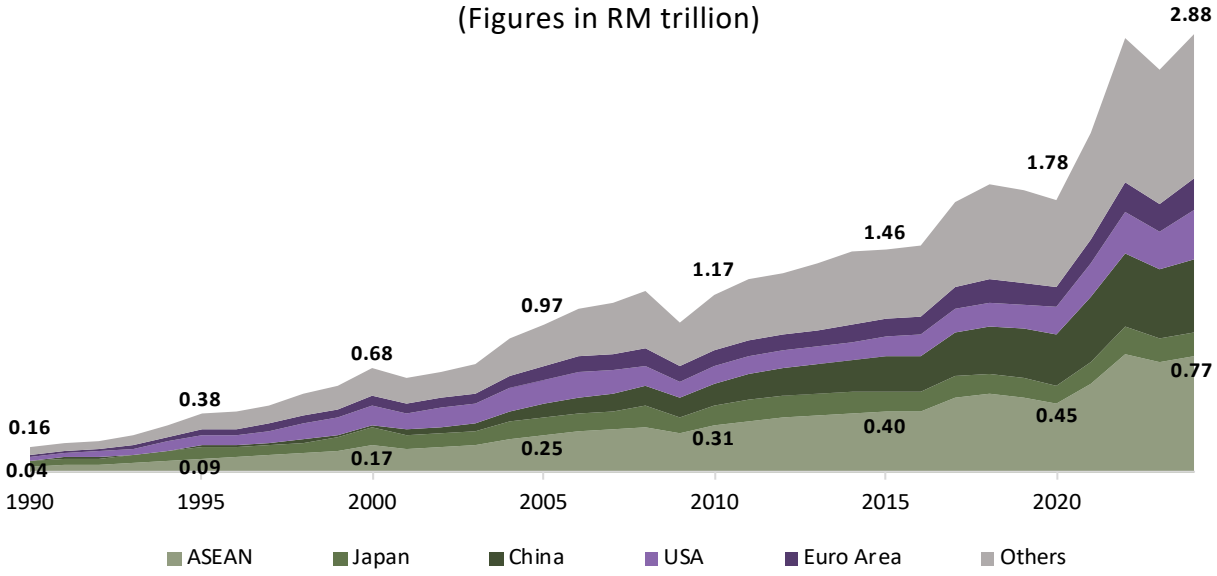


Source: Department of Statistics Malaysia and Bank Negara Malaysia.

Diversification of Export Destinations and Regional Integration

Export destinations have also become increasingly diversified, reflecting the economy's growing integration with global and regional markets. Whilst advanced economies such as the United States, the United Kingdom, and Europe remain important markets, Malaysia's trade with regional partners — particularly in East and Southeast Asia — has expanded significantly. ASEAN continues to grow to serve as a key export market, accounting for around 25% of Malaysia's total exports.

Figure 3: Malaysia's Trade with ASEAN Has Grown Steadily, Reflecting Diversification in Export Destinations and Deeper Regional Integration



Source: Department of Statistics Malaysia.

As exports in the region have increasingly diversified from advanced economies towards emerging markets, particularly within ASEAN, the regional economies' structure also shifted from merely importers of intermediate goods, to exhibiting rising demand for final consumer products. This is supported by the expanding middle-class and rapid urbanisation, which drive stronger domestic consumption. By 2035, ASEAN is projected to rank third in the world middle-class additions, adding 112 million people — just behind India (411 million) and China (163 million).[3] The rising middle-class population has poised ASEAN to be one of the main consumers of final goods and services. Indeed, regional countries such as Malaysia, Indonesia and Thailand are transitioning from being merely the intermediate goods manufacturers to consumers of final goods and services. According to the respective national statistics, these countries are importing an increasing share of final goods out of total imports – reflecting the burgeoning demand for final consumer products.[4] The Share of E&E Manufacturing as a % of Total Exports Have Gradually Shifted into the Non-E&E Manufacturing Sector Over This Recent Decade Thailand is importing a 11.5% of final goods out of total import in 2024 compared to 8.6% in 2012.[5] Similarly, Indonesia is importing 9.7% of final goods in 2024, a rise from 7.0% in 2012.[6] In 2024, the share of final goods imported by Malaysia is 8.6%, a rise from 7.2% in 2012.[7]

3. Chandran and Fengler (2025).
4. The statistics presented are based on the data availability according to respective national statistics.
5. Ministry of Commerce, Thailand.
6. Derived from BPS-Statistics Indonesia import composition (Broad Economic Category) and the corresponding annual import totals for the year (BPS-Statistics Indonesia, 2025a; BPS-Statistics Indonesia, 2025b; BPS-Statistics Indonesia, 2013).
7. Department of Statistics Malaysia (DOSM) (n.d.).

Consequently, trade flows are no longer confined to exchanges between advanced and emerging economies but are increasingly taking place among emerging economies themselves – an evolution that reinforces Malaysia's pivot towards regional markets.[8]

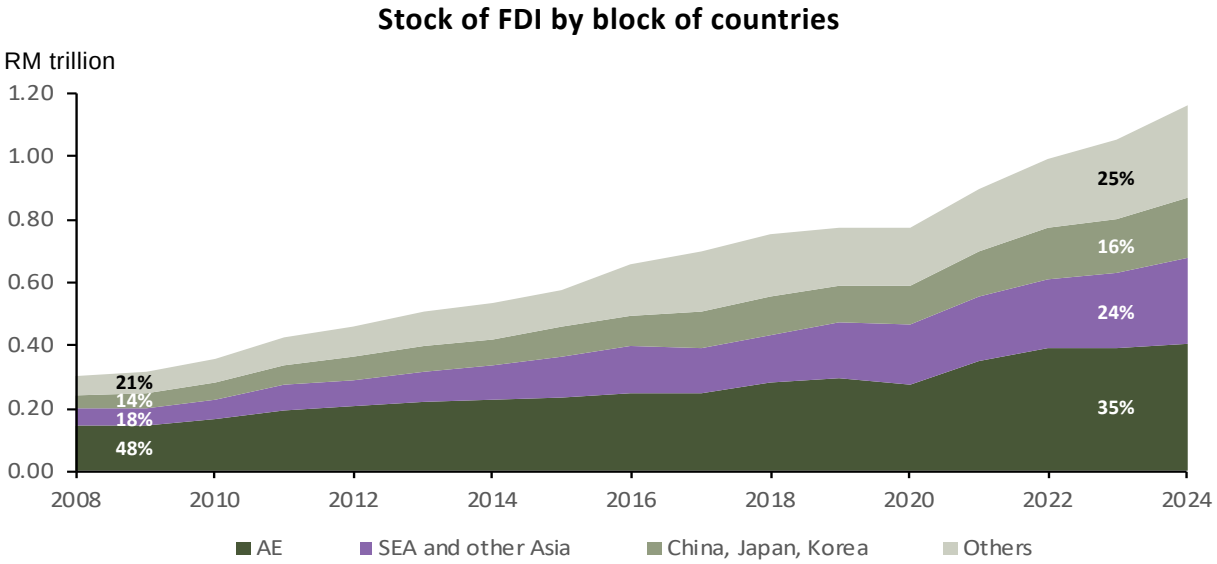
Evolving Investment Landscape

The 1970s represents a turning point in Malaysia's economic development. Following the introduction of the New Economic Policy ("NEP") in 1971, the government established free trade zones which drew in foreign direct investment ("FDI") and promoted an export-oriented industrialisation. The government also made substantial investments in infrastructure, such as transportation networks, ports and industrial parks, to support the rapidly expanding manufacturing industry.[9] Following that, the Promotion of Investment Act 1986 liberalised the investment climate and provided tax relief and incentives to investors, thereby attracting significant FDI into Malaysia. Manufacturing grew sharply from about 12% of GDP in 1970 to over 30% by the mid-1990s. The share of electronics in manufactured exports soared from below 50% in 1980 to peak at more than 70% in 2000.[10] During the same decade, Malaysia also began to develop the services industries such as finance, tourism, education, and information and communication technology ("ICT"). The launch of the Multimedia Super Corridor ("MSC") in 1996 attracted investments from international technology companies and stimulated domestic innovation.[11]

Fast forward to 2025, Malaysia recorded a total of RM285.2 billion in approved investments in the first nine months, a 13.2% increase compared to the same period in 2024.[12] A significant portion of this investment is allocated to high-growth sectors, such as digital technology. Over the years, Malaysia's strong manufacturing ecosystem has positioned the country well to meet the rising global demand for advanced production capabilities, including those related artificial intelligence ("AI"), semiconductor fabrication, and energy transition sector like battery manufacturing. The composition of FDI inflows has also become more regionally diversified, with a notable increase in investments originating from Southeast Asia. The share of FDI from within the region has risen steadily since 2008, reflecting Malaysia's deeper integration into ASEAN production networks and value chains. This shift also signifies growing regional confidence in Malaysia as a competitive investment destination, supported by its strong industrial base, connectivity, and participation in regional supply chains (Figure 4).

8. This inference aligns with the IMF's assessment that, amidst heightened trade tensions, Asia should pursue "greater diversification of exports and stronger regional economic ties", with "significant scope for more intra-regional trade in ASEAN." Together, these points imply a growing share of trade among emerging economies — supporting Malaysia's pivot toward regional markets (Helbling, Pescatori and Srinivasan, 2025).
9. Malaysia Investment Development Authority ("MIDA"), (2024).
10. Menon (2015).
11. Malaysia Investment Development Authority ("MIDA"), (2024).
12. Malaysia Investment Development Authority ("MIDA"), (2025).

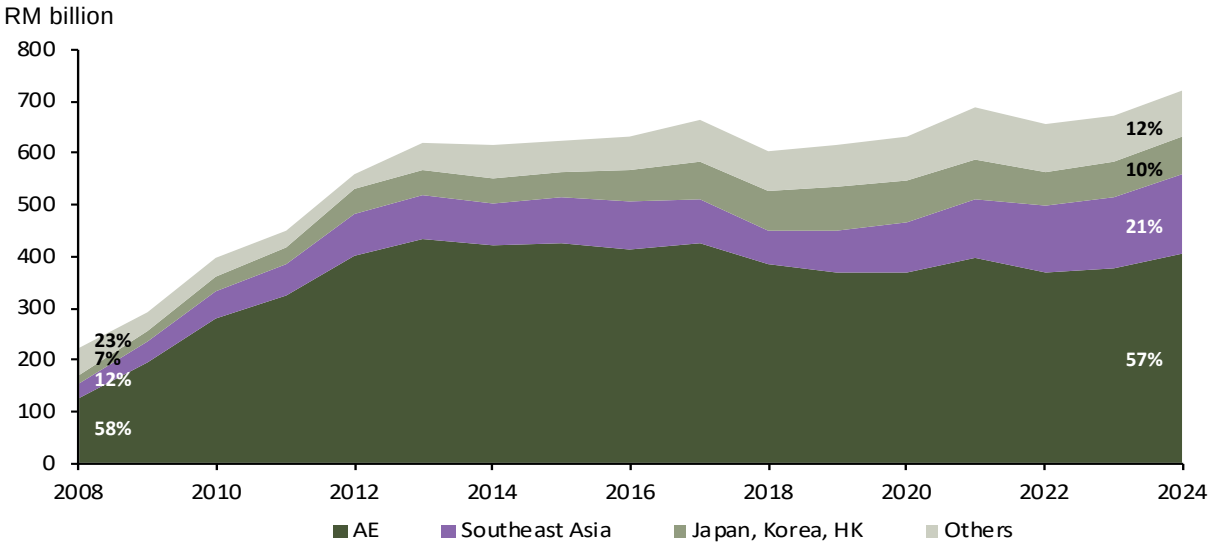
Figure 4: Rising Share of Foreign Direct Investments ("FDI") from Southeast Asia and Other Asian Countries Since 2008 Reflects the Shifting Dynamics of Malaysia's Economic Structure



Source: Department of Statistics Malaysia and Bank Negara Malaysia.

Malaysia has also experienced a diversification in its sources of portfolio investments, with growing participation from regional investors within the ASEAN bloc and East Asia (Figure 5). The steady rise in portfolio investments from neighbouring economies reflects not only stronger regional confidence in Malaysia's financial markets but also the country's role as a conduit for cross-border investment flows within the region's expanding financial ecosystem.

Figure 5: Portfolio Investments from ASEAN Economies Have Grown Steadily, Signalling Stronger Regional Financial Interlinkages



Source: Department of Statistics Malaysia and Bank Negara Malaysia.

Overall, these developments demonstrate the broader structural realignment within ASEAN. As ASEAN economies mature and domestic consumption strengthens, intra-ASEAN trade and investment has become an increasingly important driver of growth and resilience. Deepening regional supply chains and expanding financial interlinkages have further reinforced this trend, positioning ASEAN as a dynamic and increasingly integrated economic bloc.

In the next section, the discussion will explore how these structural shifts in trade have been accompanied by corresponding developments in regional financial cooperation – particularly through the greater use of local currencies in cross-border trade and investment – to support the region's growing economic interdependence.

2. The Use of Local Currencies amid The Deepening Regional Integration

A Natural Progression in Regional Integration

As regional economies matured, their interdependence has deepened, marked by the expansion of cross-border trade, investments, and financial flows. These developments are in parallel with the rise of emerging economies globally, which are projected to grow roughly twice as fast as advanced economies[13] and to account for more than half of global growth[14] by 2035.

The region has also witnessed transformations in its financial architecture, as a result of this structural shift. Cross-border payment connectivity has strengthened significantly through initiatives such as the expansion of bilateral QR payment linkages and regional settlement networks, facilitating more seamless retail and business transactions across ASEAN. Meanwhile, financial markets have become more integrated, as regional investors increasingly participate in each other's equity and bond markets, alongside a rise in cross-border mergers and acquisitions ("M&A"), corporate ventures, and broader regional investment activity. Collectively, these trends reflect ASEAN's progression toward a more interconnected economic community, characterised not only by trade and portfolio flows, but also by deeper corporate cross-border linkages and integration, where trade, finance, and digital ecosystems are becoming more closely intertwined.

Despite the deepening trade and financial integration in the region, the use of local currencies for the settlement of regional trade remains limited. The historical path dependence, sheer size of major economies and entrenched network effects continue to shape firms' trade invoicing and settlement preferences.[15] This is evidenced by Boz

13. Macquarie Asset Management (2025).
14. Perez-Goropze, Cardenas, and Tesfay (2024).
15. Gopinath and Stein (2018); and Mukhin (2018).

et al. (2020), who showed that major currencies such as the U.S. dollar (USD) and euro continue to dominate trade invoicing despite the declining share of global trade accounted for by the U.S. and euro area.

Major Currencies Dominance in Settlement for Regional Trade

For Malaysia, the bulk of trade are settled in major currencies, such as the USDs (2024: 81.7%, 2009: 82.9%) (Table 1). Even for intra-regional trade within ASEAN, the trade settlements in the USD remain widely used (Figure 6). Only 13.4% of trade within ASEAN was settled in regional currency pairs.

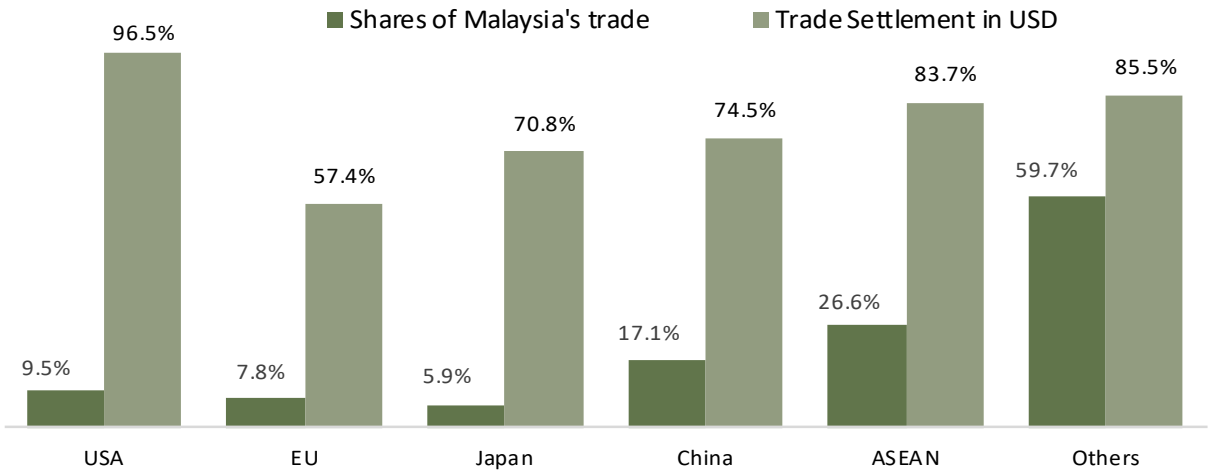
Based on Bank Negara Malaysia ("BNM")'s engagements with major exporters, some companies have stated that their preference to settle their trade in USDs is to ensure that their USD income matches their invoice and exposure to USD-denominated external debt. Multinational corporations with strong presence in the global supply chain, like those in the E&E industry, also commonly use the USD to implement a more centralised treasury management system to manage the flow of funds across countries. Malaysia's commodity exporters and importers also transact in USDs as the majority of commodities are invoiced in such terms. For smaller players such as small- and medium-sized enterprises ("SMEs"), there are limited awareness of local currency settlement avenues and lower bargaining power in international trade transactions, leading to the continued dependence on major currencies for settlement. As such, the transactional prominence of the USD in global trade, investment and financial activities is a structural feature of the global economy primarily due to its standing as a global settlement currency.

Table 1: Percentage of Malaysia's Total Trade Settled in Respective Currencies

Top Currencies	**2009** (%)	**2024** (%)
USD	82.9	81.7
EUR	5.0	4.0
MYR	1.3	4.2
CNY	0.0	3.5
SGD	3.7	2.3
JPY	3.4	1.8
Others	3.7	2.5

Source: Bank Negara Malaysia.

Figure 6: Breakdown of Malaysia's Trade by Trading Partners vis-à-vis Percentage of Trade Settlement in USD with These Trading Partners in 2024



Source: Department of Statistics Malaysia and Bank Negara Malaysia.

Other Key Challenges in Adopting Local Currencies Transactions

Beyond the deeply entrenched and habitual usage of the USD in cross-border transactions – particularly in trade invoicing, settlement conventions, and correspondent banking practices – the fragmented foreign exchange regulatory landscape across regional economies also posed practical challenges for cross-border transactions involving two local currencies. The dominance of the USD is further reinforced by established trade finance structures, including invoice financing and supply chain financing arrangements that are predominantly denominated in USD, thereby creating strong network effects and inertia against currency diversification. In addition to considerations such as cost, speed, accessibility and transparency, market participants faced additional frictions arising from the need to navigate two distinct regulatory regimes, where substantial differences may exist in documentation and compliance requirements between these regimes (Nguyen, Ong, Pande and Quách, 2023).

In addition, banks facilitating cross-border local currency transactions may incur higher compliance costs and greater operational complexity. Operational barriers, such as account opening requirements, on-boarding procedures, and varying documentation standards across jurisdictions, may further reduce accessibility for corporates and SMEs seeking to transact in local currencies.

These divergence in market practices further impede efforts to establish linkages in local currency transactions. Moreover, thin liquidity, limited availability of hedging instruments and restricted access to local currency assets hindered direct price discovery between local currencies, thereby constraining direct local currency transactions. The lack of demand for such transactions, in turn, discouraged investment in market infrastructure and product development, reinforcing a persistent chicken-and-egg problem (Nguyen, Ong, Pande and Quách, 2023).

3. Malaysia's Experience: Broadening Access to Local Currency Transactions

Given the shifting economic and financial landscape in ASEAN in recent years, Malaysia had since adopted a gradual and systematic approach to expanding local currency usage beyond domestic jurisdiction. Since 2001, BNM has gradually introduced foreign exchange policy ("FEP") flexibilities, allowing both trade and investment to be settled directly using ringgit through licensed onshore banks ("LOB"). The ringgit settlement flexibility was further expanded in 2010 through the Appointed Overseas Office ("AOO") framework to cover banks outside of Malaysia within the LOB's group. Through the AOOs, foreign companies and investors outside Malaysia can now settle cross-border transactions in ringgit from abroad.

In parallel, BNM has also enhanced financial cooperation with Malaysia's key regional trading partners to promote the use of local currency for cross-border settlement, notably with the inception of the Local Currency Transaction Framework ("LCTF"). These regional collaborations endeavour to overcome the underlying challenges hindering wider use of regional local currencies for cross-border settlement.

In relation to trade settlements with Malaysia's largest trading partner, i.e., China, many initiatives have been put in place since 2009 to facilitate and encourage more local currency settlement by increasing access to renminbi which includes the Renminbi Liquidity Facility introduced in 2013 and the appointment of Bank of China Malaysia as a renminbi clearing bank in 2015.

Access to Ringgit through the AOOs

First introduced in 2007, the AOO framework allowed LOBs to appoint entities within the banking group to undertake back-to-back transactions to facilitate the settlement of ringgit assets between non-residents and residents. The AOO framework is established to enable non-residents to undertake foreign exchange transactions involving the ringgit overseas directly through the AOOs. The AOO framework serves to facilitate wider price availability and enhance liquidity of ringgit transactions outside the Malaysian trading hours. The framework has since been expanded to include the settlement of all current and financial account transactions on spot and forward (hedging) basis.[16] The offering of ringgit account (for book-keeping purposes only) and ringgit trade financing via the AOOs are also allowed upon approval by BNM. Furthermore, LOBs can appoint non-resident financial institutions ("NRFI") outside of the LOB's banking group as AOOs, subject to BNM's approval. With the expanded scope, the framework allows non-resident traders and investors greater avenues to settle trade or investment in ringgit through an approved channel.

16. Hedging for financial account transactions on firm commitment basis.

Conceptualisation of the Local Currency Transaction Framework

While the AOO framework enhances non-resident access to ringgit, it does not remove the broader cross-border frictions that arise from differing regulatory regimes across the regional jurisdictions. One of the key challenges in promoting local currency usage between regional trade partners is navigating the disparate foreign exchange regulations across regional countries. To address these issues, BNM has established the Local Currency Transaction Framework ("LCTF") with the Bank of Thailand ("BOT") in 2016 and Bank Indonesia ("BI") in 2018. It was first established as a bilateral framework between two central banks envisaged to consolidate and align the regulatory requirements of participating countries, thereby enabling a more seamless access to between the two local currencies involved. The LCTF then evolved and represent the cornerstone of regional collaboration between the three central banks in harmonising foreign exchange regulations to facilitate cross-border transactions in the domestic currencies of the three countries — ringgit, baht, and rupiah.

The LCTF allows businesses to access a comprehensive suite of financial services denominated in local currencies, including FX hedging, financing, and opening deposit accounts, through selected banking institutions in each country known as appointed cross-currency dealers ("ACCDs").

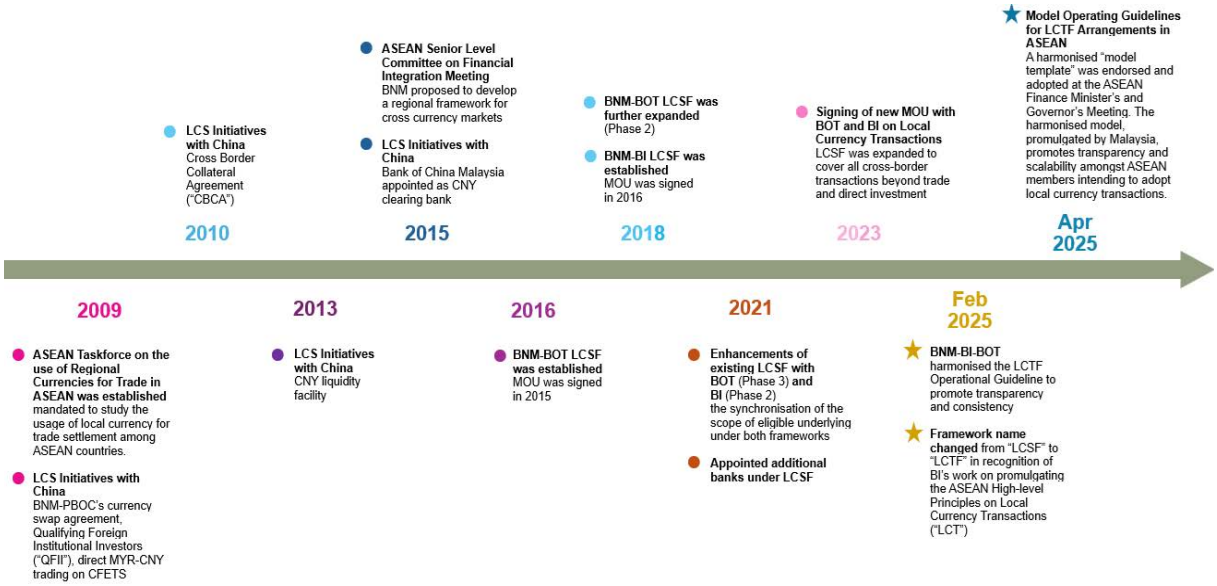
From Concept to Implementation: Operationalising the LCTF

Bank Negara Malaysia ("BNM"), the Bank of Thailand ("BOT") and Bank Indonesia ("BI") first entered into bilateral Memoranda of Understanding ("MOUs") to establish a framework for cooperation in promoting the use of local currencies for the settlement of bilateral trade in goods and services, as well as direct investments, between their respective jurisdictions.

The LCTF has since evolved in a gradual and sequenced manner, reflecting the broader objective of advancing regional financial integration by enabling greater access to local currencies outside their home jurisdictions. In its early stages, the arrangement was implemented through separate bilateral frameworks, each governed by its own operational guidelines. Over time, as the framework matured, the three central banks worked towards enhancing consistency by aligning the scope and procedures of local currency transactions.

A key milestone was reached in February 2025, when BI, BNM and BOT collectively adopted a single, harmonised set of operational guidelines. This marked a significant step forward in improving scalability, promoting uniformity across all Appointed Cross-Currency Dealers ("ACCDs"), and streamlining participation in local currency transactions. By establishing a standardised framework, the three central banks aim to foster broader usage of local currencies in trade and permitted financial transactions, thereby optimising the benefits of the LCTF across their economies.

Figure 7: Key Developments on Advancing Local Currency Transactions Involving Malaysia



Operationalising the LCTF

The operationalisation of the LCTF is now governed by a single Harmonised Operational Guideline jointly agreed and adopted by BI, BNM and BOT. Under this framework, ACCDs, i.e., the commercial banks designated by the respective authorities to operate the framework — play a central role in promoting and facilitating local currency transactions. ACCDs are granted specific flexibilities, including regulatory authorisations, to undertake activities aligned with the objectives of the LCTF as stipulated in the Harmonised Operational Guideline.

The Guideline establishes a comprehensive coverage of requirements across five main areas —

(i) the scope of eligible underlying transactions;

(ii) foreign exchange ("FX") flexibilities for different categories of financial transactions;

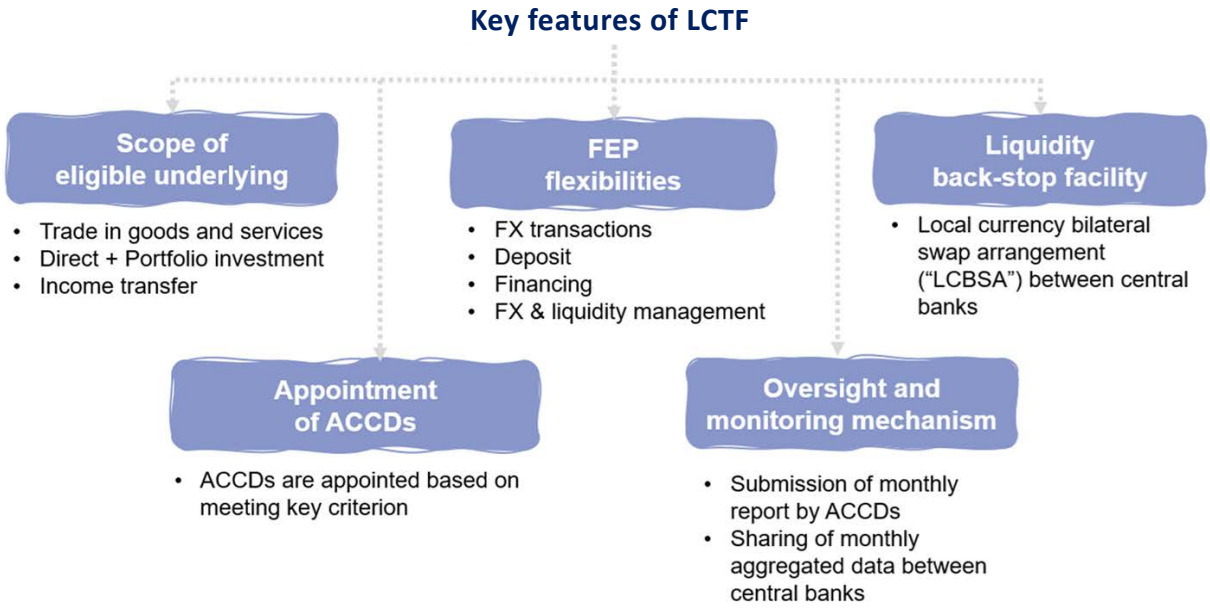
(iii) the appointment process for ACCDs;

(iv) oversight and monitoring arrangements; and

(v) a local currency liquidity safeguard facility.

These features are illustrated in the diagram below.

Figure 8: Key Features of the Local Currency Transaction Framework ("LCTF")



These features are critical to ensuring the successful implementation of the LCTF through a sequential and phased approach. In the initial phase, the scope of the eligible underlying transactions was limited to trade in goods and services and direct investment. At the same time, businesses and investors were given the enhanced options to access a wide range of financial services such as financing, hedging and deposit placement. These financial services can be accessed through a network of ACCDs across participating jurisdictions, leveraging their expertise, operational strength and cross-border networks. The LCT activities are monitored through close cooperation among the monetary authorities to mitigate risks and support the overall effectiveness of the framework. Further, the provision of liquidity backstop facilities by the monetary authorities bolsters market confidence in the LCTF.

Since the implementation of the LCTF, Malaysia, Indonesia and Thailand experienced an upward trend in the use of LCT for bilateral trades. To further stimulate this momentum, the eligible underlying transaction is expanded in 2025 to include portfolio investments. In parallel, additional ACCDs were appointed to strengthen customer outreach and enhance market access to local currency liquidity. Upon operationalising the LCTF and receiving feedback from participating stakeholders, additional operational flexibilities are provided such as relaxation on the documentation requirement to further improve the ease and efficiency of transactions. Together, these measures form a robust foundation for the sustainable growth and long-term success of the LCTF.

The LCTF enables ACCDs to facilitate four major categories of financial transactions in the counterparty's local currency. For example, a Malaysian ACCD may undertake a sell-THB-against-MYR transaction; whilst an Indonesian ACCD may extend a MYR-denominated trade finance facility to corporates in Indonesia.

Drawing on the earlier discussion on the historical context underpinning the non-internationalisation of selected regional currencies, the LCTF serves as a phased and guided approach to progressively introduce FX flexibilities in local currencies outside their home jurisdictions.

The following table sets out the specific flexibilities granted to ACCDs under the framework.

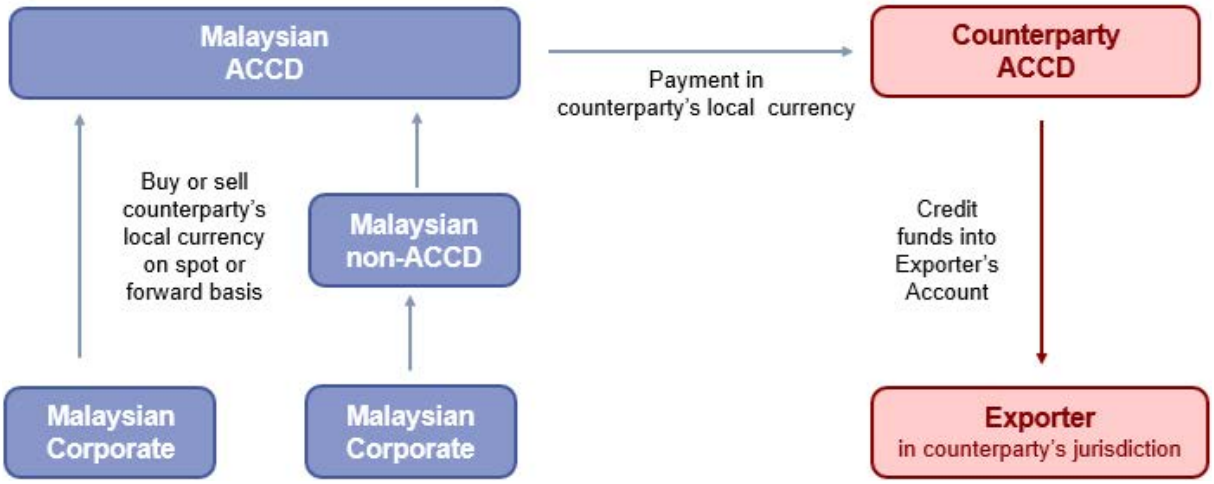
Table 2: Key Flexibilities Granted to Appointed Cross Currency Dealers ("ACCDs") under the Local Currency Transaction Framework ("LCTF")

Buying and selling of counterparty currencies (FX transactions)	• Spot and forward transactions • Cancellation and early take up of forward contracts • Public display of counterparty's local currency exchange rate quotations
Trade Financing	• Offer trade financing facilities in the counterparty's local currency • Source funds from peer ACCDs
Deposit Accounts	• Offer deposit accounts in the counterparty's local currency to local entities
Management of FX Exposure	• Squaring of FX positions with peer ACCDs in the home country or in the counterparty's jurisdiction • Permissible Net Open Position in the counterparty's local currency

Buying and Selling of FX in the Counterparty's Local Currency

ACCDs are allowed to facilitate client transactions to buy or sell a counterparty's local currency on a spot or forward basis. Forward transactions, which can include derivative contracts and swaps, can be facilitated on a firm commitment or anticipatory basis. For example, a Malaysian ACCD may facilitate a local corporate anticipating an import payment from Indonesia in 90 days to enter into a forward IDR transaction (Figure 9).

Figure 9: Buying and Selling of FX in the Counterparty's Local Currency

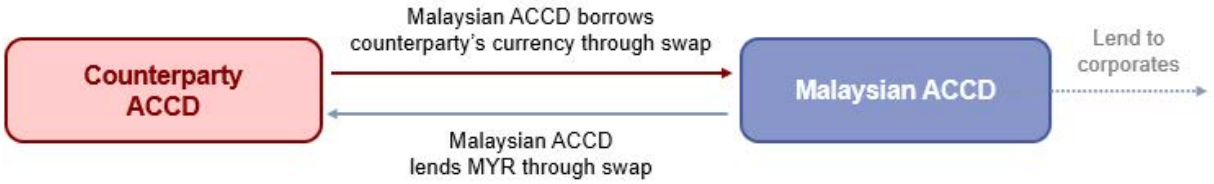


As a means of providing greater flexibility and to further expand outreach of the framework, an ACCD may also act as intermediary to facilitate transactions on behalf of other commercial banks whom are non-ACCDs.

Offering Trade Financing Facilities in the Counterparty's Local Currency

ACCDs are allowed to offer trade financing facilities in the counterparty's local currency to domestic clients. The ACCD may source such funding via direct borrowing or swaps undertaken with other peer ACCDs in either jurisdiction (Figure 10).

Figure 10: Offering Trade Financing Facilities in the Counterparty's Local Currency



For the purpose of illustration, assume that a Malaysian ACCD provides IDR funding to a corporate client in Malaysia. This Malaysian ACCD may source funding from the following approaches —

1. Utilise its existing IDR liquidity;
2. Borrow directly from a ACCD in the home or counterparty jurisdiction; or
3. Enter into an IDR/MYR currency swap with a counterparty ACCD

Opening of Deposit Accounts in the Counterparty's Local Currency

The cornerstone of the LCTF is its book-keeping structure, centred on the Special Non-Resident Account ("SNA"). Under this arrangement, an ACCD opens and maintains an SNA with its counterpart ACCD in the partner jurisdiction, holding funds in the counterparty's local currency. The SNA functions much like a nostro / vostro account, providing the operational foundation for settlement in local currencies.

In addition, ACCDs may establish sub-SNAs on behalf of their clients, denominated in the counterparty's currency and linked to the main SNA. These accounts facilitate client participation in the framework while remaining within the book-keeping model. Both SNAs and sub-SNAs may be interest-bearing, offering flexibility and efficiency in managing funds across borders.

Outcomes and Impact of Local Currency Initiatives

Since the establishment of the LCTF, Malaysia has observed a steady increase in the adoption of local currencies for cross-border trade and investment. Trade settlements in regional currencies with key partners have grown significantly over the past decade. For instance, the proportion of trade between Malaysia and Thailand settled in local currencies (ringgit and baht) rose from 6.4% (RM1.9 billion) in 2009 to 18.7% (RM11.7 billion) in 2024. Similarly, trade with Indonesia settled in local currencies (ringgit and rupiah) increased from 4.5% (RM1.2 billion) in 2009 to 11.8% (RM8.8 billion) in 2024.

In parallel, initiatives with China, Malaysia's largest trading partner, to facilitate renminbi-ringgit settlements have also yielded positive outcome. The value of bilateral trade settled in renminbi and ringgit has increased from 1.2% of trade settlement (RM0.5 billion) in 2009 to 28.4% of trade settlement (RM73.9 billion) in 2024.

Figure 11: Increasing Share of Local Currency used for Trade with Regional Countries

Source: Bank Negara Malaysia.

Market Perspectives on the Operational Impact of the LCTF

(a) Local currency settlement delivers tangible operational efficiencies

Feedback from participating banks and corporates indicates that the operational advantages of local currency settlement are increasingly visible at the transaction level. Businesses have observed that pricing and settling trade directly in their home currency reduces the complexity of managing foreign exchange exposures, streamlines treasury processes, and lowers transaction-related costs. By avoiding dual conversions through a vehicle currency, firms are better positioned to manage exchange rate timing risks and reduce embedded spreads associated with intermediary routing.

(b) Direct currency pair quotations can enhance pricing transparency and mitigate embedded spreads

Market participants have noted that the use of directly quoted local currency pairs can, in certain cases, generate improved pricing outcomes relative to correspondent banking channels. While major currencies may continue to serve as reference benchmarks for cross-rate computation, direct execution in the intended currency pair avoids introducing an additional conversion leg that could otherwise embed incremental spreads. This has contributed to more transparent price discovery and, for some participants, improved cost efficiency in cross-border transactions.

(c) Realised benefits depend on execution channels and market familiarity with the framework

Market feedback also suggests that pricing outcomes and operational efficiencies may vary depending on transaction routing and institutional familiarity with the framework. Engagement through designated treasury desks and explicit utilisation of local currency settlement channels have been observed to enhance execution quality and ensure intended settlement pathways. This reflects the importance of continued awareness-building, institutional alignment, and market education to fully realise the efficiency gains of a more diversified currency ecosystem.

Continuous Efforts to Strengthen Regional Financial Integration

Beyond individual business benefits, the framework is also expected to advance regional financial integration by harmonising operational processes and regulatory requirements across participating ASEAN countries. By enabling efficient local currency transactions, Malaysia and its regional partners seek to create a resilient and scalable platform that can accommodate increasing trade and investment flows. Malaysia, together with Thailand and Indonesia, has led efforts to develop harmonised operational guidelines in 2025, enhancing transparency, scalability, and efficiency while accommodating country-specific regulatory considerations. The harmonisation of

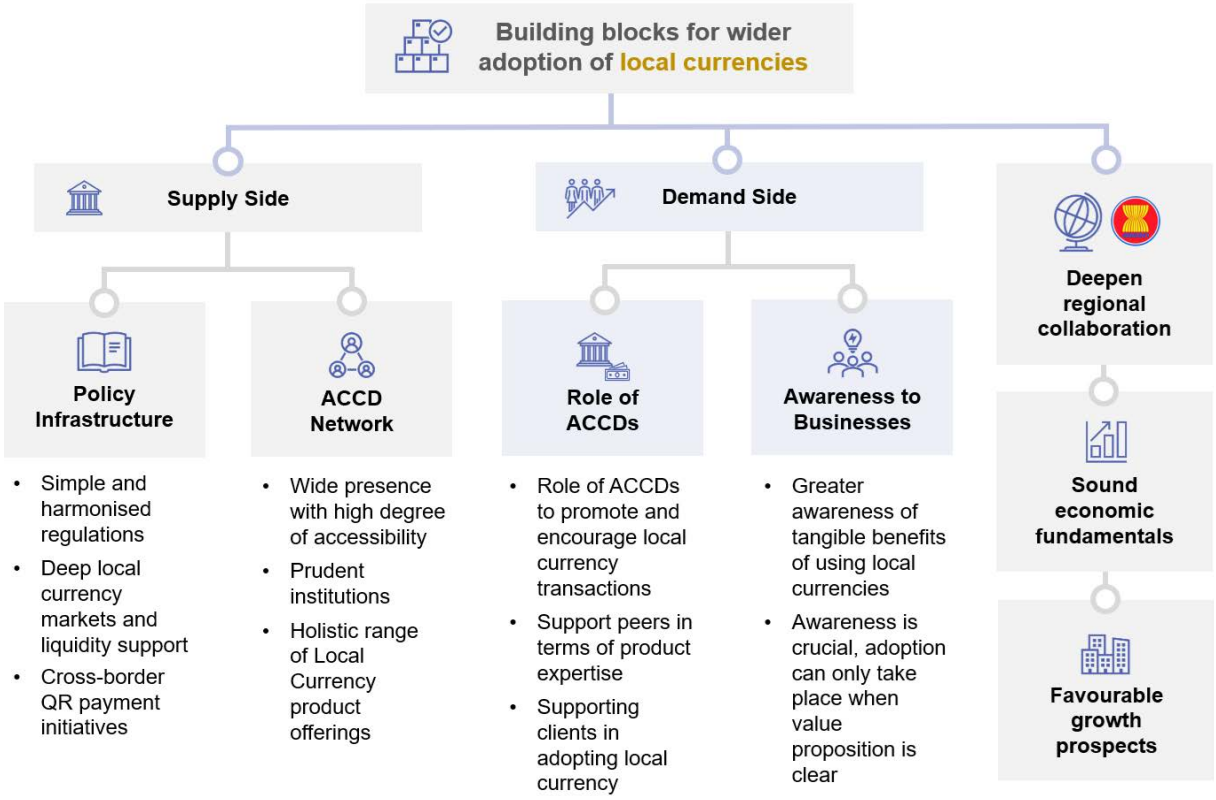
operational guidelines across Malaysia, Indonesia and Thailand and the introduction of a standardised model template for local currency transactions across all of ASEAN, termed the "Model Operational Guidelines for Local Currency Transaction Framework ("LCTF") Arrangements in ASEAN", led by Malaysia during its ASEAN Chairmanship in 2025, further strengthens consistency, transparency, and scalability of local currency transactions in the region, while lowering barriers for other ASEAN member states to adopt similar arrangements.

These efforts collectively demonstrate Malaysia's commitment to driving greater use of regional currencies, fostering financial resilience, and supporting sustainable economic growth within ASEAN. They also highlight the importance of aligning regulatory frameworks, market infrastructure, and operational processes to facilitate seamless cross-border local currency settlements.

Strategies Crucial to ASEAN's Financial Integration: Building Blocks for Wider Local Currency Adoption

On this momentum, it is therefore crucial to consider strategies that will drive the wider adoption of local currencies across the region.

Figure 12: A Stylised Illustration on the Building Blocks for Wider Local Currency Adoption



First, to drive greater demand for local currencies, central banks have been at the forefront of building a more robust local currency ecosystem. This includes ongoing promotional efforts and initiatives to create greater awareness of the tangible benefits of using local currencies. Awareness is crucial, because adoption can only take place when corporates and financial institutions clearly see the value proposition. There are pockets of opportunity to drive greater adoption, particularly in sectors where cost structures are primarily in local currencies. For instance, locally manufactured products for export between Malaysia and Indonesia (e.g., manufactured food items), small scale cross-border e-commerce, and agriculture stand to benefit from local currency transactions, given their lower reliance on imported inputs.

Second, coordinated efforts are crucial to increase the appeal of local currencies through an efficient ecosystem supporting the needs of exporters, importers and investors. Regulators should simplify and harmonise foreign exchange rules and, together with banks, develop supporting infrastructure to provide businesses, investors and individuals across the region with better access to local currency-denominated financial services such as FX hedging, financing, and deposit accounts, amongst others.

In addition, the expansion of local currency use can be accelerated through cross-border QR payments, which strengthen the regional payment ecosystem and create new opportunities for investment in regional financial markets. By enabling interoperable and efficient transactions, cross-border QR payments support local currency transactions and lowers the entry barriers for more market participants, thereby fostering wider adoption of local currencies across the region.

In Malaysia, Thailand and Indonesia, efforts have also been made to further expand market access to local currencies through the network of ACCDs. On 5 August 2025, the number of ACCDs was expanded with the appointment of 18 new commercial banks from Malaysia, Thailand and Indonesia. This expanded coverage is expected to further enhance business access and support greater uptake of local currency transactions under the framework. This expansion also recognises the fact that commercial banks also play an active role in supporting peer ACCDs in terms of outreach, local currency product offerings, liquidity and supporting clients' needs in adopting local currency settlement — all vital components in ensuring the framework translates into meaningful economic outcomes.

Third, deepening regional collaboration. ASEAN countries have made steady progress in strengthening the LCTF with the intention of creating greater uniformity in the operation of local currency transactions in the region. This homogeneity is crucial to develop deeper local currency markets, which will eventually lead to more demand and subsequently more efficient pricing. In addition, policymakers also recognise that over the longer term, local currencies' credibility will need to be supported by the strong economic fundamentals and favourable growth prospects in the region.

It is important to recognise that local currency settlement frameworks are not designed to eliminate all frictions in cross-border trade, nor do they substitute broader financial market development. A more diversified currency environment may entail operational adjustments for businesses, including the need to maintain multiple currency accounts, manage liquidity across jurisdictions, and develop greater treasury sophistication. For smaller firms in particular, these adjustments may present practical challenges, especially where scale and internal capacity are limited.

These trade-offs, however, reflect the structural transition from a single-vehicle currency model toward a more distributed currency ecosystem. As such, the effectiveness of local currency settlement increasingly depends on the degree of infrastructure interoperability, streamlined transaction processes, accessible hedging instruments, and coordinated regulatory support across participating jurisdictions. Continued efforts to simplify participation, enhance liquidity provision, and align operational practices will be essential to ensure that the benefits of currency diversification remain scalable and inclusive.

Conclusion

The long-term vision is a resilient ASEAN financial ecosystem where local currencies play a stronger role alongside global currencies. While there is notable progress, gaps remain in market depth, adoption, and infrastructure. Central banks remain committed to close these gaps via regional collaboration in terms of capacity building and peer learning, to accelerate the adoption of local currencies and strengthen ASEAN's resilience against future shocks.

Ultimately, greater use of local currencies is about reinforcing ASEAN's financial architecture, enhancing resilience against external shocks, and ensuring that the benefits of integration are both sustainable and inclusive.

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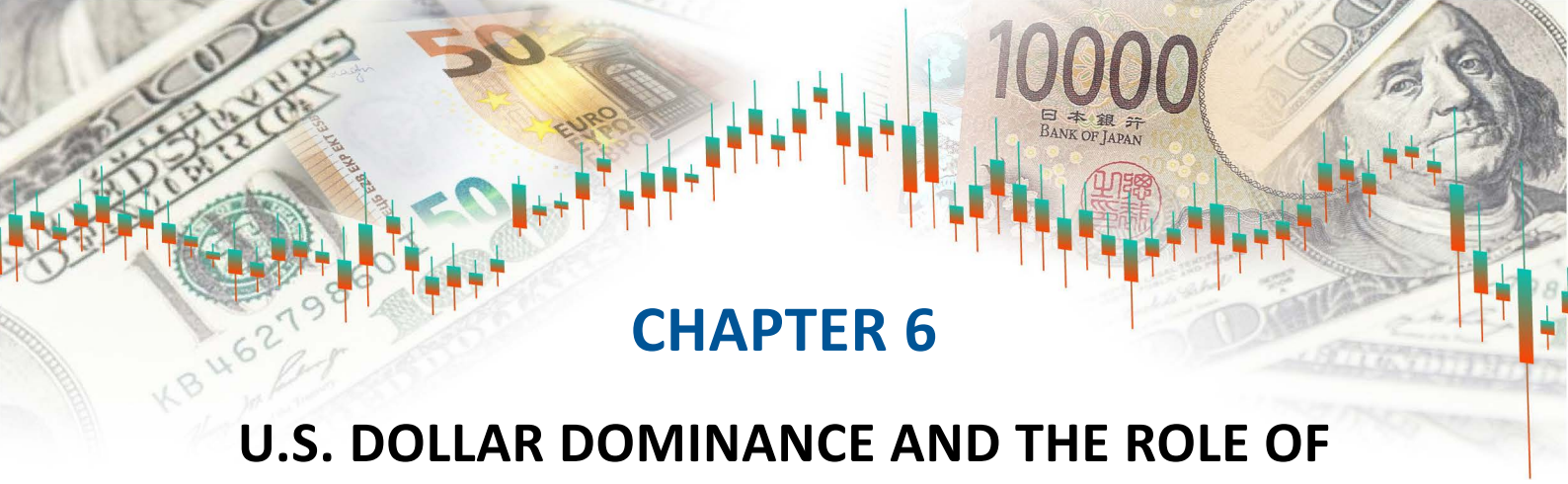

CHAPTER 6

U.S. DOLLAR DOMINANCE AND THE ROLE OF LOCAL CURRENCY SETTLEMENT FRAMEWORK: EVIDENCE FROM THAI EXPORTS[1]

Mintrapan Chaeng-lum[2], Nuwat Nookhwun, and **Jettawat Pattararangrong**

1. Introduction

Global trade is dominated by a few invoice currencies, notably U.S. dollar (USD). This is especially the case for emerging market economies (EMEs), where the share of dollar invoicing among a country's exports stands at 80% among EMEs in Asia and almost 100% in Latin America (Boz et al., 2022; Gopinath et al., 2020). The outsized role of the dollar has important implications on exchange rate passthrough to import and domestic prices as well as firm profitability, which becomes sensitive to dollar fluctuations at least in the short-run. While empirical work on endogenous currency choices has gained traction over the past two decades, most work is done in the context of advanced countries, including, for example, Belgium, Canada, Japan, Korea and the UK. Trade invoicing currency decisions of firms in EMEs deserve more attention not least because USD is used more extensively. Given such common dollar-use, central banks in EMEs have often introduced policy initiatives to promote the use of their own domestic currency or regional currencies toward invoicing trade transactions. A great example is the Local Currency Settlement Framework among certain ASEAN countries, the effectiveness of which has yet to be explored.

In this paper, we aim to explore the invoice currency choices of trade in an EME, namely Thailand, by exploiting a detailed transaction-level Customs dataset. Specifically, we aim to answer two following research questions. First, what are the key characteristics and drivers of invoicing currency choices of Thai exports? We will

1. We thank the project manager, Hiro Ito, Nur Ain Shahrier and participants at the SEACEN interim workshop on "Addressing U.S. Dollar Dominance in Trade Invoicing and Cross-Border Investments in SEACEN Economies", for their helpful comments. Views expressed in this paper are those of the authors and should not be attributed to the Bank of Thailand.

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examine the role of traditional drivers as emphasised in Amiti et al. (2022) and Crowley et al. (2020), including a firm's exposure to imported inputs, its market share, strategic complementarities in invoicing currencies and prior experience in dollar invoicing. However, we also study an additional factor that can be relevant for EME firms, i.e., the extent of a firm's foreign-currency debt, especially denominated in the dollar. Second, can the Local Currency Settlement Framework (LCSF) between Thailand and partner countries, including Malaysia and Indonesia, successfully promote the use of local and regional currencies for invoicing trade, as a way to reduce exchange rate risks? Tackling these research questions should bring about a deeper understanding of invoice currency choices within the context of EMEs, where the literature is still scarce.

Our findings show that, like other EMEs, dollar invoicing has dominated Thailand's trade transactions over the studied period 2007–2024, accounting for around 75–80% of Thai exports.[3] However, there is a gradual but notable rise in baht invoicing, which can be observed for exports to various destinations and is likely driven by the automotive sector. At the firm level, most export firms, especially smaller ones, still use USD as their sole invoice currency of choice. To understand underlying drivers of such dollar prominence in trade invoicing, we examine various factors that may explain the dollar invoicing probability at the firm-product-destination level. We find that the motive for dollar invoicing can be explained by traditional firm-specific factors, including imported input exposure, competitors' invoicing behaviour and, to a lesser extent, firm market shares. The invoicing currency choices also display some persistence. That is, previous dollar invoicing experience significantly influences the probability of dollar invoicing in the current period. Moreover, this paper also documents an important role for macroeconomic drivers, including transaction costs of importers' currency, exchange rate volatility, as well as inflation rates in the destination market.

A key contribution of our analysis is the inclusion of two novel factors: firms' dollar-denominated debt and the LCSF between Thailand and regional trade partners. On the former, even though Thailand's external debt to GDP has materially declined since the 1997-98 Asian financial crisis, a certain number of non-financial firms resort to external debt, especially denominated in dollar, to finance their operations. However, we show that the currency denomination of bank loans does not have any bearing on firms' trade invoicing currency choice, a finding that holds both in the whole and sectoral sample.

Last, we find that the LCSF has a significant, though moderate, impact towards reducing dollar reliance. Specifically, the probability of dollar invoicing of Thai exports to Indonesia declines by two percentage points after the LCSF implementation. The impact is especially visible among large exporters in certain industries. Meanwhile, the impact of the LCSF for Thai exports to Malaysia is significant only among a set of medium-

3. In the context of Thailand, Apaitan et al. (2024) and Nookhwun et al. (2025) show how the dollar prominence in trade invoicing affects exchange rate passthrough to import prices and firm profitability.

sized firms, but no significant effect is found in the overall. Moreover, we observe that, while the baht invoicing shares of Thai trade with these two countries clearly show a rising trend, the use of rupiah and ringgit remains very limited. But, despite the rise of baht invoicing in the overall, around 80% and 70% of firms that export their products to Indonesia and Malaysia still report no use of baht invoicing. All in all, these results suggest that the impact of the LCSF is small and by no means perversive across sectors and firms.

Our paper closely relates to the literature on the invoice currency choices of trade, which mainly focuses on advanced countries. Among others, Amiti et al. (2022) find in the case of Belgium that firm size, exposure to imported inputs and the currency choices of competitors shape firm-level currency invoicing decisions. In the context of UK, Chung (2016) emphasises the role of imported inputs, while Crowley et al. (2020) show that the use of a dominant currency is driven not only by strategic complementarities, but also a firm's prior dollar experience. Corsetti et al. (2022), Crowley et al. (2024) and Garofalo et al. (2024) further document how Brexit affects invoice currency choices of UK exporters, who appear to shift away from pound sterling to USD invoicing. Using Canadian import transactions, Goldberg and Tille (2016) document a link between the transaction size and invoicing, while also stressing an important role of exchange rate volatility, regime and currency transaction volumes.

For advanced economies in Asia, Yoshida et al. (2024) show that, for Japan's trade, strategic complementarity is larger at the industry level than the destination level, while Shimizu et al. (2025) find that Japanese firms use yen to invoice differentiated goods and adopt the price-to-market strategy in highly competitive markets. Meanwhile, for Korean trade, Hwang et al. (2019) highlight the role of macroeconomic and financial conditions of partner countries. Son (2023) instead explores the influence of market- and firm-specific drivers, i.e., strategic complementarities and imported inputs, on dominant currency pricing.

Evidence of invoice currency choices in EME is rather limited. Hayakawa et al. (2024), for example, explore the invoicing currency choices of Thai exporters, focusing on inertia in invoicing currency and the role of export experience. Our paper reports a similar finding but also extends a range of potential factors to include other firm characteristics, macroeconomic factors and the central banks' policy toward promoting local and regional currency invoicing. Meanwhile, Ito and Kawai (2021) show that in many aspects of international transactions, the use of local currencies in the ASEAN+3 countries remains underdeveloped. In addition, for Asia and Pacific economies, Mercado et al. (2022) note that the use of USD in trade invoicing relates to global value chains and multinational corporations.

A few studies, including Sato (2019) and Sussangkarn (2020), provide discussions on the LCSF. In particular, Sussangkarn (2020) shows that the LCSF can reduce foreign exchange (FX) transaction costs by facilitating direct exchange between the Thai baht,

Malaysian ringgit, and Indonesian rupiah, thus providing a greater incentive for local currency usage.[4] There are also studies that explore the effectiveness of other policy initiatives by the central banks. Reiss (2015) finds that the Local Currency Payments System between Brazil and Argentina increases the use of the Brazilian Real for invoicing trade. Bahaj and Reis (forthcoming) show that the swap line of the People's Bank of China (PBoC) supports the renminbi's international status by lowering the volatility of borrowing costs and increasing the probability that a country will use the renminbi by 12%. Meanwhile, Benguria and Novy (2025) show that renminbi invoicing for Argentina's import from China shifted rapidly to nearly 50%, displacing USD as a result of the PBoC's swap line. Our paper contributes to this strand of literature by directly quantifying the impact of the LCSF on the dollar invoicing probability on Thai exports.

This paper is organised as follows. Section 2 presents some background information on LCSF. Section 3 lays out the datasets used for the analysis and presents some stylised facts. Section 4 discusses the regression methodology, while the results are shown in Section 5. Section 6 concludes and discusses policy implications.

2. Local Currency Settlement Framework (LCSF)

The LCSF is a bilateral arrangement to facilitate the use of local currencies for settlements of cross-border economic activities. It was first launched by the Bank of Thailand (BOT) and Bank Negara Malaysia (BNM) on 14 March 2016, in accordance with the MoU signed on 27 August 2015.[5] The aim is to provide greater flexibility and efficiency for businesses to access and manage baht in Malaysia and ringgit in Thailand for bilateral settlement of trade. Businesses can obtain a range of baht and ringgit-denominated financial services such as FX hedging, financing, deposit account and other policy flexibilities from appointed banks in both countries. As a result, the framework allows for greater efficiency in accessing the local currencies and managing exchange rate risks arising from trade transactions. The central banks have appointed commercial banks in each country to facilitate the framework. Initially, there were three appointed banks in Malaysia and another three in Thailand. These appointed banks also offer direct quotation for baht-ringgit exchange rates at competitive rates.[6]

4. The paper notes that the buy-sell gap for baht and ringgit has decreased by approximately 50 basis points to just over 2.5% from 2016 to 2019. While the baht-rupiah exchange gap in Thailand has also fallen since the third quarter of 2017, it remains high at about 8.5% in 2019. In contrast, the FX buy-sell gaps for these currencies are significantly wider in Malaysia and Indonesia, in the range of 10% or more.

5. See BOT (2016).

6. Appointed banks must fulfill certain qualifications, including strong business links between both countries, presence of branches in both countries or high volumes of trade in ringgit and baht. These banks have been granted the necessary flexibilities to provide a greater range of financial services which include ringgit and baht deposits, trade financing and hedging products.

BOT and BNM together expanded the LCSF on 2 January 2018. The framework was expanded to include direct investment to enrich the existing trade transactions. The scope of participation was also expanded to include individuals, sole proprietorships and general partnerships. In addition, more qualified banks have been appointed. There was a further expansion effective 1 December 2021. This latest framework includes an expansion of eligible users to include Malaysians and Thais who reside in either country as well as additional FX policy flexibilities such as simplified documentation requirements. The central banks also appointed additional qualified commercial banks to support the framework.

Following the MoU signed between three central banks, including Bank Indonesia, on 23 December 2016, another LCSF between Thailand and Indonesia was launched in January 2018. The framework is similar to the first phase of the Thai-Malaysian LCSF and focuses first on promoting local-currency invoicing for trade transactions. There were five appointed banks in each country. At the end of 2020, the framework was extended to cover direct investment and remittances with the greater number of appointed banks (12 Indonesian banks and 11 Thai banks).

3. Data and Stylised Facts

3.1 Data

To uncover patterns and drivers of invoicing currency choices of Thai exports, our work leverages transactional export and import data from the Customs Department, the Ministry of Finance, from 2007 to 2024. This is a rich dataset that contains information on firm identifier, export destination or import source, product as classified by the harmonised system (HS) code at the 11-digit level, trade values and quantities, and importantly invoicing currency. While trade values are available in baht and USD, this study uses values in baht. We aggregate the transaction data into annual data at the level of firm, product, partner country and invoice currency combinations.

We clean our original dataset by (1) excluding gold, (2) excluding firms in public sectors, and (3) keeping only partner countries with an export (import) share greater than 0.5% of total Thai exports (imports). This leaves us with 26 export destinations and 22 import source countries, which still account for a substantial share of Thailand's foreign trade. Our dataset contains a total of 5,964,262 observations that include 38,983 exporting firms, 20,421 products according to the HS 11-digit classification and 51 currencies used in invoicing exports.

We merge the Customs dataset, with two additional data sources. The first one is the Corporate Profile and Financial Statement (CPFS) database from the Ministry of Commerce, which contains registered firms' annual balance sheets and income statements. We specifically obtain data on firms' revenue and costs. The other is contract-level loan data from the Bank of Thailand's Loan Arrangement Database (LAR), which

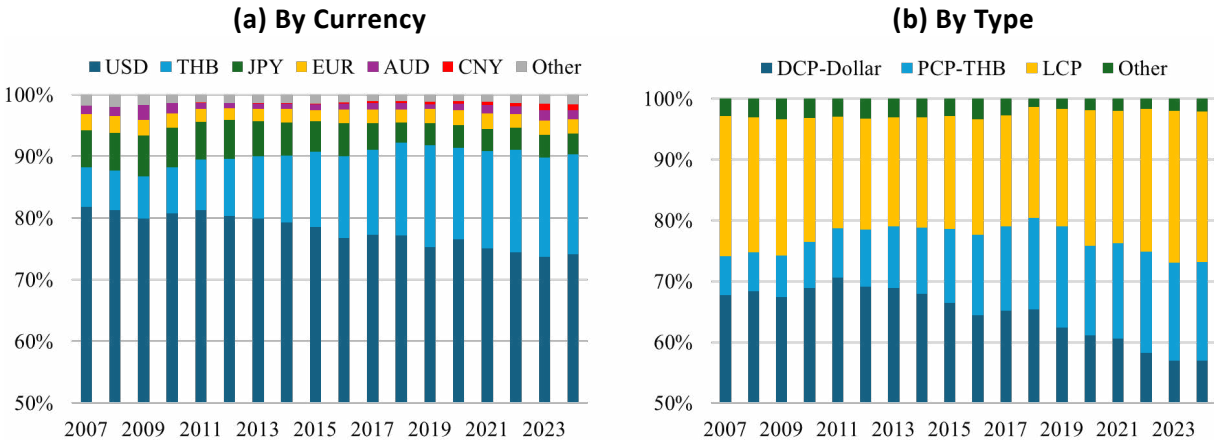
are reported monthly by all financial institutions under supervision and cover loans extended to corporates and individuals with a total credit line or loan outstanding above 20 million baht within a single bank. We specifically focus on the currency denomination of firm credit.[7] Other databases used to compute country-level variables include CEIC, Oxford Economics, the World Bank, the IMF's IFS and the BIS Triennial Central Bank Survey of foreign exchange and over-the-counter derivative market.

3.2 Stylised Facts

Given the cleaned dataset, we show some stylised facts to highlight key characteristics and evolving patterns of invoicing currency choices of Thai exports over the period 2007–2024.

First, the prominent role of USD as trade invoicing currency is evident in Thai exports but has been diminishing somewhat over the past decade. Despite the trade share with the U.S. hovering at just over 10% of Thailand's total exports, the share of dollar towards invoicing Thai exports is substantial at around 75–80% of total exports over the period studied (Figure 1(a)). This number is comparable to the dollar invoicing shares among Asian exports as shown in Boz et al. (2022). For Thai exports, Thai baht, i.e., the producer currency, is the second most popular invoice currency of choice, followed by the Japanese yen and euro, given Thailand's significant trade share with both Japan and European nations. Meanwhile, the use of Chinese yuan remains small, despite China's integration into global trade and production and the promotion of the international role of the yuan by the Chinese authorities.

Figure 1: Invoicing Currency Choices of Thai Exports



Note: *Panel (a) reports the shares of Thai exports by invoice currencies over the period 2007–2024. Panel (b) classifies such shares into four invoice currency types, including the producer currency pricing (PCP), local currency pricing (LCP), dominant currency pricing in terms of USD (DCP) and others. Exports to the U.S. that are invoiced in USD are classified as LCP.*

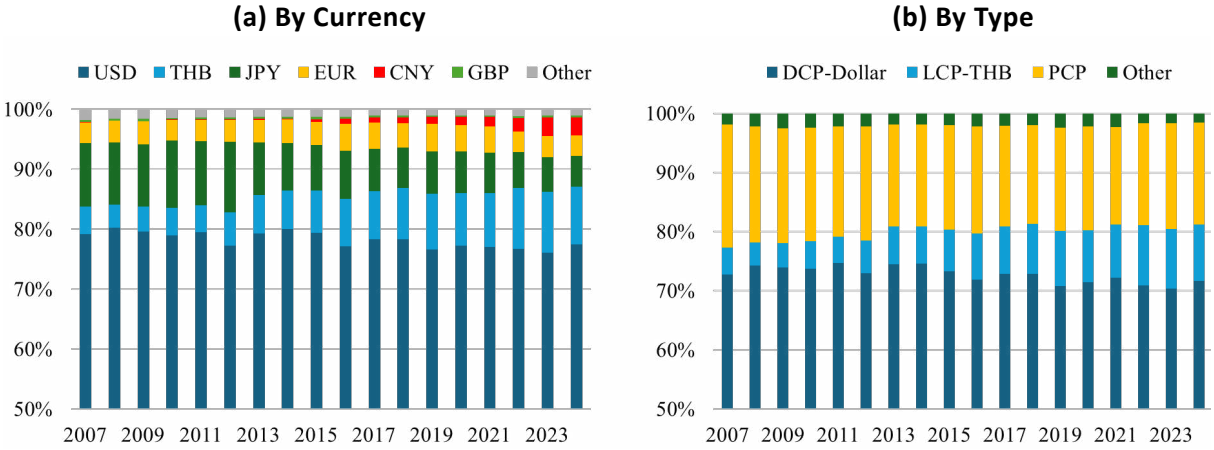
Source: *Customs Department, calculated by authors.*

7. Since 2014, the SMEs Data database (SMD) provides the same information for loans smaller than 20 million baht.

However, the dollar role gradually declines over this period, standing at around 75% in recent years. Dollar invoicing shares was over 80% of Thai exports in the earlier period. On the other hand, we observe a clear rising trend of baht invoicing, whose share rises from just over 5% in 2007 to 17% in 2024. This is in line with the Bank of Thailand's initiatives to promote the use of Thai baht towards invoicing trade. We also see the decreasing trend of yen invoicing over time. In Figure 1(b), we classify invoice currency patterns into four types: producer currency pricing (PCP), local currency pricing (LCP), dominant currency pricing in terms of USD (DCP) and others. Since dollar-invoiced exports to the U.S. are classified as LCP, the DCP share is for those dollar-invoiced exports to non-U.S. destinations. We still observe a significant, but declining, share of export transactions under DCP.

From Figure 2, a similar trend can be observed for invoice currency choices of Thai imports, as the dollar invoicing shares always stay over 78% during the studied period. The share of yen invoicing is also significant but exhibits some downward trend. Meanwhile, we observe the greater use of baht invoicing, which rises from 5% in 2007 to 10% in 2024.

Figure 2: Invoicing Currency Choices of Thai Imports



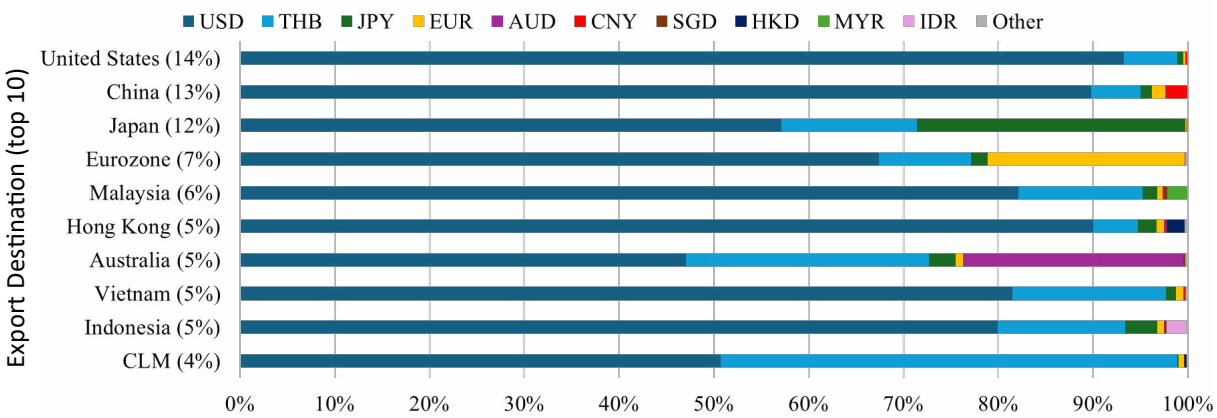
Note: *Panel (a) reports the shares of Thai imports by invoice currencies over the period 2007–2024. Panel (b) classifies such shares into four invoice currency types, including the producer currency pricing (PCP), local currency pricing (LCP), dominant currency pricing in terms of USD (DCP) and others. Imports from the U.S. that are invoiced in USD are classified as PCP.*

Source: *Customs Department, calculated by authors.*

The dollar dominance holds across export destinations and sectors, although with some exceptions. As expected, the use of dollar is largest for exports to the U.S., at almost 95% (Figure 3). The share of dollar invoicing is also large, at more than 80%, for Thai exports destined for China and Hong Kong, as well as regional countries such as Singapore, Malaysia, Vietnam and Indonesia. However, baht is heavily used alongside dollar, for exports to CLM, i.e., Cambodia, Laos and Myanmar (around 48%), followed by exports to Australia (26%).[8] Meanwhile, local-currency pricing is evident for exports to Japan, Australia and the Eurozone, accounting for more than 20% of exports to these economies.

8. The dollar invoicing share still exceeds 60% of exports to Cambodia. In contrast, the majority of exports to Laos and Myanmar are invoiced in baht.

Figure 3: Invoicing Currency Choices of Thai Exports by Destination Countries

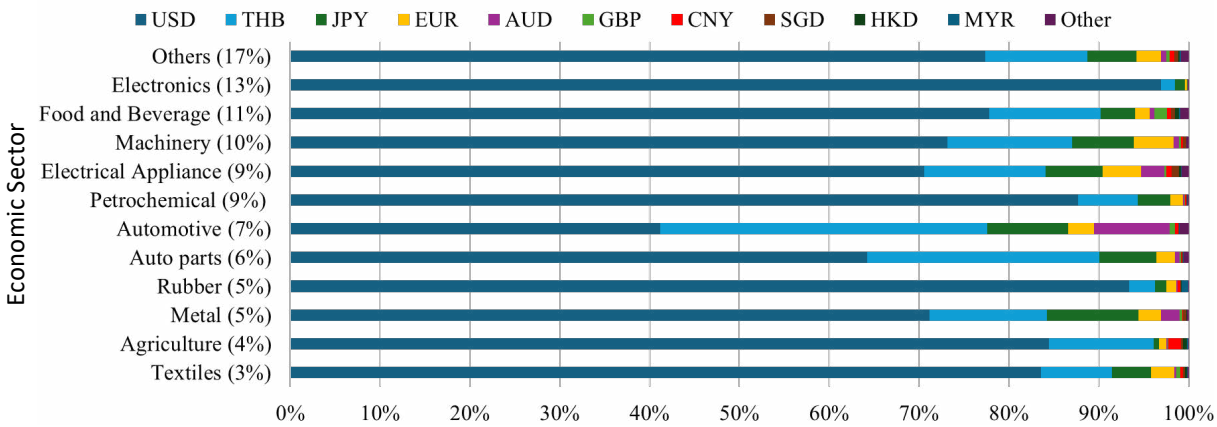


Note: This Figure reports the shares of Thai exports during the period 2007–2024 by invoice currencies across major export destinations. Numbers in parentheses show the share of Thai exports to each of these destinations during the same period. CLM includes Cambodia, Laos and Myanmar.

Source: Customs Department, calculated by authors.

Across economic sectors, as shown in Figure 4, we observe the outsized role of the dollar in the electronics sector (96%), followed by rubber and petrochemical sectors. Baht invoicing is large among automotive exports (almost 40%), consistent with Australia being the main export destination for this sector. The auto parts sector is another sector that shows evident baht invoicing (26%) but dollar invoicing still constitutes a large portion at more than 60% of exports in this sector. Meanwhile, the use of yen and euro towards invoicing Thai exports spreads across economic sectors.

Figure 4: Invoicing Currency Choices of Thai Exports by Sectors

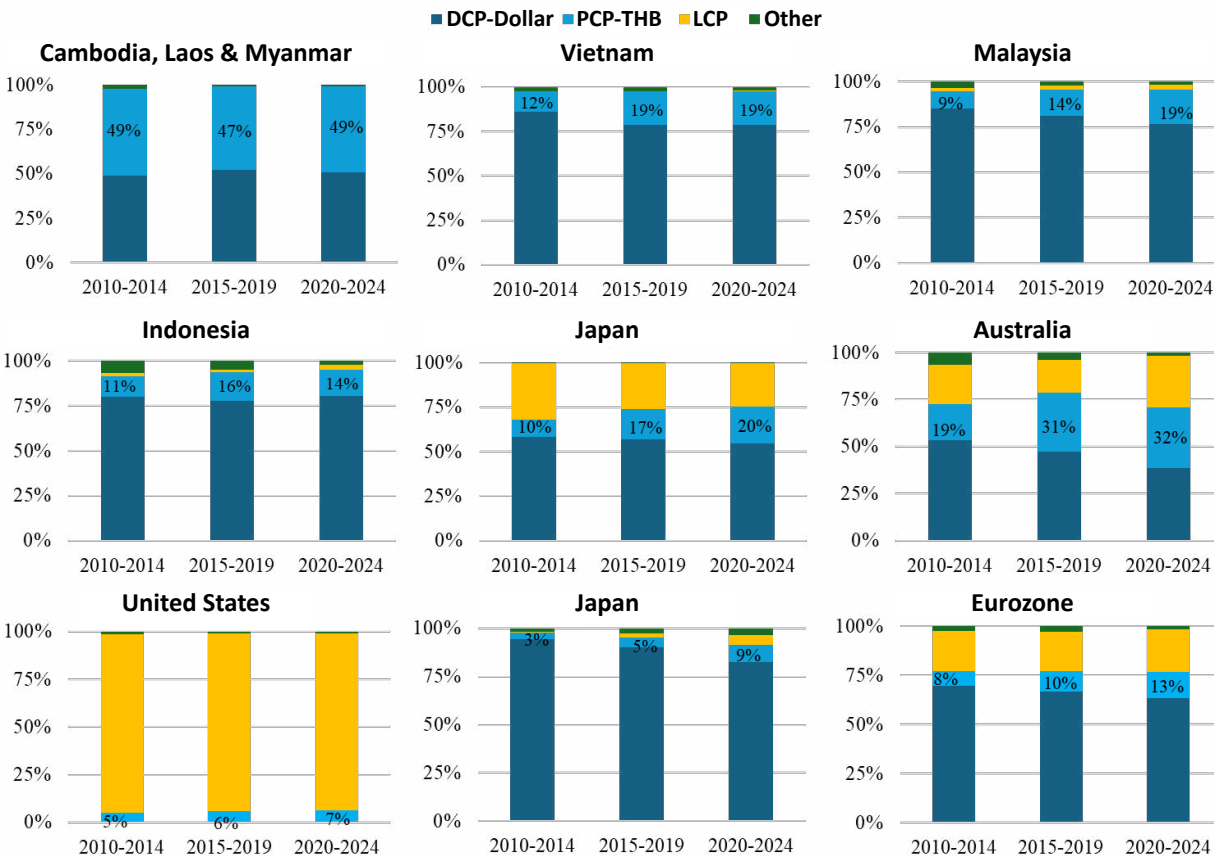


Note: This Figure reports the shares of Thai exports during the period 2007–2024 by invoice currencies across economic sectors as classified by the Bank of Thailand. Numbers in parentheses show the share of Thai exports to each of these sectors during the same period.

Source: Customs Department, calculated by authors.

Tracing the evolution of invoice currency choices over time, as shown in Figure 5, we see the increased use of baht invoicing in various export markets. The share of baht invoicing rises significantly for exports to Australia from 19% during 2010–2014 to 32% over the recent years. Similarly, for exports to Japan, the use of baht invoicing increases from 10% to 20% over the same period. Other export destinations that see the greater use of baht invoicing include Malaysia, Vietnam, China, Eurozone as well as Indonesia. For exports to Malaysia, the baht invoicing share reaches 19% in the recent years, a 10-percentage-point increase from ten years ago. Baht invoicing also rises in Indonesia, but to a lesser degree when compared against Malaysia. To what extent the LCSF between Thailand, Malaysia and Indonesia helps foster the increasing use of baht and regional currencies for invoicing trade is the main focus of this paper. For exports to the U.S., dollar invoicing remains heavily used throughout the studied period.

Figure 5: Invoicing Currency Choices of Thai Exports over Time
(by Export Destinations)



Note: *This Figure reports, for each of the major export destinations, the shares of Thai exports by invoice currencies over time. Invoice currencies are classified into four types, including the producer currency pricing (PCP), local currency pricing (LCP), dominant currency pricing in terms of USD (DCP) and others. Exports to the U.S. that are invoiced in USD are classified as LCP.*

Source: *Customs Department, calculated by authors.*

The rise in baht invoicing is likely driven by changes in invoice currency patterns of the automotive sector. From Table 1, the baht-invoicing share in this sector doubles from 24% during 2010–2014 to 51% in 2020–2024. This comes at the expense of dollar invoicing whose share drops by 16 percentage points to 31% over the same period. The greater use of baht invoicing can also be observed in other sectors, including auto parts, electrical appliances, machinery, food and beverages, and agriculture. For these sectors, the shares of baht-invoiced exports increase, on average, by 5 percentage points over this period. That said, in recent periods, the dollar-invoicing shares remain above 70% in most sectors, while the baht-invoicing shares are under 20%. This latter observation points to the dominant currency paradigm that still prevails up until now.

Table 1: Invoicing Currency Choices of Thai Exports over Time (by Sectors)

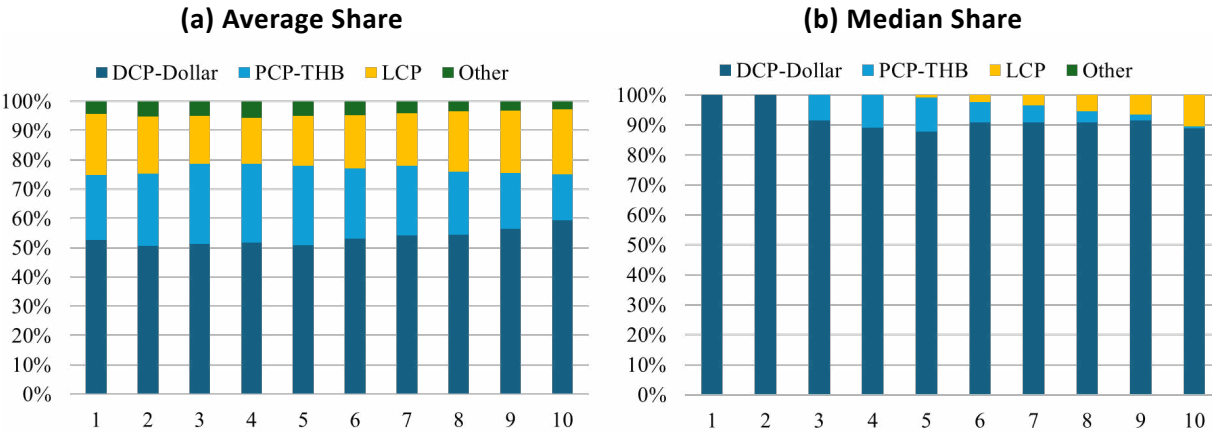
	Dollar invoicing			Baht invoicing		
Sectors	**2010-2014**	**2015-2019**	**2020-2024**	**2010-2014**	**2015-2019**	**2020-2024**
Electronics	97.9%	98.0%	93.6%	1.0%	1.2%	4.0%
Rubber	93.7%	93.8%	92.9%	2.7%	3.0%	3.3%
Petrochemical	90.5%	88.4%	84.1%	4.7%	6.5%	8.7%
Textiles	83.2%	82.6%	83.0%	7.7%	9.1%	9.0%
Agriculture	89.3%	83.1%	79.8%	7.3%	13.6%	15.2%
Food & Beverage	77.7%	78.0%	77.4%	10.0%	13.0%	14.9%
Others	79.6%	77.0%	75.3%	9.5%	12.8%	13.8%
Metal	67.4%	72.9%	74.4%	12.0%	14.9%	14.9%
Machinery	74.8%	72.9%	71.5%	10.7%	15.6%	16.3%
Electrical Appliance	74.7%	70.1%	68.0%	10.4%	15.8%	15.9%
Auto parts	63.1%	64.2%	66.3%	21.5%	28.1%	28.0%
Automotive	47.6%	40.6%	31.3%	24.1%	39.6%	51.0%

Note: *This Table reports, for each economic sector, the dollar-invoicing and baht-invoicing shares of Thai exports over time.*

Source: *Customs Department, calculated by authors.*

At the firm level, most export firms, especially smaller ones, use dollar as their sole invoice currency of choice. We classify firms into ten deciles according to their total values of exports and show that median firms within the two smallest categories use only USD to invoice their exports (Figure 6(b)). Baht invoicing only becomes more evident for median firms of larger deciles, but its shares are rather small. However, for the two largest firm sizes, we observe negligible shares of baht invoicing for the median firm within these deciles, but the greater use of local-currency pricing. This latter observation is consistent with Amiti et al. (2022), who suggest that firms with high market share are likely to deviate from producer-currency pricing to adopt local-currency pricing. Since the average invoicing shares across firms within each decile as shown in Figure 6(a) look more aligned with the aggregate patterns (Figure 1), this indicates a rather skewed distribution of invoice currency choices across firms.

Figure 6: Invoicing Currency Choices of Thai Exports by Firm Size

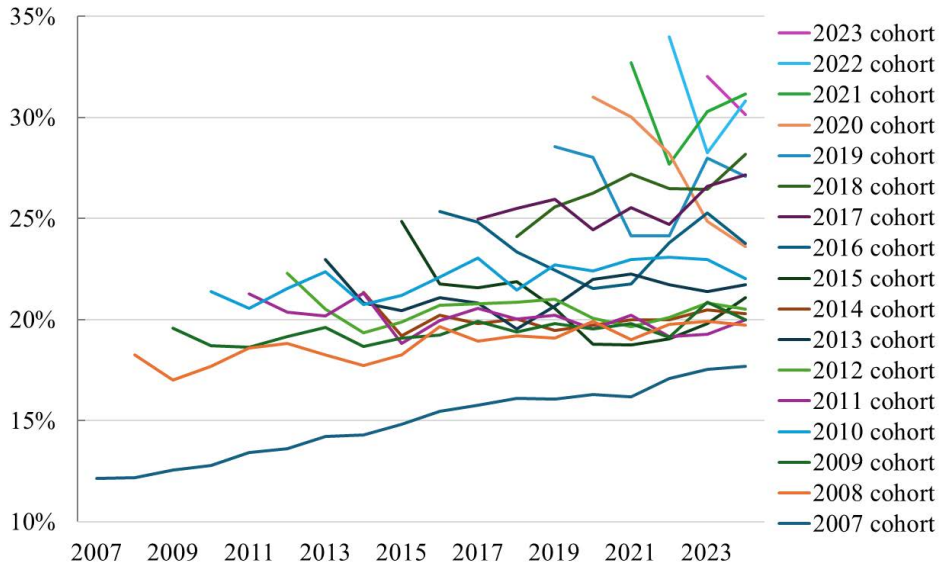


Note: *Panels (a) and (b) of this Figure report the average and median shares of Thai exports by invoice currencies during the period 2007–2024 across firms of different sizes. We rank and classify firms into 10 deciles based on their annual average export value. Invoice currencies are classified into four types, including the producer currency pricing (PCP), local currency pricing (LCP), dominant currency pricing in terms of USD (DCP) and others. Exports to the U.S. that are invoiced in USD are classified as LCP.*

Source: *Customs Department, calculated by authors.*

However, as shown in Figure 7, we interestingly observe that the invoicing currency choices of Thai exports depend greatly on firm cohorts, as new entrant firms in later years are more likely to adopt baht invoicing. From the Figure, for firms that first traded in 2007 or earlier, their shares of baht invoicing started low at just 12%. Despite a clear upward trend, such shares in recent years are much lower than levels observed in other firm cohorts. In contrast, firms that enter export markets from 2017 generally have baht invoicing shares of over 25% of total exports. These observations point to rigidities in firms' trade invoicing decisions.

Figure 7: Baht Invoicing Shares by Firm Cohorts



Note: This Figure shows average baht invoicing shares over time across firms within each cohort. The cohort year refers to the year in which firms first appear in the Customs dataset. For each firm, the baht invoicing share is calculated as the proportion of exports invoiced in Thai baht.

Source: Customs Department, calculated by authors.

4. Methodology

4.1 Drivers of Invoicing Currency Choices

This section studies various factors that potentially influence invoice currency choices of Thai exports, particularly the wide use of the USD in trade invoicing. These range from firm-specific factors, product characteristics to macroeconomic factors. We estimate the following panel specification:

$$P\{\iota_{fpdt}^{USD}\} = \beta_1\varphi_{ft} + \beta_2 S_{fidt} + \beta_3\theta_{(-f)idt} + \beta_4 H_p + \beta_5\psi_{f,t-1} + \beta_6\zeta_{f,t-1} + \beta_7 X_{d,t} + FEs + \varepsilon_{fpdt},$$

where the dependent variable is the dummy variable that equals to one if firm f uses USD to invoice its product-p exports to destination d in year t. Product p is defined at the HS 11-digit level. However, it is to note that a firm's exports of product p to each destination country at a given time period may involve more than a single invoice currency. We, therefore, assume that ι_{fpdt}^{USD} takes the value of one whenever the share of dollar invoicing exceeds 50%. Figure A.1 in the Appendix shows the distribution of such dollar invoicing shares, the majority of which (over 60% of observations) imply the use of USD as the sole invoice currency for invoicing export transactions. Around 35% of the observations take zero value, suggesting that a firm relies on invoice currencies other than dollar.

Turning to explanatory variables, we first describe firm-specific factors. φ_{ft} is a firm's imported input that is invoiced in USD. The variable is defined as the ratio of firm f's dollar-invoiced imports to its total imports in year t. φ_{ft} is measured at the firm level and thus applies to every export transaction committed by firm f in year t. We assume that φ_{ft} takes the value of zero if a firm has no import transaction. S_{fidt} represents firm market share, i.e., the share of firm f's total exports in industry i (corresponding to product p) of export destination d to the overall exports by every Thai firm to the same market. We define industry i by the HS code at the six-digit level. $\theta_{(-f)idt}$ is the extent of dollar invoicing by firm f's competitors in the same market, as defined by HS 6-digit industry-destinations. This is computed as the ratio of dollar-invoiced exports by a firm's competitors in industry i of destination d to their total exports in that market.

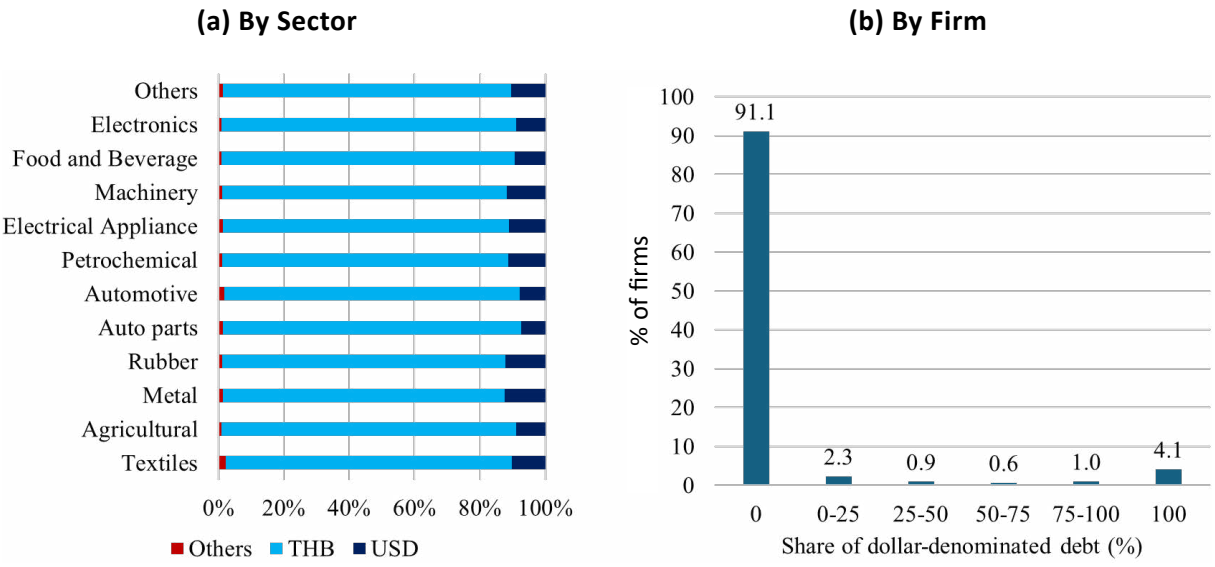
These first three explanatory variables follow closely the theoretical framework of Amiti et al. (2022). We expect the intensity of dollar-invoiced imports to increase a firm's incentives to invoice their exports in dollar as a way to operationally hedge against exchange rate risks. As shown in Figure 2, we observe the large shares of Thai imports being invoiced in dollar. For a robustness check, we instead use the ratio of dollar-invoiced imports to a firm's total costs. This is because firms may have different import intensity, while domestic costs such as labour compensation and domestic input costs are typically in the domestic currency. For firm market share, Amiti et al. (2022) argue that it proxies for strategic complementarities in pricing and expect larger firms to deviate from pricing in the domestic currency, in our case, Thai baht. In the context of Belgian firms, larger firms tend to adopt local-currency pricing to ensure that their prices are better aligned with their local competitors in the destination country, who use the local currency by default. For a robustness check, we replace market shares with a firm's total revenue (in log form). Meanwhile, the influence of the invoice currency choices of a firm's competitors also reflects strategic complementarities in currency choices.

Closely related to the strategic complementarities in pricing are the industry coalescing effects, as emphasised in Goldberg and Tille (2008). Exporters have a stronger incentive to stabilise prices relative to their competitors when product demand is highly elastic. Such effects are, therefore, highly relevant for trade in homogenous goods. To examine this, we apply Rauch (1999) measure to trade data, where each commodity is classified into one of three categories: (1) a good traded on an organised exchange, (2) a referenced-priced good that does not have an official market but has reference prices that are published in trade publications and (3) a differentiated good. We introduce the dummy variable (H_p) that equals to one for differentiated products, and zero otherwise. That is, an organised-exchanged good and a referenced-priced good are together labelled as homogenous items. As in Goldberg and Tille (2008), we expect that homogeneous goods are invoiced in the narrower set of currencies, usually those with low transaction costs.

We additionally examine another two firm-specific variables that may influence a firm's invoice currency choices of exports. Of relevant to firms in EMEs is the currency denomination of firm debt, as these firms may rely on external or foreign-currency

debt as their source of financing. For each firm, we compute ψ_{ft}, the ratio of dollar-denominated bank loan outstanding to its total loan outstanding, to signal the extent of dollar debt. We expect that a firm with dollar debt will likely invoice its exports in USD to obtain income streams in the same currency as debt repayment. This can help firms avoid exchange rate risks, especially if they do not actively hedge their future debt repayment through financial instruments. To avoid an endogeneity issue, we lag this variable by one year. However, a caveat is that instead of obtaining bank loans, some firms can issue foreign-currency bonds. As a result, ψ_{ft} may not fully capture the extent of dollar debt incurred by each firm. Figure 8 shows some stylised facts pertaining to the currency composition of firms' loans. Unlike invoicing currency choices of trade, bank loans of Thai exporters are largely denominated in Thai baht (panel (a)). The shares of dollar loans also do not vary much across sectors, staying close to 10% of total loans outstanding. Furthermore, more than 90% of the export firms do not have loans denominated in USD at all (panel (b)). However, it is still of our great interest to examine whether those firms that are incurred with dollar debt have more incentives to use USD in invoicing their trade. The last firm-specific variable is a firm's previous experience in dollar invoicing (ζ_{ft}). Following Crowley et al. (2020), we use the share of dollar-invoiced exports by firm f in the previous year to proxy for its prior dollar experience. As a robustness check, the number of years a firm has used the dollar to invoice its exports is considered, where we truncate the maximum value of this variable at six years. The probability of dollar invoicing is expected to increase with a firm's prior experience in using dollar to invoice its exports. This may capture habit formation or increasing returns to scale deriving from the fixed costs of currency management.

Figure 8: Currency Denomination of Firm Debt



Note: *Panel (a) of this Figure reports, across economic sectors, the shares of bank loans of Thai exporters by currency of denomination. Since each firm may export products from more than one sector, we assume that a firm belongs to a sector most of its exports come from. Panel (b) reports the percentage of firms according to their share of dollar-denominated loans. For both panels, we focus on loan outstandings at the end of the year. The sample period is from 2016–2024.*

Source: *The Bank of Thailand's Loan Arrangement and SMEs Data databases, calculated by authors.*

Aside from firm and product characteristics, macroeconomic factors have for long been regarded as important determinants of trade invoicing currency choices. The first factor relates to the transaction costs of exchange (Devereux and Shi, 2013). Firms may use the currency of the destination market if it has low transaction costs in the FX market. As a proxy for transaction costs, we use the share of a country d's currency in the daily global foreign exchange market turnover as reported in the BIS Triennial Central Bank Survey of foreign exchange and over-the-counter derivative market. Since the data only covers major currencies, currencies not listed in the survey are assigned a zero share. Second, we examine the role of exchange rate volatility, as exporters may tilt their invoicing choice towards the currency of the country with more stable macroeconomic fundamentals (Devereux et al., 2004). Exchange rate volatility is computed as the coefficients of variation of the importer's currency value relative to USD based on the three-year rolling window. Since exchange rate changes can have a contemporaneous impact on the invoicing currency share through the valuation effect, we lag this volatility measure by one year.[9]

Third, to capture the fact that trade between developing and industrialised economies is predominantly invoiced in the industrialised country's currency, we introduce log of PPP-adjusted per-capita GDP of destination country d. This may reflect both the relative bargaining power between the two economies undertaking trade transactions and the strategic complementarity consideration. Last, exporters may avoid pricing in the currency of a country with high and volatile inflation environment. We examine both the level and volatility of inflation at the destination market *d*, where inflation volatility is computed as standard deviations of monthly inflation rates (%year-on-year) over the three-year rolling window. Table A.1 in the Appendix reports descriptive statistics of all variables used in regression.

In the regression specification, we also include three set of fixed effects (*FEs*): destination, industry (HS 2-digit) and time fixed effects. We estimate this specification using logitistic regression, where we report average marginal effects for each explanatory variable and standard errors based on the Delta method.

4.2 Local Currency Settlement Framework

To explore the effects of the LCSF on the probability of dollar invoicing, we introduce the dummy variable that is equal to one for Thai exports to Malaysia and Indonesia from 2016 and 2018, respectively. These are periods when the LCSF has been in operation in these countries. In addition, to examine differential effects of LCSF across the two countries, we introduce two separate dummy variables associated with its implementation in each country.

9. We obtain monthly exchange rates and consumer price index from the IMF's IFS and CEIC database. PPP-adjusted per-capita GDP in USD is from Oxford Economics, except for Laos, Myanmar and Cambodia, for which data come from the World Bank.

5. Results

5.1 Drivers of Invoicing Currency Choices

Table 2 shows results on drivers of invoicing currency choice of Thai exports. We limit our estimation sample to only exports to non-U.S. countries. In Column 1, we explore the influence of traditional drivers as in Amiti et al. (2022) but also include the role of product differentiation. All these factors, including imported input exposure, firm market share, competitors' invoicing behaviour and the dummy variable for differentiated products, significantly affect invoicing currency choices in an expected way. First, the intensity of dollar-priced imports increases the likelihood that firms invoice their exports in USD. We find that a 10-percentage-point increase in the dollar import share raises the probability of dollar-invoiced exports by 3.4 percentage points. This reflects a firm's incentives to reduce currency mismatches and operationally hedge its exchange rate exposures. We also find that firms with high market share likely invoice their exports in USD. If a firm's market share increases by ten percentage points, this will lead to a rise in the dollar invoicing probability of its exports of 0.34 percentage point. While our results similarly show, as in Amiti et al. (2022), that large firms appear to deviate from producer-currency pricing, large Belgian firms adopt local-currency pricing as opposed to dominant-currency pricing found for Thailand. Instead, our result may indicate that local competitors of Thai exporters price their product in USD or that large exporters can hedge exchange rate risks using financial instruments more easily and at cheaper costs when trade is in dollar (Lyonnet et al., 2022). However, we note that the marginal-effect estimate in Column 1 is rather small.

Next, strategic complementarity in invoicing currency matters, as the invoice currency choice of firm competitors influences a firm's own currency choice. We find that if all competitors who export to the same market adopt dollar invoicing, this will raise the dollar invoicing probability of a firm's exports by 11.2 percentage points, as compared to the case when none of the firm's competitors use dollar invoicing. Last, the dollar invoicing is used less extensively for differentiated goods. In other words, exporting firms tend to invoice homogenous goods, whose demand is typically more price-elastic, in USD, a result consistent with the industry coalescing effects.

Table 2: Baseline Regression Results

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Dollar import share	0.340***	0.089***	0.088***	0.086***	0.089***	0.089***
	(0.011)	(0.007)	(0.008)	(0.007)	(0.007)	(0.008)
Market share	0.034***	0.014***	0.014***	0.061***	0.014***	0.017***
	(0.005)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
Competitors' dollar invoicing share	0.112***	0.062***	0.062***	0.137***	0.061***	0.065***
	(0.004)	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)
Differentiated product	-0.032***	-0.012***	-0.012***	-0.010***	-0.012***	-0.010***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Dollar share in total export (t-1)		0.483***	0.483***	0.500***	0.483***	0.686***
		(0.006)	(0.006)	(0.005)	(0.006)	(0.010)
Share of dollar-denominated debt (t-1)			0.007			
			(0.012)			
Share of FX market turnover				-0.458***	-0.156**	-0.157**
				(0.022)	(0.061)	(0.069)
THBFC volatility (t-1)				-0.005***	0.0003	0.0003
				(0.001)	(0.001)	(0.001)
GDP per capita				0.0002	-0.012	-0.010
				(0.003)	(0.015)	(0.014)
Inflation				0.002***	0.0003	0.0004
				(0.000)	(0.000)	(0.000)
Inflation volatility				-0.001***	-0.0003***	-0.0003***
				(0.000)	(0.000)	(0.000)
Observations	5,531,992	5,057,434	5,057,434	5,057,434	5,057,434	5,057,434
Pseudo R^2	0.208	0.408	0.408	0.377	0.408	0.464
HS2 FEs	X	X	X	X	X	X
Destination FEs	X	X	X		X	X
Year FEs	X	X	X	X	X	X

Note: *This table reports average marginal effects from estimating the logit regression, except for Column 6 that shows OLS estimates. The dependent variable is the dollar invoicing probability at the firm-product (HS 11-digit)-destination level during the period 2007–2024. The variable takes the value of one if the share of dollar-invoiced exports exceeds 0.5 and zero otherwise. Standard errors shown in parentheses are based on the Delta method. For Column 6, we cluster standard errors at the firm level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.*

Source: *Authors estimate.*

Firm experience in dollar invoicing also matters. As shown in Column 2, a firm's share of dollar invoicing in the previous year significantly influences its invoicing behaviour in the current period. The average marginal effect at 0.48 implies that if a firm exports all their goods in USD, there is a 48% probability that it will retain practicing dollar invoicing over the following year. Thus, the invoicing currency choices of Thai exports display some persistence. However, the estimate is much larger than that found in Crowley et al. (2020) for U.K. exporters. It is to note that the latter paper focuses only on the impact of prior dollar experience on invoicing currencies of exports to *a new market*, while the estimated effects in our paper additionally capture intensive margins of export invoicing currency choices, which may be subject to simple inertia due, for example, to long-term contracts. After controlling for firm experience, the marginal-effect estimates for other factors substantially decrease, especially the dollar import share whose estimate falls from 0.34 to 0.09. Meanwhile, the estimate for firm market share is reduced to just 0.01. These estimates, however, remain statistically significant at a 1% level. For the external debt, we do not find that the currency denomination of a firm's debt significantly affects its trade invoicing behaviour (Column 3). This may reflect a rather small role the dollar debt plays toward firm financing in Thailand's context. Whether a firm already hedges against exchange rate risks associated with dollar debt requires further study.

Next, we examine the role of macroeconomic factors. To do so, since some of these factors do not vary much over time, we first omit the destination-country fixed-effects from the specification, the results for which can be found in Column 4. Most of the variables are shown to have a significant effect on firm invoicing currency choices. First, the higher share of the importer's currency in the global FX market turnover leads to a reduction in dollar invoicing probability, as exporters may increasingly price their products using those local currencies with low transaction costs. On the flipside, exporters may prefer invoicing in USD whenever the local currencies have high transaction costs, which may apply to most currencies except for major ones. This result may help explain why we observe the significant use of yen, euro and Australian dollar as shown in Figures 3 and 5. We also find that the greater exchange rate volatility of the destination country's currency against USD is associated with less dollar invoicing. Whether exporting firms adopt more of baht invoicing or local-currency invoicing, the latter to avoid large swings in prices facing foreign customers, requires a further examination. Moreover, the level and volatility of inflation are both significant. Exporting firms tend to adopt dollar invoicing whenever importers come from a country experiencing high inflation. However, volatile inflation in the destination country unexpectedly results in the lower probability of dollar invoicing. As a result, invoice currency choices of Thai exports are as well driven by macroeconomic and financial characteristics that prevail in the destination market. In Column 5, with country fixed-effects included in the specification, only the destination currency's FX market turnover and inflation volatility remain a significant driver of invoicing currency choices.[10]

10. In the estimation that follows, we decide not to include macroeconomic variables, since the destination fixed-effects may already capture the influence of these variables.

The above findings are robust to using the OLS regression as shown in Column 6, where we find the coefficient estimates close to the marginal effects found earlier. The exception is the coefficient on a firm's dollar experience, whose estimate even rises to 0.69. In Table A.2 in the Appendix, we conduct several further robustness checks. In Column 1, we expand our estimation sample to include exports to the U.S., while further omitting exports to countries whose currency is pegged to USD in Column 2. The estimates of average marginal effects barely change. The results are also robust to using the ratio of dollar-priced imports to a firm's total costs (Column 3). The marginal effects of the latter are even larger, as a 10-percentage-point increase in the ratio of dollar-invoiced imports raises the dollar-invoiced probability by 1.4 percentage points. However, we note that the extent of imported input is much smaller when expressed in terms of a firm's total costs. In particular, such a ratio at the 75th percentile is 22%, whereas the ratio of dollar-invoiced imports to total imports at the same percentile is 97%. In Column 4, when firm revenue replaces market shares as a measure of firm size, it does not have any significant effect on the dollar invoicing probability. Last, we consider alternative measures of a firm's dollar experience. When the number of years of experience with dollar invoicing is used instead as a proxy, the robust finding is that the likelihood of exports being invoiced in dollar increases with the number of years a firm has experienced with dollar invoicing (Column 5). In addition, we also follow Crowley et al. (2020) by introducing a set of dummy variables that indicate the number of years of experiencing with dollar invoicing. In Column 6, the probability of dollar invoicing monotonically increases with years of experience, thereby confirming our baseline results.

5.2 Local Currency Settlement Framework

Table 3 shows results on the impact of the LCSF between Thailand and partner countries including Malaysia and Indonesia on the reliance of dollar invoicing. As shown in Column 2, we find the impact to be moderate. Controlling for other factors that affect invoicing currency choices of Thai exports, the LCSF reduces the probability of dollar invoicing for exports to Malaysia and Indonesia by just 1.4 percentage points, which is significant at the 5% level. The result indicates resistance to change among Thai exporters, in spite of policy support. In Column 3, we differentiate between the LCSF adoption with Malaysia and Indonesia, and find that both marginal-effect estimates remain negative. However, for exports to Malaysia, the estimated impact reduces to 0.01 and is not statistically significant, while that for exports to Indonesia is higher at 0.02 and is significant at the 1% level. The results imply that other factors may account for the reduction in the dollar invoicing shares observed for exports to Malaysia as documented in Figure 5.

Table 3: Effects of Local Currency Settlement Framework

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	Full Sample			No Crisis	Asia	ASEAN
Dollar import share	0.089***	0.089***	0.089***	0.093***	0.096***	0.077***
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.009)
Market share	0.014***	0.014***	0.014***	0.013***	0.018***	0.021***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)
Competitors' dollar invoicing share	0.062***	0.062***	0.062***	0.061***	0.065***	0.058***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Differentiated product	-0.012***	-0.012***	-0.012***	-0.012***	-0.013***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Dollar share in total export (t-1)	0.483***	0.483***	0.483***	0.483***	0.468***	0.481***
	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
Local Currency Settlement		-0.014**				
		(0.006)				
Local Currency Settlement (MY)			-0.009	-0.006	-0.009	-0.014
			(0.008)	(0.007)	(0.008)	(0.009)
Local Currency Settlement (ID)			-0.022***	-0.014*	-0.021***	-0.024***
			(0.007)	(0.007)	(0.007)	(0.008)
Observations	5,057,434	5,057,434	5,057,434	3,654,509	3,486,135	2,092,292
Pseudo R^2	0.408	0.408	0.408	0.405	0.419	0.414
HS2 FEs	X	X	X	X	X	X
Destination FEs	X	X	X	X	X	X
Year FEs	X	X	X	X	X	X

Note: *This table reports average marginal effects from estimating the logit regression. The dependent variable is the dollar invoicing probability at the firm-product (HS 11-digit)-destination level during the period 2007–2024. The variable takes the value of one if the share of dollar-invoiced exports exceeds 0.5 and zero otherwise. 'Local Currency Settlement' is the dummy variable that equals to one if products are exported to Malaysia and Indonesia after 2016 and 2018, respectively. Columns 1–3 show results for the full sample. Column 4 excludes crisis periods, while Columns 5 and 6 consider only exports to Asia and ASEAN, respectively. Standard errors shown in parentheses are based on the Delta method. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.*

Source: *Authors estimate.*

We also perform robustness exercises by excluding crisis episodes, i.e., the global financial crisis and the COVID-19 pandemic, as well as using sub-sample of Asian and ASEAN countries (Columns 4–6). The latter allows for a better-matched control group to compare against trade with Malaysia and Indonesia. We show that while the average marginal effects of LCSF reduce somewhat when the crisis periods are excluded, the statistical significance of these estimates is in line with that under the full sample.

Next, we are interested in the heterogeneous effects of the LCSF across firms and sectors. From Table 4, our baseline results, i.e., without the LCSF dummies, are mostly robust across firms of different sizes. Some observations are worth mentioning. First, the invoice currency choices of large firms are more sensitive to their dollar import share. This may reflect the fact that large firms also have high imports of intermediate inputs to begin with and so the extent of dollar-priced imports is likely to influence their export invoicing decisions. Second, the market-share variable does not have any significant effect among these firms. Third, prior dollar experience has less influence on the dollar invoicing probability of small firms.[11] Last, with respect to the LCSF impact, we interestingly find that the significant impact of the LCSF in reducing the dollar invoicing probability is limited to medium-sized and large firms. For LCSF with Malaysia, the average marginal effects increase to 0.024 for medium-sized firms while becoming significant at the 1% level. Meanwhile, the LCSF with Indonesia significantly reduces dollar reliance by 3 percentage points for large exporters. These results imply that only subsets of firms respond to this bilateral policy initiative.

11. We show based on a pooled logistic regression that the differences in the average marginal effects of a firm's imported input exposure, market share and its prior dollar experience across firm sizes as highlighted in this paragraph are statistically significant.

Table 4: Regression Results by Firm Size

	Small		Medium		Large	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Dollar import share	0.075***	0.075***	0.069***	0.069***	0.110***	0.110***
	(0.005)	(0.005)	(0.004)	(0.004)	(0.016)	(0.016)
Market share	0.026***	0.026***	0.024***	0.024***	0.005	0.005
	(0.004)	(0.004)	(0.003)	(0.003)	(0.005)	(0.005)
Competitors' dollar invoicing share	0.051***	0.051***	0.065***	0.065***	0.059***	0.059***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.005)	(0.005)
Differentiated product	-0.009**	-0.009**	-0.007***	-0.007***	-0.016***	-0.016***
	(0.004)	(0.004)	(0.002)	(0.002)	(0.003)	(0.003)
Dollar share in total export (t-1)	0.422***	0.422***	0.476***	0.476***	0.480***	0.480***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.013)	(0.013)
Local Currency Settlement (MY)		0.016		-0.024***		-0.003
		(0.011)		(0.008)		(0.012)
Local Currency Settlement (ID)		-0.015		-0.010		-0.030***
		(0.017)		(0.010)		(0.010)
Observations	305,815	305,815	1,836,554	1,836,554	2,915,064	2,915,064
Pseudo R^2	0.419	0.419	0.457	0.457	0.366	0.366
HS2 FEs	X	X	X	X	X	X
Destination FEs	X	X	X	X	X	X
Year FEs	X	X	X	X	X	X

Note: *This table reports average marginal effects from estimating the logit regression. Standard errors based on the Delta method are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Firms are ranked and classified into 10 deciles based on their annual average export value. Firms within 1st–5th, 6th–9th and 10th are considered small, medium-sized and large firms, respectively. Columns 1–2 show results for small firms, Columns 3–4 for medium-sized firms, and Columns 5–6 for large firms. The sample period is 2007–2024.*

Source: *Authors estimate.*

Across sectors, we observe a significant impact of the LCSF with Indonesia in some sectors, including food and beverages, auto parts, electrical appliances, electronics, machinery and metal industries. The average marginal effects of the LCSF for these industries stand at around 3–4 percentage points. For the LCSF with Malaysia, we still find an insignificant effect in every sector. However, we note that the marginal effects are large in two sectors, including 'auto parts' and 'electronics' sectors, which are only significant at the 20% level. On other explanatory variables, the dollar import share, competitors' invoicing currency choices and firms' dollar experience are significant in almost every sector with the correct sign. Firm market shares, however, only show influence in a few sectors. For this sectoral estimation, we also examine the effects from the currency denomination of firm debt. A significant effect on a firm's invoicing currency choices can now be observed in a few sectors, including agriculture, automotive and textile industries. The average marginal effect is largest in the automotive sector, where a 10-percentage-point increase in the dollar-denominated debt ratio raises the dollar-invoicing probability by around 0.9 percentage point.

Table 5: Regression Results by Industry

Variables	Full	Agri	Food&Bev.	Auto parts	Automotive	Elec app.
Dollar import share	0.088***	0.020**	0.051***	0.120***	0.068***	0.148***
	(0.008)	(0.008)	(0.008)	(0.029)	(0.023)	(0.015)
Market share	0.014***	0.023***	0.021***	-0.036	0.027	-0.003
	(0.003)	(0.006)	(0.006)	(0.026)	(0.017)	(0.011)
Competitors' dollar invoicing share	0.062***	0.063***	0.061***	0.000	0.053***	0.021***
	(0.003)	(0.006)	(0.005)	(0.012)	(0.013)	(0.006)
Differentiated product	-0.012***	-0.010	0.000	-0.017	0.029	-0.025
	(0.002)	(0.008)	(0.007)	(0.016)	(0.033)	(0.019)
Dollar share in total export (t-1)	0.483***	0.411***	0.478***	0.525***	0.505***	0.446***
	(0.006)	(0.007)	(0.006)	(0.017)	(0.010)	(0.011)
Share of dollar-denominated debt (t-1)	0.007	0.030**	0.015	-0.055	0.094***	0.002
	(0.012)	(0.015)	(0.012)	(0.036)	(0.031)	(0.019)
Local Currency Settlement (MY)	-0.009	-0.002	-0.013	-0.039	0.025	-0.005
	(0.008)	(0.018)	(0.011)	(0.025)	(0.030)	(0.014)
Local Currency Settlement (ID)	-0.022***	0.048*	-0.043***	-0.042***	-0.006	-0.039***
	(0.007)	(0.029)	(0.016)	(0.016)	(0.041)	(0.013)
Observations	5,057,434	169,832	559,455	256,648	31,216	369,085

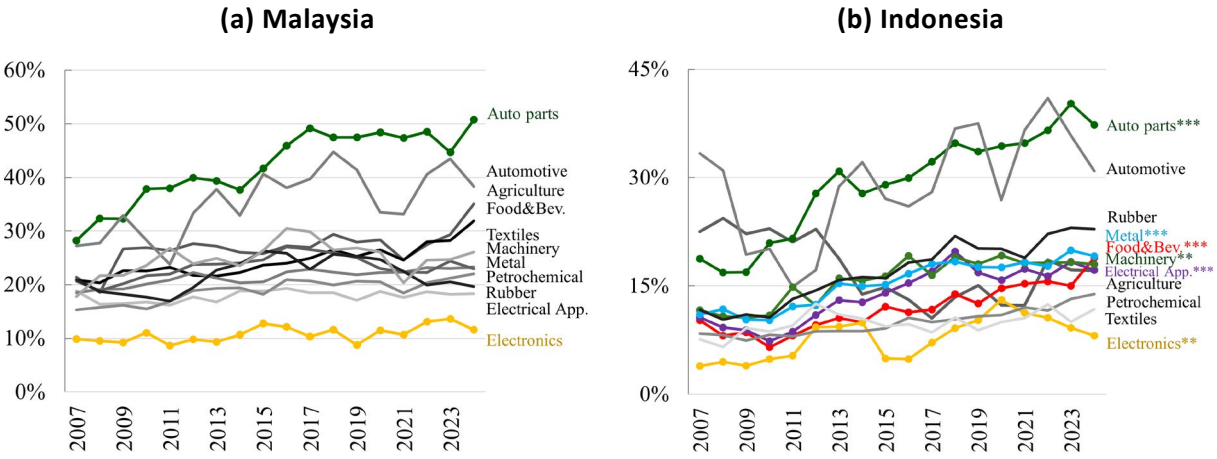
Pseudo R^2	0.408	0.511	0.453	0.380	0.465	0.397
	Electronics	**Machinery**	**Metal**	**Petrochem.**	**Rubber**	**Textiles**
Dollar import share	0.149***	0.160***	0.115***	0.087***	0.068***	0.080***
	(0.014)	(0.014)	(0.010)	(0.007)	(0.016)	(0.012)
Market share	0.013	-0.001	0.022***	0.024***	0.009	0.014**
	(0.020)	(0.008)	(0.006)	(0.006)	(0.012)	(0.007)
Competitors' dollar invoicing share	0.039***	0.032***	0.033***	0.047***	0.037***	0.048***
	(0.007)	(0.004)	(0.004)	(0.004)	(0.008)	(0.005)
Differentiated product	-0.042***	-0.011*	-0.003	-0.013	-0.141***	-0.039***
	(0.009)	(0.006)	(0.005)	(0.006)	(0.016)	(0.010)
Dollar share in total export (t-1)	0.340***	0.450***	0.472***	0.435***	0.466***	0.494***
	(0.014)	(0.010)	(0.008)	(0.007)	(0.012)	(0.013)
Share of dollar-denominated debt (t-1)	0.016	-0.037**	-0.013	0.012	-0.016	0.067***
	(0.015)	(0.018)	(0.011)	(0.011)	(0.018)	(0.022)
Local Currency Settlement (MY)	-0.022	-0.012	-0.011	-0.001	-0.003	0.002
	(0.016)	(0.013)	(0.009)	(0.010)	(0.015)	(0.019)
Local Currency Settlement (ID)	-0.036**	-0.027**	-0.038***	-0.009	-0.022	-0.025
	(0.017)	(0.011)	(0.011)	(0.011)	(0.015)	(0.020)
Observations	111,343	701,278	511,877	512,942	135,319	503,580
Pseudo R^2	0.419	0.379	0.405	0.420	0.421	0.429
HS2 FEs	X	X	X	X	X	X
Destination FEs	X	X	X	X	X	X
Year FEs	X	X	X	X	X	X

Note: *This table reports average marginal effects from estimating the logit regression by economic sectors as classified by the Bank of Thailand. Standard errors shown in parentheses are based on the Delta method. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. The sample period is 2007–2024.*

Source: *Authors estimate.*

In Figure 9, we further display the evolution of baht invoicing for Thai exports to Malaysia and Indonesia across sectors. We first note that despite the significant effect of the LCSF on exports to Indonesia, baht invoicing shares are still generally smaller for exports to Indonesia than to Malaysia in almost every sector. Consistent with the aggregate findings in Figure 4 and Table 1, baht invoicing is the most popular choice in automotive and auto parts sectors, with only auto parts positively affected by the LCSF. The shares of baht invoicing in the auto parts sector recently reach 50% and 40% for Thai exports to Malaysia and Indonesia, respectively. Nonetheless, the baht-invoicing shares still lag behind for the electronics sector, consistent with the aggregate patterns.

Figure 9: Baht Invoicing Shares of Exports to Malaysia and Indonesia by Sectors



*Note: Panel (a) and (b) report, for each sector, the average shares of baht invoicing of firm exports to Malaysia and Indonesia, respectively. For Indonesia, colored lines with markers are for sectors on which LCSF significantly reduces dollar invoicing shares. **, and *** denote significance at the 5%, and 1% levels for the LCSF marginal effects shown in Table 5, respectively. For Malaysia, colored lines with markers are for sectors that see a relatively larger effect from LCSF.*

Source: Customs Department, calculated by authors.

To gain added insights into the adoption of baht and regional currencies at the firm level, we further examine the firm-level distribution of invoice currency choices of exports to Malaysia and Indonesia. We use export data in the recent period, i.e., 2022–2024, and differentiate firms into two categories by cohort years, whether they first export to Malaysia and Indonesia before or after the LCSF implementation. Results shown in Figures A.2 and A.3 point to the rather limited adoption of baht and regional currency invoicing by firm**s.** For Thai exports to Malaysia, only around one-fifth of the firms invoice their exports in Thai baht more than 80% of total (Figure A.2(a)). We observe even a smaller number of firms (around 15%) for exports to Indonesia, in Figure A.3(a). The majority of firms report no use of baht invoicing at all (around 70% and 80% for exports to Malaysia and Indonesia, respectively). Things get worse when we consider firms' use of regional currencies, i.e., ringgit and rupiah. On the right panel of both Figures, the extremely limited number of firms use these two currencies to invoice their exports. Last, we observe that currency choices of firms that first export to Malaysia and Indonesia after the LCSF do not differ much from those of firms in earlier cohorts. This confirms the small estimated effect of the LCSF found in regression.

6. Conclusion and Policy Implications

This paper highlights dollar dominance in the context of Thai exports over the period 2007– 2024, despite a gradual, upward trend in baht invoicing. Traditional firm-specific factors, particularly imported input exposure and competitors' invoicing behaviour, drive such dollar invoicing motives. As firms begin to practice dollar invoicing, they will likely invoice their exports in USD again over the next periods, thereby generating invoicing-currency rigidities. We, however, show that new firms entering the export market tend to practice more baht invoicing. Macroeconomic factors, including transaction costs of importers' currency, exchange rate volatility and inflation rates at the destination country, also influence invoice currency choices. Last, we show that the LCSF between Thailand and regional partners, namely Malaysia and Indonesia, only moderately reduce the dollar invoicing probability.

Our findings with respect to the limited impact of LCSF urge policymakers to better understand incentives and constraints facing trade firms in making their invoicing currency decisions. Whether the existing invoicing patterns already reflect firms' optimal invoicing currency choices, for example their motive for real hedging or their consideration of currency management costs, is also an important question to address. Policymakers may also need to gain added insights into the effectiveness and obstacles facing the policy in practice. To what extent has the policy raised the accessibility and manageability of regional currencies? Are firms well-informed about the framework? And, is the incentive sufficient to encourage firms to switch to these currencies? Last, a future analysis of firms' invoice currency choices should be viewed in conjunction with their access to financial hedging. Studies have shown that firms' access to FX hedging can increase the probability of dollar invoicing. If this turns out to be the case, the policy that enhances the availability and accessibility of FX hedging instruments can be crucial in the environment that the dollar prominence prevails.

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Appendix

Table A.1: Descriptive Statistics

Variables	N	Mean	S.D.	Min	P25	P50	P75	Max
Dollar export share	5,964,262	65%	47%	0%	0%	100%	100%	100%
Dollar import share	5,964,262	58%	40%	0%	10%	70%	97%	100%
Dollar cost share	5,102,001	15%	20%	0%	0%	5%	22%	100%
Market share	5,964,262	18%	32%	<0.001%	0%	1%	17%	100%
Log of revenue value	5,413,399	20.42	2.58	0	18.75	20.34	21.98	28.59
Competitors' dollar invoicing share	5,964,262	62%	38%	0%	24%	77%	98%	100%
Differentiated product	5,964,262	0.8	0.4	0	1	1	1	1
Dollar invoicing years	5,964,262	4	2	0	1	5	6	6
Dollar share in total export	5,964,262	64%	38%	0%	27%	79%	100%	100%
Share of dollar-denominated debt	5,964,262	4%	17%	0%	0%	0%	0%	100%
Share of FX market turnover	5,964,262	12%	23%	0%	0%	1%	13%	89%
THBFC volatility	5,964,262	0.73	1.45	0.20	0.39	0.53	0.75	23.10
Log of GDP per capita	5,964,262	10.07	0.98	7.81	9.13	10.47	10.80	11.92
Inflation	5,964,262	3.51	4.66	-2.09	1.38	2.49	4.21	71.98
Inflation volatility	5,964,262	20.70	23.39	3.04	9.33	14.09	23.22	314.44

Note: *This Table reports summary statistics of the variables used in regression analyses. We use the cleaned dataset during the period 2007–2024. Dollar invoicing years being six indicates that firms have invoiced in dollars for at least six consecutive years.*

Source: *Authors estimate.*

Table A.2: Robustness Checks

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Dollar import share	0.085***	0.090***		0.089***	0.210***	0.209***
	(0.007)	(0.007)		(0.008)	(0.015)	(0.015)
Market share	0.014***	0.015***	0.015***		0.022***	0.023***
	(0.003)	(0.003)	(0.004)		(0.005)	(0.005)
Competitors' dollar invoicing share	0.059***	0.063***	0.061***	0.058***	0.089***	0.089***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Differentiated product	-0.012***	-0.013***	-0.011***	-0.013***	-0.021***	-0.021***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Dollar share in total export (t-1)	0.472***	0.488***	0.497***	0.482***		
	(0.006)	(0.006)	(0.004)	(0.006)		
Dollar cost share			0.137***			
			(0.016)			
Log of revenue value				0.002		
				(0.002)		
Dollar invoicing years					0.065***	
					(0.002)	
Dollar invoicing years = 1						0.157***
						(0.026)
Dollar invoicing years = 2						0.238***
						(0.038)
Dollar invoicing years = 3						0.354***
						(0.022)
Dollar invoicing years = 4						0.386***
						(0.022)
Dollar invoicing years = 5						0.424***
						(0.021)
Dollar invoicing years > 5						0.528***
						(0.021)
Observations	5,417,902	4,608,038	4,323,555	4,593,389	3,723,826	3,723,826
Pseudo R^2	0.416	0.405	0.415	0.406	0.307	0.309
HS2 FEs	X	X	X	X	X	X
Destination FEs	X	X	X	X	X	X
Year FEs	X	X	X	X	X	X

Note: *This table reports average marginal effects from estimating the logit regression. Standard errors based on the Delta method are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Column 1 shows results for the data that include exports to the U.S.. Column 2 shows results for data that exclude exports to the U.S. and dollar-pegged countries. The sample period is 2007–2024. When dollar invoicing years are included into regression, the estimation sample starts from 2013.*

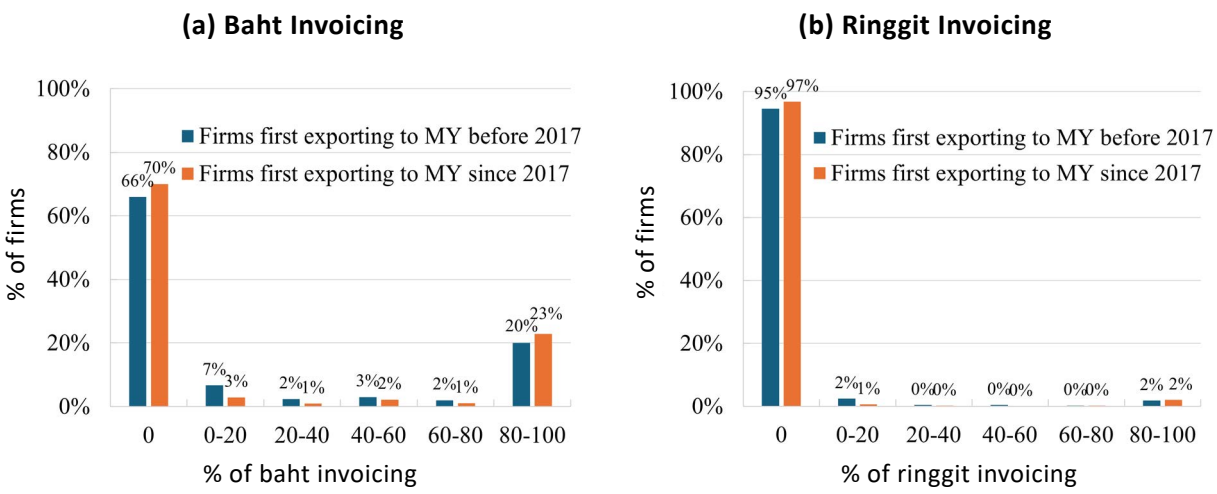
Source: *Authors estimate.*

Figure A.1: Distribution of the Dollar Invoicing Shares

Note: *This Figure shows the distribution of the dollar invoicing shares of Thai exports at the firm-product (HS 11-digit)-destination level over the period 2007–2024.*

Source: *Customs Department, calculated by authors.*

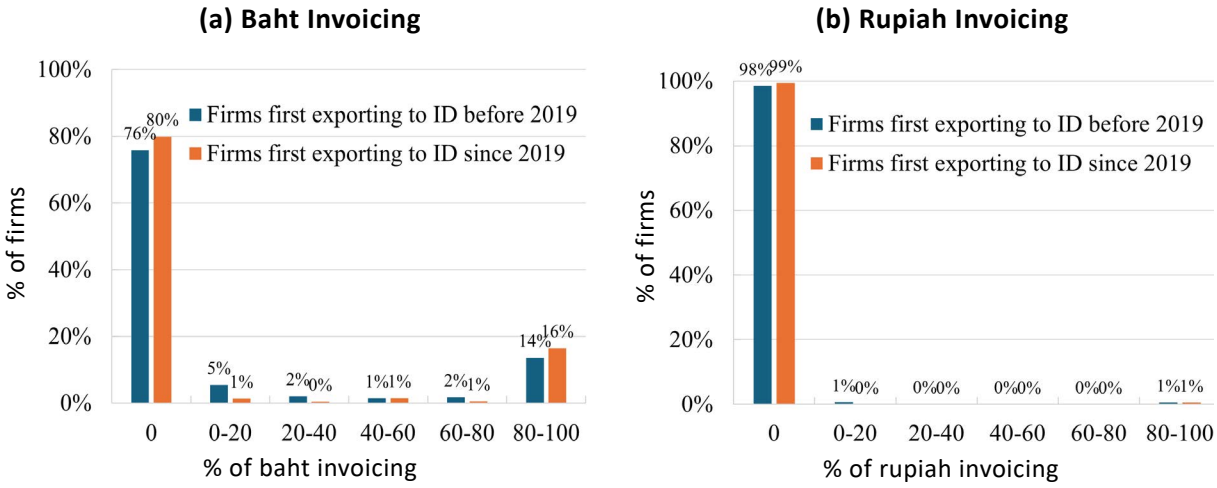
Figure A.2: Distribution of Baht and Ringgit Invoicing Shares of Thai Exports to Malaysia Across Firms



Note: *This Figure reports the distribution of baht and ringgit invoicing shares of Thai exports to Malaysia in 2022–2024 across firms.*

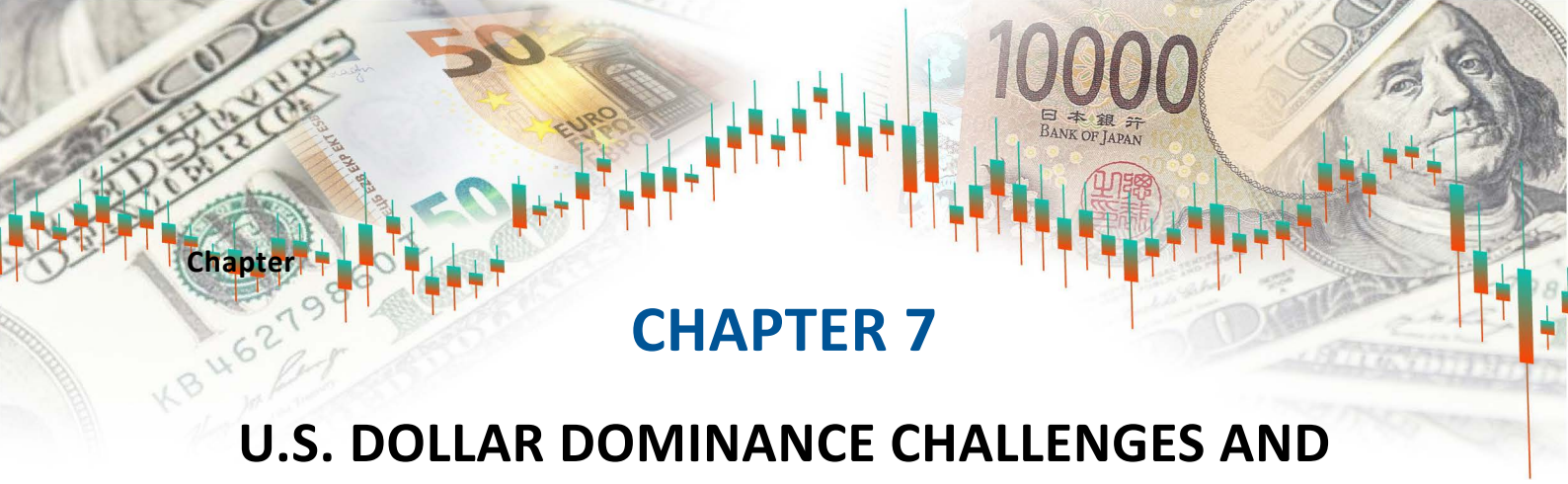
Source: *Customs Department, calculated by authors.*

Figure A.3: Distribution of Baht and Rupiah Invoicing Shares of Thai Exports to Indonesia Across Firms



Note: This Figure reports the distribution of baht and rupiah invoicing shares of Thai exports to Indonesia in 2022–2024 across firms.

Source: Customs Department, calculated by authors.



Chapter

CHAPTER 7

U.S. DOLLAR DOMINANCE CHALLENGES AND POLICY IMPLICATIONS FOR KOREA – DETERMINANTS OF U.S. DOLLAR INVOICING IN KOREA'S TRADE

Sang Woo Park, Bank of Korea

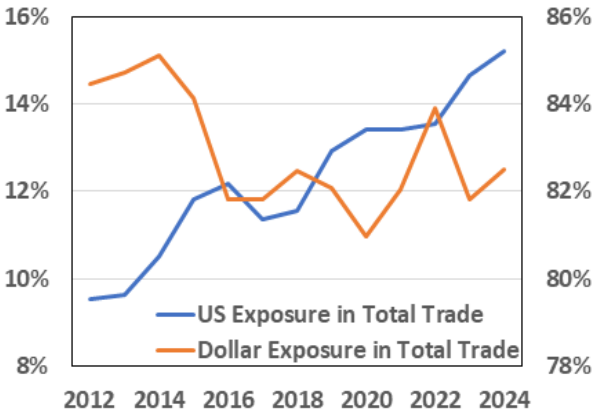
1. Introduction

Efforts to promote local currency settlement have been continuously pursued within the ASEAN+3 economies, and Korea has also participated in such initiatives. Korea has undertaken various measures to encourage the use of local currencies in trade settlement, including the introduction of a Korea–China currency swap fund settlement support scheme (2012), the establishment of a won–yuan direct trading market (2014), the conclusion of a bilateral local currency swap agreement with the Central Bank of Türkiye (2021), and the launch of a Local Currency Transaction (LCT) framework with Indonesia (2024). Despite these efforts, the share of U.S. dollar (USD) settlements in Korea's trade transactions remains high, standing at 83% in 2024. This reflects not only the increase in the share of the U.S. dollar (USD) in Korea's trade, but also the persistently high level of dollar-denominated settlements in Korea's exports and imports with major trading partners.

Recently, however, amid policy efforts by BRICS economies to reduce their reliance on the USD, Korea has observed a gradual increase in the use of the renminbi (RMB), particularly in its trade with China.[1] Nevertheless, survey results indicate that some Korean firms still perceive the use of local currencies in settlement as burdensome. In particular, despite the large scale of Korea–China trade and the existence of an interbank won–yuan market, Korean firms continue to prefer using the USD in trade with China. This suggests that the high share of dollar-denominated settlements in trade is not merely a matter of convention, but rather reflects the existence of economic incentives favouring dollar use.

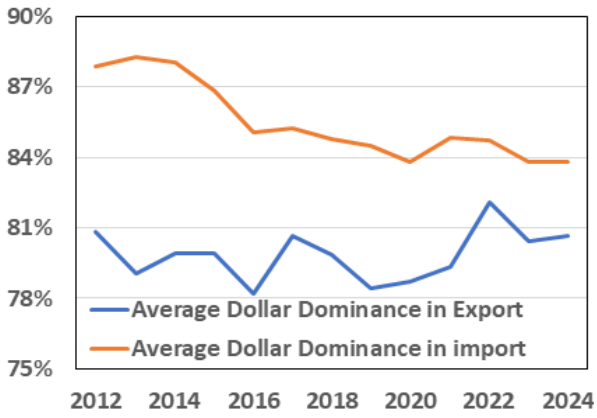
1. Recent BRICS summit communiqués explicitly encourage the use of local currencies in trade and financial transactions and task finance ministers and central bank governors to develop local-currency payment instruments and platforms; in parallel, the New Development Bank's 2022–26 strategy commits to expanding local-currency lending and funding, underscoring policy efforts within BRICS to reduce reliance on the USD.

Figure 1: U.S. and Dollar Exposure in Total Trade



Source: Bank of Korea, Trade Statistics by Currency of Settlement.

Figure 2: Average Dollar Use in Export and Import



Note: The average USD settlement shares in trade with each of the 11 major partner economies[2], excluding the United States.
Source: Bank of Korea, Trade Statistics by Currency of Settlement.

Against this backdrop, this study analyses the current status of USD-denominated settlements in Korea's trade and examines the incentives that lead firms to prefer dollar settlement, while also presenting policy directions for promoting local currency settlement. Specifically, we analyse the use of the dollar in trade transactions with individual partner countries and explain, from the perspective of banks' foreign exchange risk management, why the transaction costs of non-dollar currencies—particularly those with low degrees of foreign exchange market convertibility—remain high. Furthermore, we investigate other determinants of dollar use in trade, including global value chain (GVC) participation, the global settlement share of counterpart currencies, relative bargaining power, and the degree of product differentiation. Finally, we conduct an empirical analysis using panel fixed- and random-effects models.

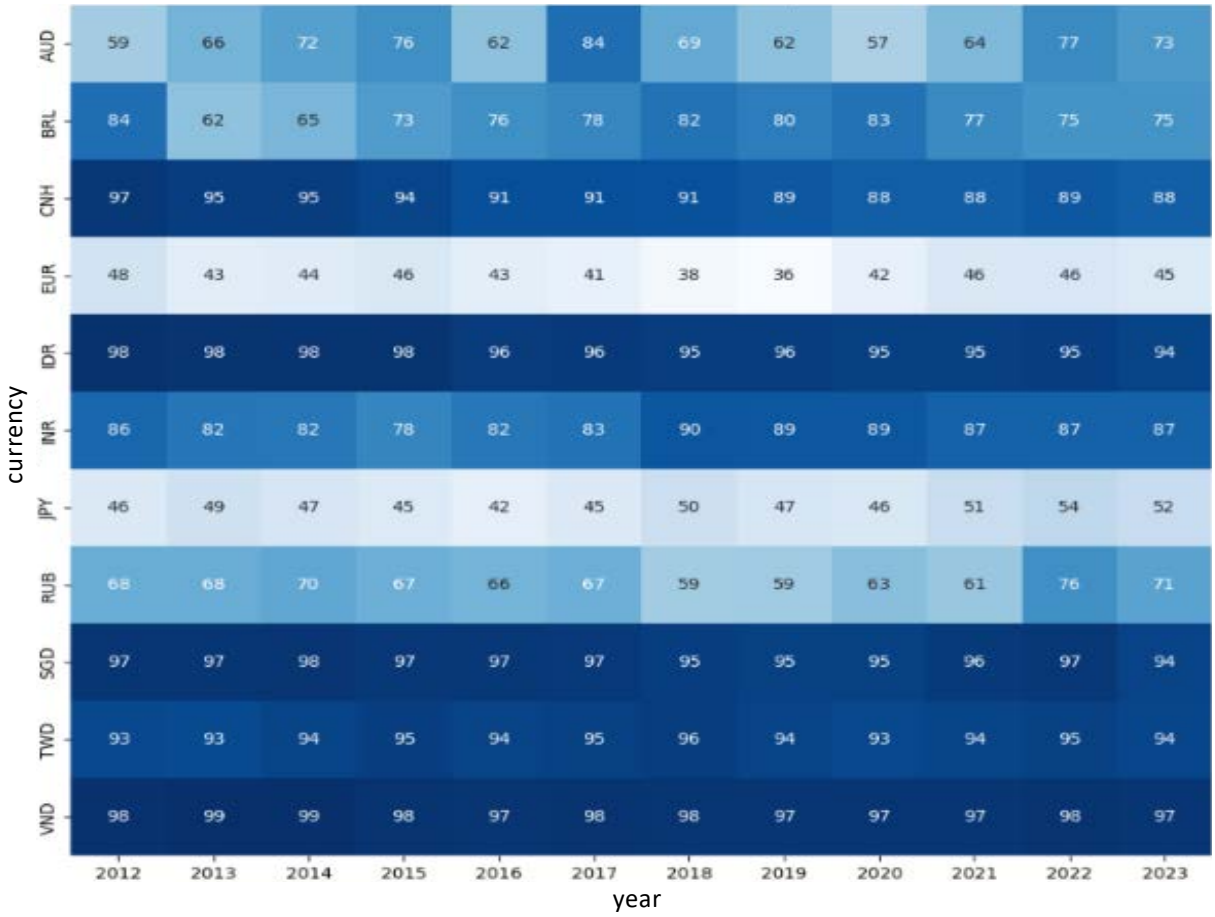
2. Trends in Dollar Invoicing in Korea's Trade with Major Partners

The heatmap (Figures 3 and 4) below shows the annual share of USD settlements in Korea's exports and imports with individual partner countries, compiled on a customs-clearance basis. The y-axis labeled "currency" refers to trade with countries where the listed currency serves as legal tender. The analysis covers 11 economies and regions for which both trade settlement data and multi-country input–output table statistics are available: Australia, Brazil, China, the European Union (including the United Kingdom),

2. The 11 economies are Australia, Brazil, China, the Euro area (including the United Kingdom), Indonesia, India, Japan, Russia, Singapore, Chinese Taipei, and Vietnam, for which data are available and will be used in subsequent analysis

Indonesia, India, Japan, Russia, Singapore, Chinese Taipei, and Vietnam. The United States is excluded from the analysis, since although its settlement share is published, the USD is its own national currency.

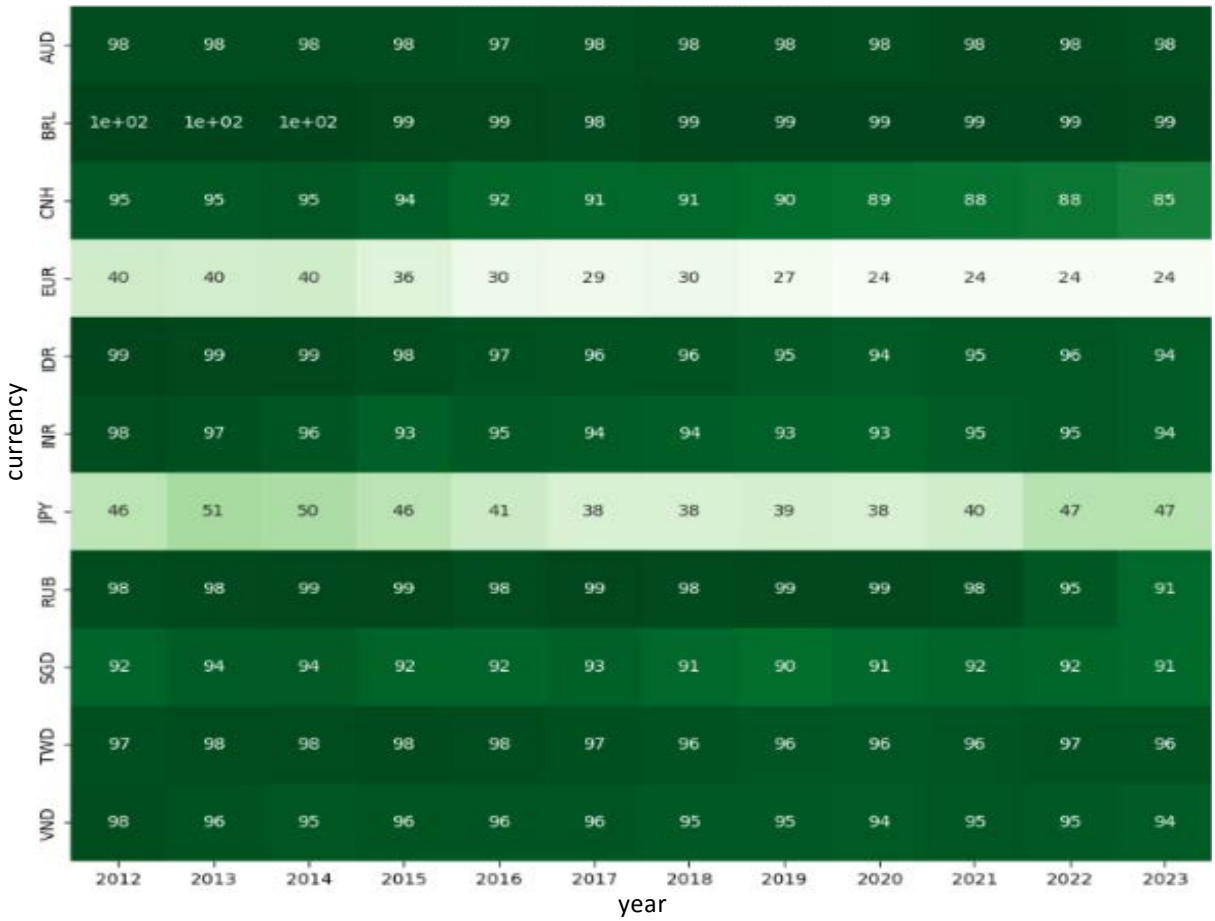
Figure 3: The Share of USD Invoicing in Korea's Exports to Partner Countries



Source: Bank of Korea, Trade Statistics by Currency of Settlements.

The European Union and Japan stand out for their relatively low dollar usage in both exports and imports. In the EU, only 44% of exports and 30% of imports are settled in USD, while in Japan the figures are 48% for exports and 43% for imports. Notably, Japan's dollar shares in both exports and imports remained stable or increased slightly over the period, whereas the EU saw little change in exports but a 15%p drop in imports. In contrast, Australia, Brazil, and Russia show a large gap between exports and imports, with the dollar share in imports exceeding that in exports by 29%, 23% and 31%, respectively. While the dollar shares in imports from Brazil and Australia remained almost unchanged, Russia recorded a notable decline in its import dollar share after 2022.

Figure 4: The Share of USD Invoicing in Korea's Imports from Partner Countries



Source: Bank of Korea, Trade Statistics by Currency of Settlements.

Among ASEAN countries—specifically Indonesia, Singapore, and Vietnam—the dollar share is consistently high in both exports and imports. For exports, the dollar shares averages 96% in Indonesia, 96% in Singapore, and 98% in Vietnam. For imports, the shares are similarly elevated at 96%, 92%, and 95%, respectively. Unlike other ASEAN countries, however, Indonesia shows a slight decline in its dollar share in both exports and imports. China has seen a steady decline in its dollar share for both exports and imports, with the reduction more pronounced on the import side. Since 2021, India and Brazil have also recorded a decrease in their dollar settlement shares. Russia presents a mixed picture: while the dollar share in imports has decreased, the dollar share in exports has actually risen.

To explain these country- and time-specific variations in dollar settlement shares, Section 3 examines the relationship between foreign exchange market liberalisation level and transaction costs from the perspective of banks' risk management. In particular, it analyses how lower convertibility raises transaction costs and why this

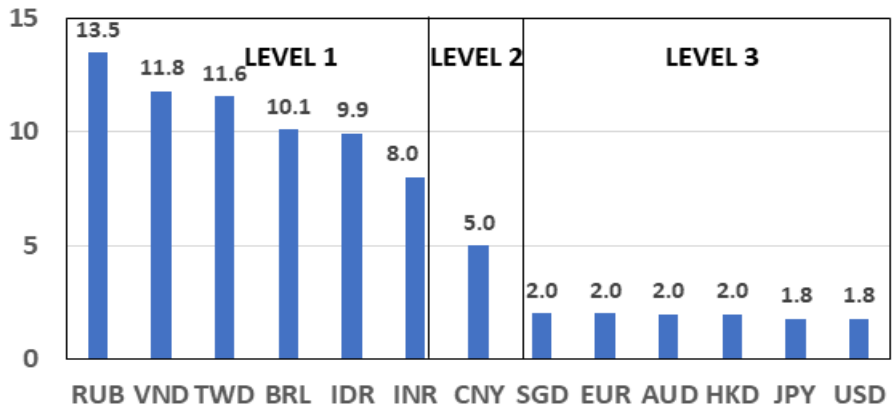
matter. Section 4 then considers other costs and factors that influence firms' choice of settlement currency, including both direct and indirect transaction costs as well as the bargaining process with trade partners. Together, these analyses provide a comprehensive framework for explaining cross-country and temporal differences in the share of dollar-denominated settlements.

3. FX Market Liberalisation Level and Transaction Costs

3.1 Concept and Present Situation of FX Market Liberalisation Level

Foreign exchange market liberalisation refers to an assessment of a currency's convertibility, defined as the existence of an active offshore spot settlement market that allows investors to conduct foreign exchange transactions with their chosen counterparties under the principle of best execution. Convertibility is an important factor in determining the choice of settlement currency in trade, since when convertibility is low, transaction fees charged to firms for buying and selling that currency tend to be higher.

Figure 5: FX Market Liberalisation Level and Transaction Costs



Source: MSCI Global Market Accessibility Review (2023), Hana Bank.

The figure above illustrates the fees applied by banks at the end of 2023 when firms buy or sell specific currencies. Firms must purchase foreign currency at a price above the interbank base rate by the amount of the fee (%) and sell at a price below the base rate by the same margin. As shown in Figure 5, currencies rated at Level 1 exhibit transaction costs often exceeding 10%, whereas Level 3 currencies remain near 2%. This large gap illustrates that low convertibility directly translates into higher corporate FX fees. Although in practice, banks may grant discounts depending on the client, meaning the posted fees do not necessarily reflect the exact cost of every transaction, these statistics nonetheless provide a useful basis for comparing the relative level of transaction costs across currencies.

For international comparison, the analysis refers to the FX market liberalisation level used in the MSCI Global Market Accessibility Review. The MSCI FX accessibility index is constructed based on systematic feedback from global institutional investors and custodians. It provides a standardised benchmark for comparing FX market convertibility across countries. In evaluating foreign exchange convertibility, MSCI considers: (i) the existence of a liquid offshore spot settlement market, (ii) the degree of currency convertibility, and (iii) whether foreign exchange transactions are restricted to links with securities trading or can only be conducted through local custodians. Currencies are assigned a score of 3 (high convertibility), 2 (medium), or 1 (low).

As shown in the figure, currencies with low convertibility tend to have noticeably higher transaction fees. Highly convertible currencies such as the SGD, EUR, AUD, HKD, JPY, and USD record transaction costs of only about 2%, whereas less convertible currencies such as the RUB, VND, TWD, BRL, IDR, and INR typically exceed 10%. The Chinese yuan (CNY), for example, saw an improvement in its convertibility rating in 2016, accompanied by a decline in transaction costs. By contrast, the Russian ruble (RUB) experienced a steady improvement in convertibility and lower fees up to 2021, but after 2022—amid the Russia–Ukraine war and U.S. sanctions—its convertibility dropped sharply and transaction costs rose again. The Central Bank of Russia imposed restrictions on Russian Banks that impact the ability of foreign investors to access foreign currency onshore. In the offshore FX market, liquidity in the Ruble has deteriorated as banks and brokers abroad are avoiding processing Ruble transactions.

Table1: FX Market Liberalisation Level in Emerging Markets (MSCI criteria)

ASIA	**Average**	**CNY**	**INR**	**IDR**	**KRW**	**MYR**	**PHP**	**TWD**	**THB**		
	1.4	2	1	1	1	2	1	1	2		
EMEA	**Average**	**CZK**	**EGP**	**HUF**	**KWD**	**PLN**	**QAR**	**SAR**	**ZAR**	**TRY**	**AED**
	2.7	3	1	3	3	3	3	3	3	2	3
Americas	**Average**	**BRL**	**CLP**	**COP**	**MXN**	**PEN**					
	2.0	1	2	1	3	3					

Note: In the EMEA region, countries adopting the euro are excluded.
Source: MSCI Global Market Accessibility Review (2024).

The table above presents the foreign exchange market liberalisation level for Emerging Markets by region, as published by MSCI in 2024. Countries classified as Developed Markets consistently received the highest score of "3" (no issues) in the assessment of foreign exchange market liberalisation. This group includes Canada, the United States, the Euro area (covering Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Israel, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom), as well as Australia, New Zealand, and Japan. Excluding these advanced economies, the average FX market convertibility score of Emerging Markets in Asia stands at 1.4, which is notably lower than that of other regions.

3.2 FX Risk Management by Banks and the Costs of Limited Convertibility

In Korea, corporate foreign exchange (FX) transactions can only be conducted through banks, and the FX fees quoted by banks effectively constitute the transaction costs. As discussed earlier, currencies with low FX market convertibility tend to incur higher fees. This is because, in managing FX risk, domestic banks face higher costs when dealing with currencies that have low convertibility. Lower convertibility implies reduced market accessibility and liquidity, which leads to additional expenses when hedging customer transactions. Moreover, underdeveloped derivatives markets to support trade settlement expose banks to additional risks.

First, access to cross-currency interbank markets has a critical impact on transaction costs. To minimise FX risk, banks' trading desks typically offset client transactions through the interbank market. However, in Korea, onshore interbank markets only allow transactions in KRW–USD and KRW–CNY. For all other currencies, banks must conduct two transactions—first KRW–USD and then USD–third currency. By contrast, highly convertible currencies with offshore markets are liquid and accessible at any time, keeping costs relatively low. In contrast, less convertible currencies without offshore markets require domestic banks either to pay high fees to local banks abroad or to establish their own branches with direct access to local interbank markets, thereby significantly increasing transaction costs. Consequently, banks pass these higher costs on to customers, who then avoid using such currencies for trade settlement.

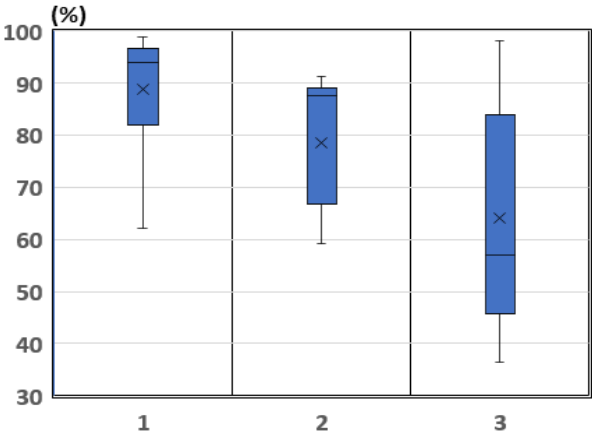
Second, the existence of a derivatives market to support trade transactions is also essential. For example, despite the presence of a KRW–CNY interbank market, CNY transactions remain costly. This is because trade-related FX demand requires not only spot markets but also derivative instruments such as swaps. Beyond simple hedging, corporates often prefer same-day settlement for FX trades, whereas interbank settlements are typically T+2. In the case of KRW–USD, banks manage this gap by using the short-term swap market to cover interest rate risks. However, the KRW–CNY swap market is underdeveloped, leaving banks unable to manage such risks effectively. As a result, banks impose higher transaction costs on CNY transactions, and corporates prefer using USD over CNY in trade with China. The weakness of the KRW–CNY swap market may stem from China's low FX convertibility, which limits the scope of CNY utilisation obtained through swap transactions. Ultimately, low FX market convertibility raises the transaction costs borne by corporates, thereby reducing the international use of the currency in trade settlement.

4. Factors Influencing Firms' Choice of Trade Settlement Currency

4.1 Direct Transaction Costs

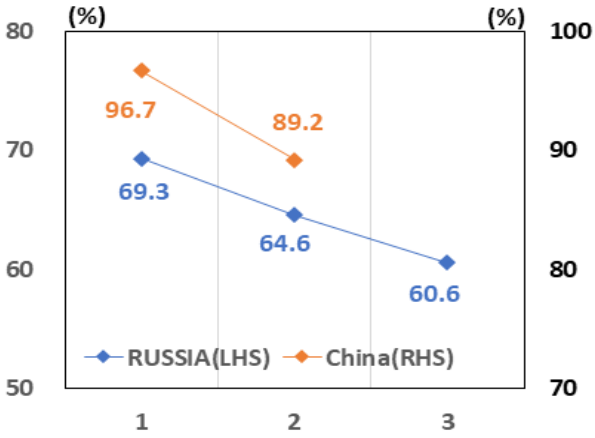
As discussed earlier, lower FX market convertibility is associated with higher transaction costs, which in turn have a direct impact on firms' choice of trade settlement currency. According to Krugman (1980), currencies associated with lower transaction costs are generally more likely to be preferred as invoicing or settlement currencies in international trade. The first graph below (Figure 6) presents a box plot of the share of Korean exports settled in USD by the level of FX market convertibility in partner countries between 2012 and 2023.[3] For countries with the lowest convertibility (level 1), the share of USD settlements averages 88.7% with a median of 94%, indicating a very high reliance on the dollar. In contrast, at level 2, the average declines to 78.4% with a median of 88%, and at level 3, the figures drop substantially to an average of 64.1% and a median of 57%. Differences in FX market convertibility matter not only across countries but also within the same currency, as shifts in convertibility are found to affect the share of dollar settlements (Figure 7). Among the 11 economies examined, China and Russia experienced changes in convertibility during the 2012–2023 period; in both cases, improvements in convertibility were accompanied by reductions in transaction costs of their respective currencies, and consequently, a decline in the share of settlements conducted in USD.

Figure 6: Use of USD and FX Market Liberalisation Level



Note: Box plot of USD Settlement shares of Korea's Exports and MSCI FX Accessibility Indices by country and year.
Source: MSCI Market Accessibility Review, Bank of Korea.

Figure 7: Average Use of the USD and Changes in FX Market Liberalisation Level



Note: For China, the MSCI index is based on China A rather than China (International), as the latter only covers Hong Kong within the Chinese market.
Source: MSCI Market Accessibility Review, Bank of Korea.

3. In the actual Market Accessibility Review, the classifications are 'Improvements Needed,' 'No Major Issues but Some Improvements Needed,' and 'No Issues.' In this study, however, we recode these into dummy variables to represent FX market accessibility as: level 1 = Improvements Needed, level 2 = Some Improvements Needed, and level 3 = No Issues.

Examples of countries with high FX market convertibility and a low share of USD settlement are the Euro area and Japan. In the Euro area, only 44% of exports and 30% of imports are settled in USDs, while in Japan the corresponding figures are 48% and 43%, respectively. These levels are far below the averages of 80% for exports and 86% for imports across the 11 economies in the sample. By contrast, Australia, despite having a high level of FX market convertibility (Level 3), records a USD settlement share of 98% in imports, exceeding the sample average of 86% (its export share is 68%, below the average). Similarly, Singapore also exhibits high FX market convertibility (Level 3), yet its USD settlement ratios are 96% for exports and 92% for imports, both above the sample averages. These cases suggest that trade settlement currency choice is not determined solely by direct transaction costs, but is also significantly influenced by other factors.

4.2 Indirect Transaction Costs

Firms do not necessarily purchase all the foreign currency required for trade settlement directly from the FX market, since export earnings can be used to finance import payments. In a global trade environment where the USD accounts for a very large share of settlements, it is particularly advantageous for firms engaged in processing trade—where imported inputs are used to produce goods for re-export—to transact in USDs. By matching export receipts with import payments in dollars, firms can reduce the proportion of FX transactions, thereby saving on transaction fees and mitigating exposure to exchange rate risk (Chung, Kamal, & Nova, 2016). If export earnings were not utilised for imports, firms could be forced to sell foreign currency when the domestic currency appreciates and purchase it when the domestic currency depreciates, both of which would erode operating profits. Indeed, survey evidence indicates that many firms actively manage exchange rate risk by matching the currencies of exports and imports (Amiti, Itskhoki, & Konings, 2020). Thus, in trade transactions: (1) when exporters must import goods from abroad to complete their exports, and (2) when importers use imported inputs for products destined for re-export, settling in non-dollar currencies (i.e., local currencies) generate additional indirect transaction costs.

To estimate such indirect costs of settlement in non-dollar currencies, this report employs a multi-regional input-output (MRIO) framework. The analysis distinguishes between the perspective of the exporting country and that of the importing country. Both approaches follow the methodology of Hummels, Ishii, and Yi (1999), who define **vertical specialisation** as the value of imported intermediate inputs embodied in a country's exports and operationalise it using input–output tables to capture both direct and indirect foreign value-added. This conceptual framework has been further extended by Koopman, Wang, and Wei (2014) to a multi-country setting using MRIO data.

From the perspective of an exporting country A, we calculate the share of third-country intermediate imports embodied in exports to a partner country B. Specifically, the denominator is defined as the total value of exports from A to B, while the numerator is the value of intermediate imports sourced from third countries (excluding B) that are required for the production of those exports, as follows:

1. Estimate domestic production (Y) induced by exports to country B (X), including both final goods and the domestic intermediates used in their production.
2. Estimate the amounts of imports (Z) from countries other than B that are required for Y.
3. Use the ratio of Z to X as a proxy for the dollar demand of country A in trade with B.

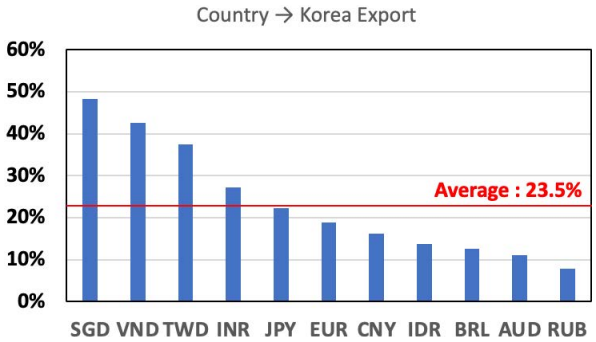
The higher the ratio of third-country intermediate imports induced by exports to B, the stronger the incentive for country A's exporters to use the USD in transactions with B. For example, if Euro area firms exporting to Korea must also source inputs from outside Korea and the Euro area, they are more likely to prefer USD settlement in trade with Korea. Hence, a higher value of this index implies stronger incentives for Euro area exporters to receive payments from Korea in USDs.

Next, from the perspective of importing firms, we calculate the share of products imported from a given country (A) that are subsequently used in the process of exporting to third countries. Specifically, we take the total imports from country A as the denominator, and the amount of those imports that are embodied in exports to third countries as the numerator, as follows:

1. Estimate domestic production (X) induced by exports to countries other than A.
2. Estimate the volume of imports from country A (Y) required for this domestic production (X).
3. By comparing Y with the total imports from country A (Z), we infer the importing country's (B's) demand for USDs.

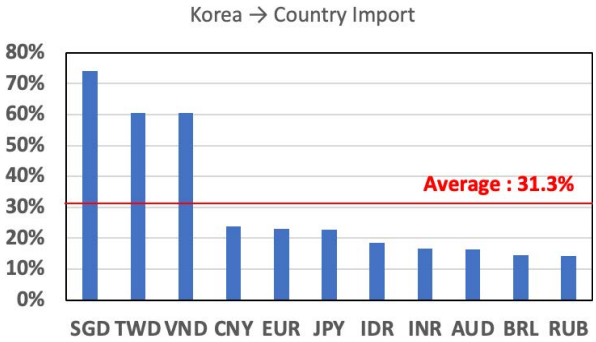
The higher the ratio of imports from country A that are embodied in exports to third countries (numerator) relative to total imports from A (denominator), the stronger the incentive for country B to use the USD in transactions with A. For example, if Korean firms import raw materials from Australia and process them for export to destinations other than Australia, it is advantageous to settle transactions with Australia in USDs. Thus, a higher value of this indicator suggests that importing firms have a stronger incentive to settle in dollars. The estimated dollar demand values for each partner country in Korea's export and import transactions are shown below.

Figure 8: Share of Third-Country Imports Embodied in Each Country's Exports to Korea, Relative to Its Total Exports to Korea (Exporter's Dollar Demand)



Source: Author's Estimates.

Figure 9: Share of Imports from Korea Embodied in Each Country's Exports to Third Countries, Relative to Its Total Imports from Korea (Importer's Dollar Demand)



Source: Author's Estimates.

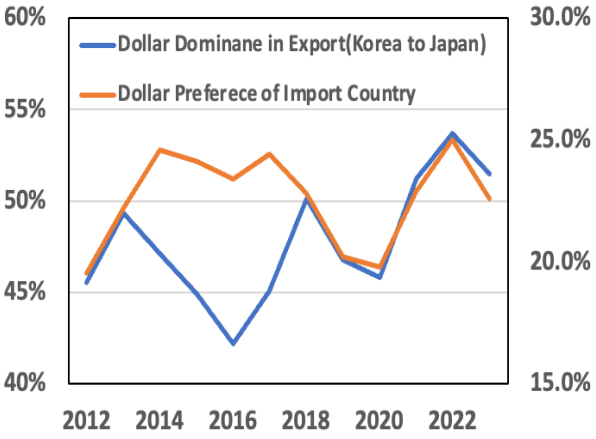
The left-hand graph (Figure 12) illustrates exporters' dollar demand when a country exports to Korea, while the right-hand graph (Figure 13) shows importers' dollar demand when a country imports from Korea. In the case of Singapore, despite its high level of exchange rate liberalisation, the share of dollar-denominated settlement in trade with Korea remains high. This is because 48.4% of its exports to Korea are backed by imports from third countries, while as much as 74% of its imports from Korea are reprocessed and then re-exported to third countries. In particular, the reprocessing-export structure is pronounced, such that the share of dollar-denominated settlement in imports from Korea (96%) exceeds that in exports to Korea (92%).

For Vietnam and Chinese Taipei, although their levels of exchange rate liberalisation are relatively low, both exports and imports exhibit strong incentives for dollar-denominated settlement, placing them among the economies with higher dollar settlement shares despite their lower liberalisation. In the case of India, the incentive for dollar-denominated settlement is greater in exports to Korea (27.2%) compared to imports from Korea (16.6%). Accordingly, the dollar settlement share in imports from Korea (85%) is lower than that in exports to Korea (95%).

China, by contrast, has relatively weak incentives for dollar-denominated settlement, which serves as a background for the declining dollar share in both exports and imports. Australia, Brazil, and Russia show low incentives for dollar-denominated settlement in both exports and imports, and consequently, the dollar settlement share in their imports from Korea is relatively low. In particular, Brazil and Russia record settlement shares of 76% and 71%, respectively, which are lower than the average among countries with the same level of liberalisation (89%). Nevertheless, in their exports to Korea, the dollar settlement share is high, mainly because of their large share of raw material exports, which will be discussed later. Similarly, although Indonesia's incentives for dollar settlement appear low in both exports and imports, its high reliance on raw materials and commodities in trade leads to a relatively high share of dollar settlement.

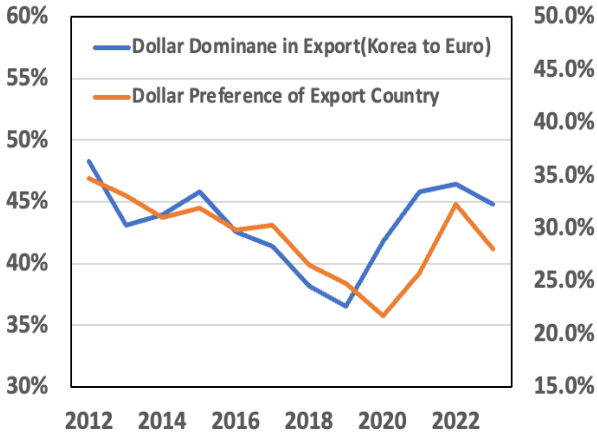
Furthermore, as will be shown in the subsequent empirical analysis, differences in dollar settlement incentives between exports and imports not only explain cross-country variation in dollar settlement shares but also influence changes in the dollar settlement share within a single country over time. The graphs below provide representative examples of this phenomenon. Figure 10 illustrates the share of dollar invoicing in Korea's exports to Japan since 2012, together with Japanese importers' demand for USDs. Figure 11 presents the share of dollar invoicing in Korea's exports to the Euro area since 2012 and Korean exporters' demand for USDs. As the graphs show, the dollar invoicing ratio is correlated with importers' or exporters' dollar demand, indicating that a decline in dollar demand among importers or exporters is accompanied by a decrease in the dollar invoicing share in trade.

Figure 10. Dollar Demand by Japanese importers from Korea



Source: Bank of Korea, Author's Estimates.

Figure 11. Dollar Demand by Korea Exporters to Euro Area

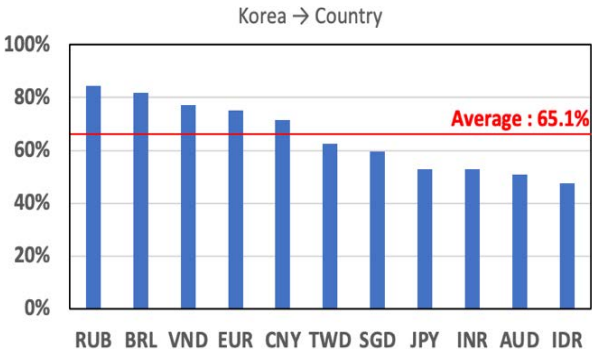


Source: Bank of Korea, Author's Estimates.

4.3 Product Differentiation and Relative Bargaining Power

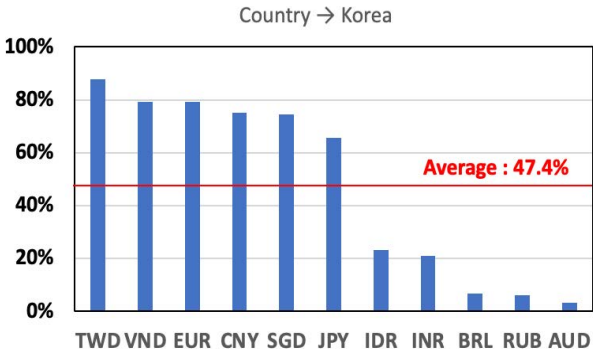
In addition to the direct and indirect costs of foreign exchange transactions, previous studies suggest that product differentiation and bargaining power with trading partners also influence the choice of settlement currency (Ligthart & da Silva, 2007; Goldberg & Tille, 2009). The lower the degree of product differentiation, the more sensitive transactions become to relative price fluctuations, thereby strengthening the tendency of trading parties to adopt a common settlement currency (Goldberg & Tille, 2008). In particular, commodities such as raw materials and natural resources are predominantly invoiced in USDs in international trade, and these goods, characterised by low differentiation, exhibit a high dollar settlement share (BIS, 2023). Accordingly, a higher share of raw material imports or resource and fuel exports—i.e., lower product differentiation—tends to increase dependence on dollar settlement. To measure product differentiation, this study follows prior research and employs the Rauch Index (Rauch, 1999), which classifies differentiated products as those with limited substitutability.

Figure 12: Degree of Product Differentiation in Korea's Exports



Source: Rauch Index, Author's Estimates.

Figure 13: Degree of Product Differentiation in Korea's Imports



Source: Rauch Index, Author's Estimates.

The graph on the left (Figure 12) illustrates the degree of product differentiation in Korea's exports by trading partner, while the graph on the right (Figure 13) shows the degree of product differentiation in Korea's imports from each country. Korea's exports to Russia and Brazil exhibit a high level of product differentiation. Moreover, as mentioned earlier, Russia and Brazil have weak incentives to use the USD for settlement in their imports from Korea (low share of imports from Korea embodied in each country's exports to third countries, relative to its total imports from Korea), resulting in a lower share of dollar settlement compared to other countries with similar levels of foreign exchange liberalisation. Korea's exports to Vietnam are also highly differentiated, but since Vietnam has strong incentives to settle imports from Korea in USDs (high share of imports from Korea embodied in each country's exports to third countries, relative to its total imports from Korea), the share of dollar settlement is relatively high. In the case of the Euro area, the incentive to use the USD for imports from Korea is weak, while the level of product differentiation is relatively high compared to countries with a similar degree of foreign exchange liberalisation. As a result, the share of dollar settlement remains low.

In the case of China, incentives to use the USD in trade with Korea are not weak, while both exports and imports show a high degree of product differentiation. This provides a basis for the continuous decline in dollar settlement in bilateral trade. Korea's exports to India show low product differentiation, but the share of raw materials is only 8.4%, which is relatively small. On the other hand, for Australia and Indonesia, the shares of raw materials and fuels in Korea's exports amount to 39.6% and 22.8%, respectively, which are higher than the average share of 14.5% across all of Korea's exports. Accordingly, despite their weak incentives to use the USD for imports from Korea (low share of imports from Korea embodied in each country's exports to third countries, relative to its total imports from Korea), the share of dollar settlement is higher compared to countries with similar levels of foreign exchange liberalisation. Chinese Taipei and Vietnam export highly differentiated products to Korea, but as noted earlier,

both economies have strong incentives to use the USD when exporting to Korea. Finally, Indonesia, India, Brazil, Russia, and Australia all exhibit high shares of raw materials in their exports to Korea, leading to low product differentiation and correspondingly high shares of dollar settlement.

Relative bargaining power between trading partners also affects currency choice in trade in a heterogeneous manner across countries. In this analysis, bargaining power is measured by the share of Korea's (or the partner's) exports in the partner's (or Korea's) total intermediate input and final consumption, i.e., market dominance. The higher this share, the stronger the advantage in currency negotiations. However, as discussed earlier, even if a firm has strong market dominance in another country, if the partner has low foreign exchange liberalisation, high incentives for dollar settlement due to imports required for exports, or a large share of raw materials, dollar settlement may still be preferred. By contrast, for global corporations with strong bargaining power, dollar settlement may be less attractive if risk management is facilitated through multilateral netting, or if transaction costs are lower due to their large foreign exchange trading volume. For example, in Korea's imports from the Euro area, the share of won settlement is relatively high in the automobile sector (Hwang, Kim, Noh, & Kim, 2014). Thus, as the Euro area's market dominance in Korean imports rises, the share of dollar settlement decreases. Furthermore, if a country pursues a policy of expanding the use of its own currency in trade settlement, higher market dominance can also reduce the share of dollar settlement. China provides a representative case: since 2012, the increasing market dominance of Chinese imports in Korea has been accompanied by a steady decline in the share of dollar settlement.

5. Empirical Analysis

First, the 11 economies included in the analysis (Australia, Brazil, China, the European Union including the United Kingdom, Indonesia, India, Japan, Russia, Singapore, Chinese Taipei, and Vietnam) have available data for both the shares of invoicing currencies in exports and imports as well as country-level multi-regional input–output (MRIO). The United States is excluded from the analysis, since although it discloses invoicing currency shares, the USD is its own domestic currency. The dependent variable is the share of USD invoicing in both exports and imports. The main explanatory variables are foreign exchange market liberalisation, the incentives for dollar invoicing arising from GVC participation in exports and imports, the global share of the trading partner's currency in international payments, product differentiation, and the market power of the exporting country's products. Detailed explanations and illustrations of the variables are provided in Table 2. The dataset is constructed as annual observations covering the period 2012–2023, for which both dependent and explanatory variables are available.

Table 2: Description of the Data

Name	Description
Share of USD Invoicing	Share of USD Invoicing in Exports and Imports
FX market Liberalisation Level	Dummy FX market liberalisation level used in the MSCI Global Market Accessibility Review. In the actual Market Accessibility Review, the classifications are 'Improvements Needed,' 'No Major Issues but Some Improvements Needed,' and 'No Issues.' In this analysis, however, we recode these into dummy variables to represent FX market accessibility as: Level 1 = Improvements Needed, Level 2 = Some Improvements Needed, and Level 3 = No Issues.
Importers' Dollar Demand	The share of a country's imports from a trading partner that are used as inputs to produce goods for re-export to third countries, relative to its total imports from trading partner. A higher value means the importing country relies more on the USD for settlements, since imported goods are processed and then sold abroad
Exporters' Dollar Demand	The share of a country's exports to a trading partner that reflect the value of imported inputs required to produce those exports, relative to its total exports to that partner. A higher value indicates that the exporting country is more likely to use the USD, as it depends on imported materials from multiple countries.
Market Power	The share of exports in the partner's total intermediate input and final consumption by MRIO
Product Differentiation	The share of Differentiated goods in Exports and Imports by Rauch Index
Global Share of Currency	The average share of currency of Korea's trading partner in global settlement by SWIFT data

5.1 Analysis Results

Based on the Hausman specification test, which yields a statistically significant result ($p = 0.03$), the fixed-effects estimator is adopted as the preferred specification. Nonetheless, given that several variables—most notably the FX market liberalisation level (hereafter, FX Level) and dollar demand measures of importers and exporters—exhibit only limited within-country variation over time, we also report results from specifications without country fixed effects. For these slow-moving variables, the fixed-effects transformation removes much of the cross-country variation that is theoretically relevant for explaining currency-invoicing patterns. Presenting both specifications, therefore, allows us to assess the robustness of the findings and to retain economically meaningful between-country differences.

Across specifications, the main empirical patterns remain broadly consistent with the mechanisms discussed in earlier sections of the paper. First, the FX Level is statistically significant for both models, indicating that higher FX Level —moving from 1 to 2 or 3— is associated with a lower share of dollar invoicing. Second, the incentives for dollar settlement arising from GVC participation continue to play an economically significant role. However, once country fixed effects are introduced, exporters' dollar demand loses statistical significance due to limited within-country variation. Third, market power and product differentiation remain statistically significant in both models: as market power increases and as product differentiation increases, the share of dollar invoicing declines.

Table 3: Baseline Analysis

	Coef(Robust Standard Errors)	
	(1)	(2)
FX market Liberalisation Level	**-0.10***(0.01)**	**-0.02**(0.01)**
Importers' Dollar Demand	**0.45***(0.05)**	**0.10**(0.05)**
Exporters' Dollar Demand	**0.24***(0.08)**	-0.06(0.06)
Market Power	**-1.31*(0.79)**	**-1.53***(0.42)**
Product Differentiation	**-0.18***(0.04)**	**-0.29***(0.02)**
Global Share of Currency	**-0.81***(0.10)**	0.17(0.67)
Time Fixed Effects	O	O
Country Fixed Effects	X	O
Adjusted R2	0.72	0.95
No. of observations	264	

*Note: ***,** and * denote significance at 1%, 5% and 10% respectively; Figures in parentheses are standard errors.*
Source: Author's estimates.

There is a strong possibility that the determinants of invoicing currency choice differ substantially between countries with high and low FX level. First, in countries with low FX Level (FX Level = 1), the direct transaction costs of non-dollar invoicing tend to be relatively high, which likely makes them less sensitive to indirect transaction cost factors. Second, several BRICS and some ASEAN economies with FX Level = 1 have actively pursued regional currency invoicing as a policy initiative, suggesting that in such countries the global invoicing share of a currency may play a more influential role.

Table 4: Analysis with Interaction Terms

	Coef(Robust Standard Errors)	
	(1)	(2)
FX market Liberalisation Level	**-0.24***(0.03)**	**-0.01*(0.00)**
Importers' Dollar Demand	-0.21(0.14)	**-0.21***(0.10)**
Importers' Dollar Demand * (MSCI)	**0.33***(0.06)**	**0.12***(2.86)**
Exporters' Dollar Demand	**-0.44***(0.17)**	-0.14(0.10)
Exporters' Dollar Demand* (MSCI)	**0.34***(0.08)**	0.02(0.04)
Market Power	**5.19***(1.69)**	**2.89***(0.88)**
Market Power* (MSCI)	**-3.62***(1.03)**	**-2.46***(0.48)**
Product Differentiation	**0.04(0.08)**	**-0.18***(0.05)**
Product Differentiation* (MSCI)	**-0.13***(0.04)**	**-0.08***(0.03)**
Global Share of Currency	-3.32(2.55)	**-3.13***(1.43)**
Global Share of Currency* (MSCI)	0.97(0.85)	**1.14***(0.50)**
Time Fixed Effects	O	O
Country Fixed Effects	X	O
Adjusted R2	0.77	0.96
No. of observations	264	

*Note: ***,** and * denote significance at 1%, 5% and 10% respectively; Figures in parentheses are standard errors.*

Source: Author's estimates.

The regression results in Table 4 provide empirical support for the hypothesis that the determinants of invoicing-currency choice differ substantially between countries with high and low FX Level. For countries with the FX Level above 1, a reduction in either importers or exporters' dollar demand is associated with a significant decline in the share of dollar invoicing. However, in countries with the FX Level = 1, the interaction terms largely offset main coefficients, rendering the marginal effects statistically insignificant. This pattern indicates that only in liberalised FX environments, the role of dollar-demand incentives arising from GVC participation becomes meaningful. When country fixed effects are included, due to the limited within-country variation in exporters' dollar demand, its coefficient becomes statistically insignificant. But importers' dollar demand remains significant only in countries with high FX Level, where the MSCI interaction term offset the main coefficients in countries with low FX Level.

Similarly, the interaction between market power and MSCI is negative and significant, offsetting the main coefficients, implying that only in highly liberalised FX environments, a country's relative bargaining position reduces the use of the dollar. Product differentiation exhibits a stronger dampening effect on dollar invoicing in countries with high FX level, as reflected in the significant negative interaction term. Taken together, these findings suggest that with liberalised FX markets, firms respond more strongly to both indirect cost channels and structural industry characteristics when choosing their settlement currency, consistent with the view that high direct transaction costs in low-convertibility currencies overshadow the influence of indirect costs.

By contrast, the global invoicing share of the partner's currency becomes more important in country with low FX Level: while insignificant or weakly related to invoicing choice in country with high FX Level. This pattern aligns with the policy context in several BRICS and ASEAN economies, where active initiatives to expand regional-currency invoicing may amplify the role of global currency shares in shaping firms' invoicing decisions. Overall, the interaction results confirm that the economic mechanisms behind invoicing-currency choice are markedly heterogeneous across levels of FX market liberalisation: micro-level incentives dominate in country with high FX Level, while macro-level currency dominance and policy factors exert relatively greater influence in country with low FX Level.

6. Conclusion

This study empirically analyses the reasons why the share of USD settlements in Korea's trade with major partner countries remains persistently high. In particular, the study examines firms' incentives to settle in USDs from the perspective of the costs incurred by exporters and importers when conducting foreign-currency transactions. When FX market liberalisation is limited, restricted market access raise banks' risk-management costs, which are ultimately passed on to firms. For firms deeply embedded in global value chains—importing third-country inputs to produce exports, or exporting intermediates that are subsequently embodied in other countries' exports—using regional currencies in a dollar-dominated environment can require additional FX transactions, creating indirect costs through extra trading legs and heightened exchange-rate risk.

Consistent with the model estimates, a higher degree of FX market liberalisation is associated with a lower share of dollar-denominated trade settlements. Likewise, the stronger the GVC linkages—measured by the share of third-country inputs embodied in exports to a partner or the share of intermediates exported to a partner that are then embodied in that partner's exports to third countries—the greater the incentive to settle in USDs. In line with prior studies, the degree of product differentiation, market power and the trading partner's currency share in global payments also affect the choice of invoicing currency. These findings imply that the prevalence of dollar settlements

in Korea's trade is not merely a matter of convention, but rather reflects economic incentives embedded in institutional constraints, GVC participation structures, and the composition of traded goods and commodities.

In other words, as long as FX market liberalisation in Korea and other Asian emerging economies remains limited, the direct and indirect costs of using regional currencies will maintain the USD's prominent position. Low FX convertibility discourages firms from settling in regional currencies; the resulting extensive use of the dollar by counterparties, in turn, creates strong incentives to rely on dollar invoicing on both the export and import sides. By using the USD as a vehicle currency, firms can reduce exchange-rate risk and minimise transaction costs by recycling dollar export receipts to finance imports. Moreover, because most raw materials are internationally invoiced in USDs, the likelihood that counterparties will transact in dollars is inherently high, which raises the indirect costs of using local currencies. Consequently, despite recent de-dollarisation initiatives and debates over the geopolitical use of the dollar, its widespread use is unlikely to diminish in the short-term given the underlying economic incentives tied to its role as a vehicle currency.

As discussed earlier, improving FX market liberalisation hinges on strengthening the underlying components of the FX Market Liberalisation Level—namely (i) the existence of a liquid offshore spot settlement market, (ii) the degree of currency convertibility, and (iii) the accessibility of foreign-exchange transactions. Enhancing the FX Level, therefore, requires easing regulatory restrictions on foreign investors' dollar inflows and outflows, while also relaxing controls on residents' foreign-exchange transactions, so as to facilitate deeper liquidity in offshore spot markets. But, given potential settlement-system fragilities, this transition should be carefully sequenced and supported by robust legal, prudential, and operational safeguards to preserve the integrity of payment, clearing, and settlement systems.

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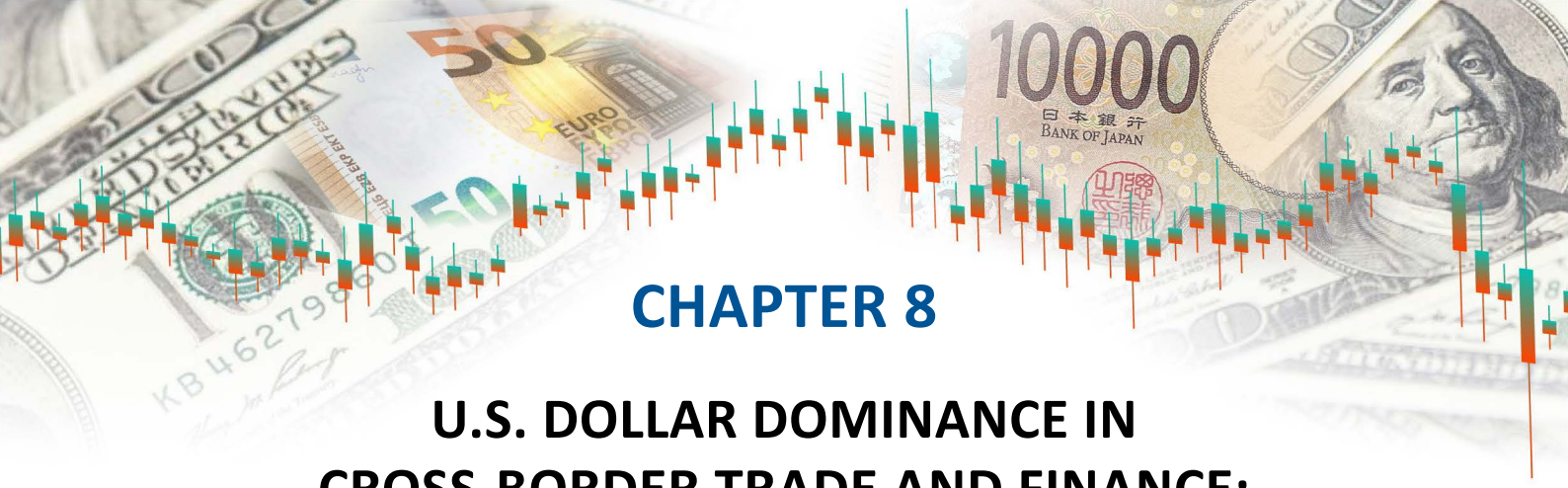

CHAPTER 8

U.S. DOLLAR DOMINANCE IN CROSS-BORDER TRADE AND FINANCE: RISKS AND MITIGATION EFFORTS FOR THE PHILIPPINES

Joan Christine S. Allon-Pineda, Ivan Cenon V. Bernardo, Earl D. Dorado and **Jose Adlai M. Tancangco**[1,2]

1. Introduction

The United States Dollar (USD) plays a significant role in international trade and financial markets. In 2022, about half of the world's invoiced trade and around 90% of financial market transactions are denominated in USD (Maronoti, 2022). In the Asia Pacific, 77% of the region's imports are invoiced in USD even though the United States (U.S.) accounts for only around 9% of the region's merchandise imports. Moreover, the share of USD invoices for exports are even larger at 84%, in contrast to the share of the U.S. in merchandise exports which is much smaller at 7% (Mercado et al., 2022). Furthermore, almost 85% of currency trading in Association of Southeast Asian Nations Plus Three (ASEAN+3) involves the USD and around 68% of official reserves held by Asia-Pacific central banks are allocated to dollar-denominated assets (Cheng and Pande, 2024).

Given the structure of global trade and finance, the dominance of the USD means that U.S.-related policies and events, as transmitted through exchange rates, are expected to introduce significant volatility to the economic and financial conditions of a country. Over the years, U.S. economic policy uncertainty has closely tracked global policy uncertainty (Figure 1), suggesting that the U.S. is a major source of global

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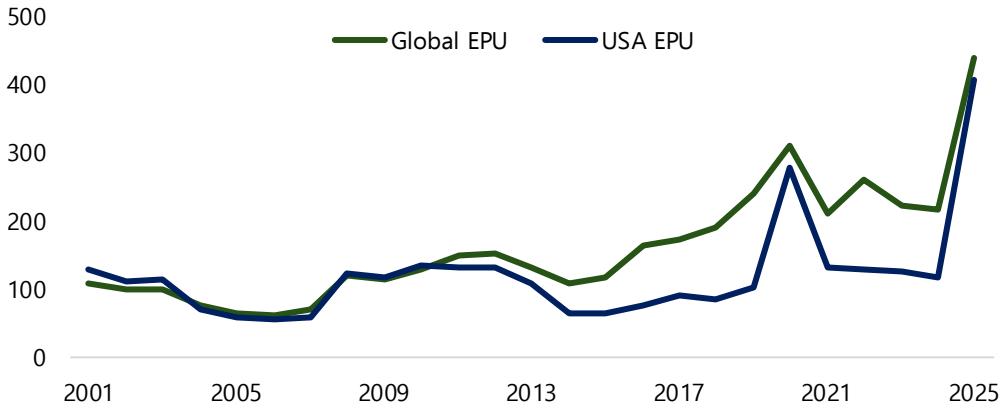
uncertainty and volatility.[3] Asian economies, including the Philippines, are particularly vulnerable to global and U.S.-sourced uncertainties transmitted through the currency given the prominent role of the USD in trade invoicing, currency trading and reserves composition. Specifically, these economies are exposed to risks from USD funding stress and spillover effects, as the USD serves as a key channel through which global shocks are propagated (Cheng and Pande, 2024).

Figure 1: Economic Policy Uncertainty



Source of basic data: Caldara et al. (2025); Baker, Bloom, and Davis (2025); Davis, Lui, and Sheng (2025).

This chapter examines the issue of the wide use of the USD in the context of the Philippines focusing on its role in trade invoicing, foreign exchange (FX) intermediation, offshore funding and international reserve accumulation. The chapter also discusses the consequences of dollar dominance, including heightened exchange rate volatility, increased liquidity risks, the potential for geopolitical use of currencies, and the amplification of financial shock transmission. A network analysis of foreign exchange markets indicates that exchange rate volatility is predominantly transmitted from the USD, with regional hubs serving as additional transmission channels that amplify shocks within regional blocs. The chapter concludes with a discussion on local and alternative currency initiatives aimed at mitigating the risk of dollar prominence, such as FX liberalisation measures, the growth in local currency-denominated debt markets which promotes external debt sustainability, the deepening of local capital markets for greater participation in peso-denominated sovereign bonds, Project Nexus which aims to bypass the dollar in cross-border conversions within the region and Chang Mai Initiative Multilateralization which provides a safety net for local and alternative currency-denominated transactions.

3. Economic Policy Uncertainty (EPU) measures the number of major news articles regarding the economy which contain terms regarding uncertainty. Global EPU is computed through the EPU of 18 major economies, while U.S. EPU is computed by taking the number of economic articles that contain terms on uncertainty from the 10 leading newspapers in the U.S. (Baker et al., 2016).

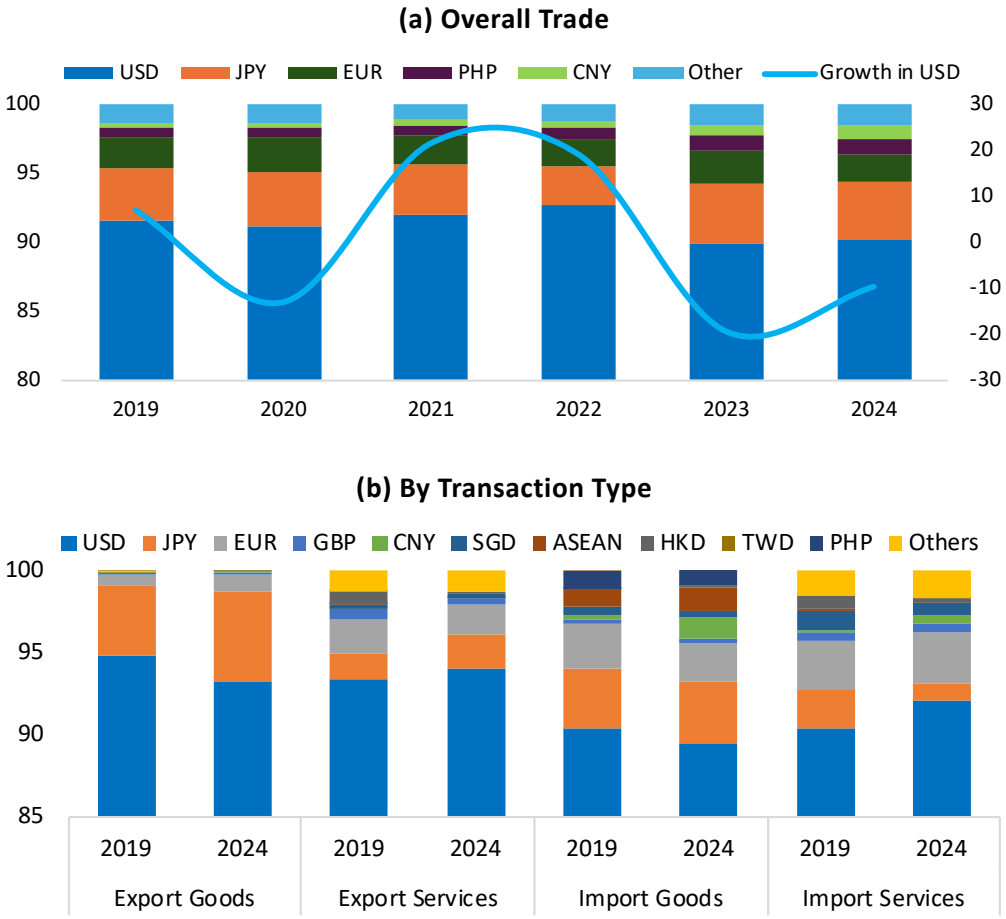
2. Trends in Dollar Dominance

The U.S. dollar (USD) plays a key role in the trade and funding structures of the Philippines and the broader Asian region. USD is the choice currency across multiple dimensions, namely: trade invoicing, FX intermediation, offshore funding and international reserve accumulation (Maronoti, 2022; Ong, 2023). This entrenched position reflects both historical path dependence, the lack of viable alternatives and structural integration of Asian economies into dollar-based global markets (Anderson et al., 2020). Understanding these trends is critical, as the pervasive use of the USD not only shapes cross-border flows and market liquidity but also heightens the region's exposure to U.S. economic policy shifts, global dollar funding conditions, and episodes of financial stress.

2.1 Trade Invoicing

Many international trade transactions, especially in emerging markets, are invoiced in either the USD or the Euro, suggesting a dominant currency pricing (DCP) paradigm (Adler et al., 2020; Goldberg and Tille, 2008, 2016; Gopinath, 2015). Dominant or vehicle currency pricing (VCP) refers to invoicing trade transactions in a third currency rather than in the exporter or importer's own currency. This pricing pattern carries several implications, foremost of which is that exchange rate movements produce a more muted short-term response in the external balance. While a depreciation in the domestic currency typically reduces imports as theory predicts, its effect on exports, particularly commodity exports, is dampened. As such, larger currency adjustments are required to achieve any short-term external rebalancing, especially for countries with excessive trade deficits. These adjustments can have adverse balance sheet effects, fueling inflationary pressures, and prompting tighter macroeconomic policies (Brüggen et al., 2025; Mercado et al., 2022).

Figure 2: Composition and Growth of Trade Invoicing



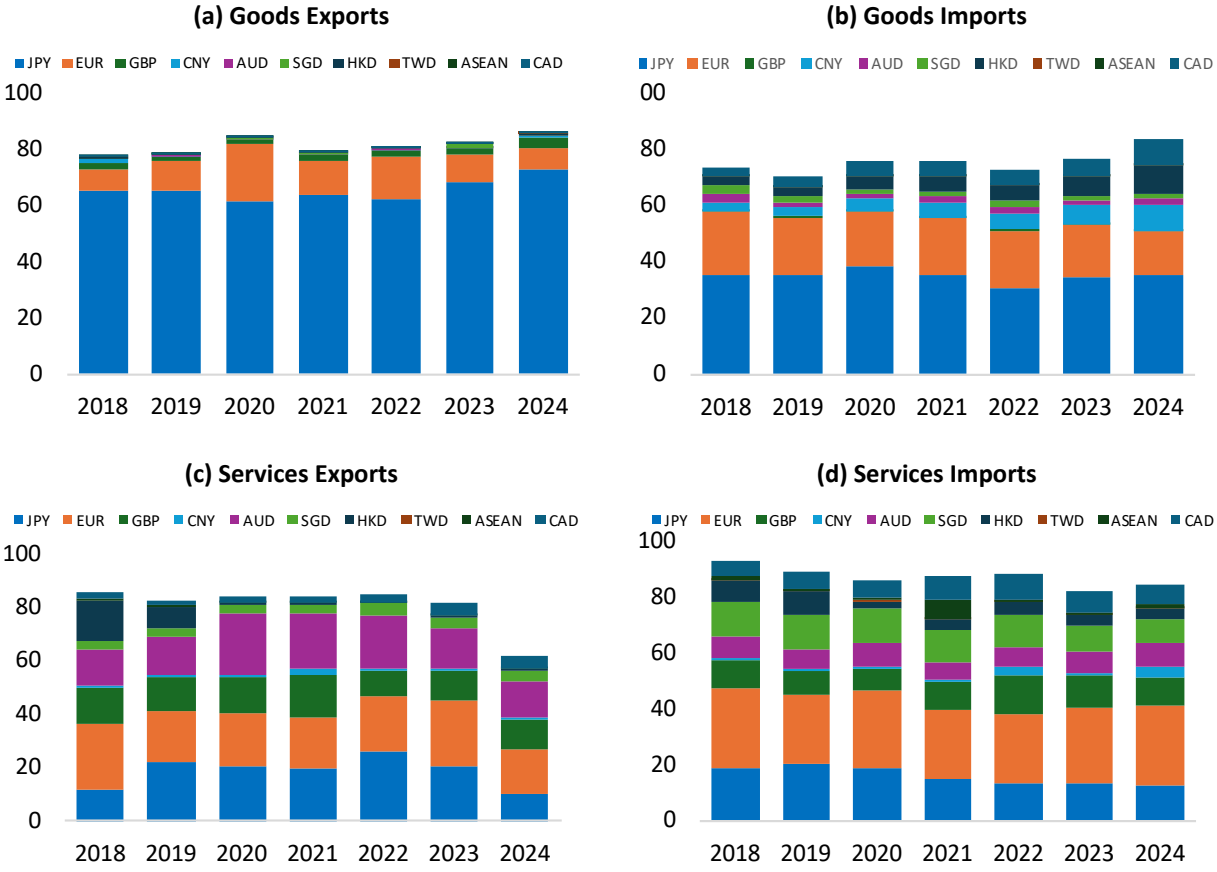
Note: *The blue line in graph (a) is the year-on-year growth of USD invoiced trade. Data points refer to currencies of the United States (USD), Japan (JPY), Euro Area (EUR), the Philippines (PHP), China (CNY), United Kingdom (GBR), Singapore (SGD), Chinese Taipei (TWD); South Korea (KRW), Hong Kong, SAR (HKD) and other ASEAN countries.*

Source: *Bangko Sentral ng Pilipinas.*

In the case of the Philippines, data from the Bangko Sentral ng Pilipinas' (BSP's) Consolidated FX Assets and Liabilities Report indicate a clear presence of dominant currency pricing with USD comprising an average of 91.6% of total trade invoicing from 2018 to 2024 (Figure 2a).[4] The general decline in the trade invoicing share of the USD was halted in 2021 amid an apparent flight to safety during the pandemic but has since resumed. Regional currencies like the Japanese Yen (JPY) and Euro (EUR), rank next but remain small, while the share of the Chinese Renminbi (CNY) has shown sustained growth, reflecting China's continued efforts to promote its currency through swap arrangements.

4. The Consolidated FX Assets and Liabilities compiles the foreign currency–denominated assets and liabilities of the BSP, commercial banks, and offshore banking units. The compilation is based on a survey of reporting banks and reflects only trade transactions coursed through the banking system and thus does not represent total trade.

Figure 3: Producer or Local Currency Invoicing
(in % share on non-USD invoiced trade)



Note: Charts refer to the share non-USD invoiced trade transactions where invoicing currency is the currency of one of the trading partners, either the exporter or the importer. Data points refer to currencies of the United States (USD), Canada (CAD), Australia (AUD), Japan (JPY), Euro Area (EUR), the Philippines (PHP), China (CNY), United Kingdom (GBR), Singapore (SGD), Chinese Taipei (TWD); Republic of Korea (KRW), Hong Kong, SAR (HKD) and other ASEAN countries.

Source: Bangko Sentral ng Pilipinas.

Dominant currency pricing remains evident across trade types, consistent with the stability of the share of dollar invoicing observed by Adler et al. (2020). However, the use of other major currencies (i.e., EUR and JPY) appears to have increased especially in goods trade, signaling a growing preference for Producer or Local Currency Pricing (PCP or LCP), where either the exporter or the importer's local currency is used as the invoicing currency (Figure 2b). This supports the role of exporter's market share in invoicing decisions, wherein large exporter economies, like Japan or the Euro area can opt to use their home currencies as the trade invoicing currency to mitigate movements in relative prices (Bacchetta and Van Wincoop, 2005; Goldberg and Tille, 2008, 2016). Meanwhile, trade in services show an opposite trend with a growing share of USD invoicing, consistent with a general redistribution of global patterns. Some degree of local currency pricing in the Philippine Peso (PHP) could also be observed, with its share noticeably increasing in 2022, mostly owing to goods import from regional peers such as Vietnam, China, Indonesia, and Thailand.

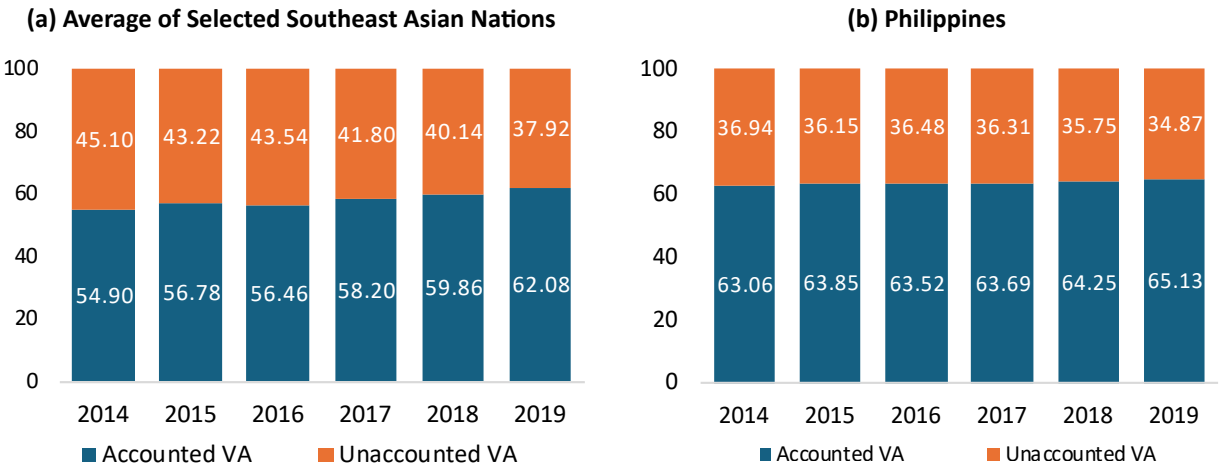
Trade transactions using PCP and LCP have increased over the years, averaging 81.3% of non-USD invoiced trades. This is particularly evident for goods trade (Figure 3a and 3b) where major trading partners like JPY and EUR dominate non-USD invoicing. Meanwhile, the growing use of CNY in goods imports from China mirrors the broader increase in China's share of Philippine imports, from 19.6% in 2018 to 25.6% in 2024. In contrast, trade in services shows a different currency choice pattern (Figures 3c and 3d). There is less reliance on PCP or LCP over time, but a broader use of home or trading partner currency across various countries compared to goods trade. This is consistent with Adler et al. (2020), which highlights the challenges of employing PCP or LCP, including the use of domestic inputs, barriers to entry, and the burden of geographic proximity.

The abovementioned currency pricing patterns can be linked to the Philippines' integration in global value chains (GVCs) as a contributor to broader manufacturing and services in the international market. When trade units are intermediate inputs, the PCP is often used to invoice exports intended for larger economies such as the U.S., Japan and the Euro area. Meanwhile, import-reliant countries are incentivised to invoice their products in the currency of their imported inputs (H. Ito and Kawai, 2016; Novy, 2006). In the case of Asia-Pacific countries, firms frequently use the USD for their export transactions since the final destination of many commodities is expected to be the U.S. market (Mercado et al., 2022).

The domestic value added (VA) to foreign final demand (Figure 4) captures the direct and indirect contribution of a country towards the consumers of another. Selected ASEAN countries, including the Philippines, have embedded contributions to the final demand of a U.S. consumer of about 64% of total final product exports and are such, expected to invoice in USD (Mercado et al., 2022). A 2025 survey of banks engaged in trade financing in the Philippines also finds that while the USD remains a widely used invoicing currency, notable use of non-USD currencies—particularly the EUR, JPY and CNY is evident for specific commodities and trading partners.[5] The EUR is commonly used in machinery, pharmaceuticals, and trade with Europe; the JPY in heavy equipment and agricultural products with Japan; and the CNY in spare parts, electronics, and chemicals with China.

5. The survey focused on currencies utilised in trade invoicing and was conducted by the BSP from 2 to 14 May 2025 via email consultation. It covered 30 respondent banks, all of which were universal and commercial banks. More details on survey questions can be found in Annex 1.

Figure 4: Decomposition of Domestic Value Added to Foreign Final Demand
(in % share to the United States)



Note: Selected Nations include Indonesia, Malaysia, the Philippines, and Thailand. Accounted VA (blue) refers to gross exports of final products, while unaccounted VA (orange) refers to intermediate products and items not elsewhere classified (nec).

Source of basic data: OECD Trade in Value Added.

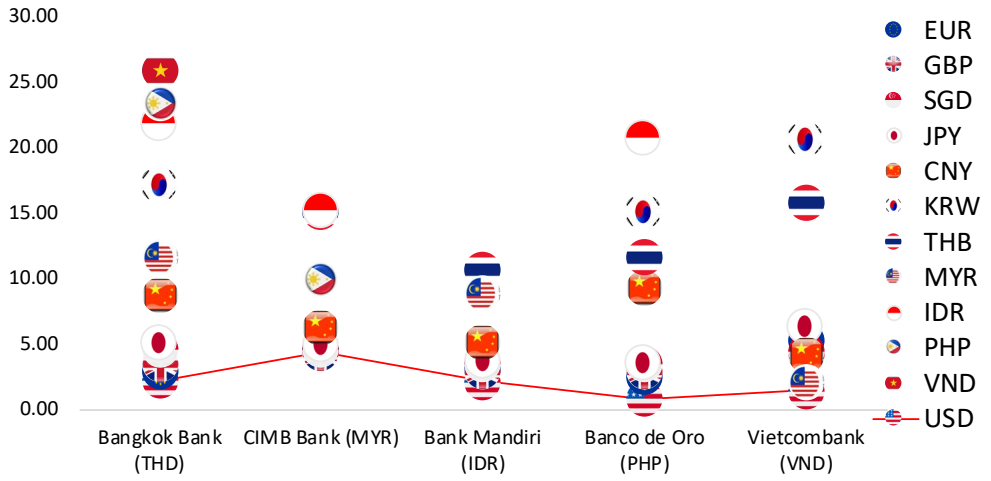
The presence of multinational enterprises (MNEs) has also reinforced the usage of DCP, following the location of the headquarters and the invoicing strategy of its competitor (Amiti et al., 2022; Goldberg and Tille, 2016; T. Ito et al., 2010). The foreign MNE often uses the currency of its parent company, which for example, may explain the use of JPY invoicing for exports to destinations other than Japan. The 2025 BSP survey further notes that large corporates, multinational enterprises, and, in some cases, middle-market firms—especially those with complex international trade operations or long-standing supplier relationships in Europe, China, and Japan—are more inclined to invoice in non-USD currencies. Such entities are typically found in industries including electronics, chemicals, food, fast-moving consumer goods, manufacturing, wholesale trading, renewable energy, construction, and consumer goods. Japanese and EU-based corporates, as well as clients sourcing from Chinese original equipment manufacturers, were likewise observed to use local or regional currencies such as the JPY, EUR, and CNY.

2.2 Vehicle Currency

The USD is a single national currency that has assumed the pivotal role of international money, which is a "vehicle currency". This currency fulfills the functions typically associated with domestic currencies but on a global scale (Krugman, 1980) such that non-U.S. currency pairs are exchanged via USD instead of directly. Multiple interrelated factors influence the wide use of the USD as vehicle currency, including, transaction costs and liquidity in FX markets (Goldberg and Tille, 2008). These factors make it more efficient for traders and institutions to use the USD as an intermediary in currency exchanges, even when the dollar is not directly involved in the underlying trade. Unlike the dollar, most direct currency exchange market, especially those from emerging economies like the Philippines, are costly and shallow with limited to non-existent transactions or liquidity.

FX buy and sell spreads are generally smallest for the USD relative to other currencies. Figure 5 shows the bid-ask spread for cash rates in various currencies for major banks in Thailand, Indonesia, Malaysia, Philippines and Vietnam. USD has a gap that is consistently below 5% for all representative banks. While major currencies like the EUR, JPY, CNY, British Pound (GBP) and Singapore Dollar (SGD) closely trail the USD, ASEAN currencies exhibit significantly larger spreads, typically exceeding 10%. One reason for the wide spreads seen in many non-major currencies vis-à-vis local currencies is that there is no direct currency exchange market between the former and the latter, hence the need to trade through the USD. This implies that converting PHP to Thailand Baht (THB) typically involves an intermediary step, where the bank first exchanges PHP for USD, and then converts those USD into THB. The outcome is that the gap between buying and selling rates for the PHP and THB is more than 10 times than that of PHP and USD. Moreover, the lack of a direct currency exchange market is also reflected in the lack of published foreign exchange rates for other ASEAN currencies even in major banks.

Figure 5: Currency Exchange Transaction Costs
(in %, 15/7/2025)



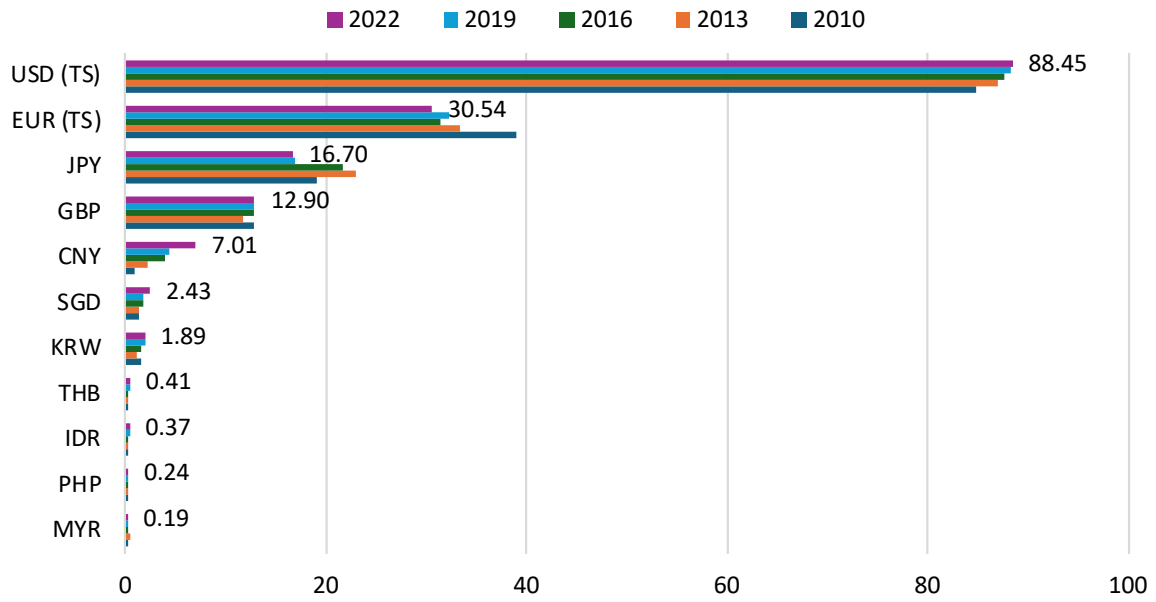
*Note: The flag markers reflect the gap of the buy and sell rates published by select banks. These are mostly cash rates, but telegraphic is used if not available. The gap is computed as (S-B)/B*100.*

Source: Bank websites and author's calculations.

Strengthening bilateral relations could potentially improve cross-currency exchange rates. In Malaysia's case, Figure 5 also shows that the smallest gap is observed with the GBP, followed closely by the USD. This reflects a strong underlying economic relationship between Malaysia and the United Kingdom, underpinned by both historical ties and sustained commercial engagement. In turn, sharing a common border does not necessarily lead to low bid-ask spreads for cash rates. For example, Malaysia and Singapore are contiguous, yet the SGD has the widest spread among the currencies analysed. In fact, its spread is larger than that of other ASEAN countries with no shared border with Malaysia, such as the Philippines. This suggests that geographic proximity does not guarantee a direct currency exchange market, and again points to other factors, such as historical and geopolitical relationships, playing a significant role in determining bid-ask spreads.

In terms of liquidity, the USD remains the single most-traded currency in the FX market. Figure 6 shows the size and structure of over-the-counter (OTC) FX markets for major economies and ASEAN. The USD benefits from the deepest and most liquid financial markets globally, with consistently high and dominant FX turnover volumes that far exceed those of any other currency over time. Economic influence appears to remain a key characteristic in determining FX transactions, given the observed persistence at the global and regional levels of transactions denominated in EUR, JPY, and GBP.

Figure 6: ASEAN+3: Over-the-Counter Foreign Exchange Market Turnover by Currency
(in % of global turnover)



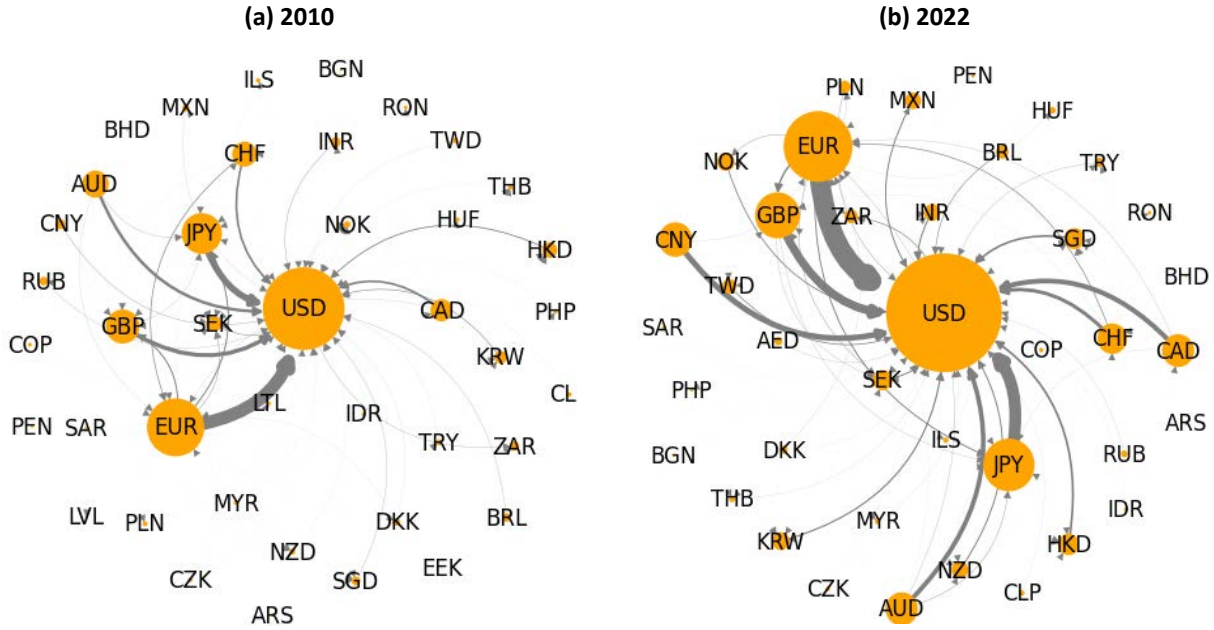
Note: Turnover is defined as the gross value of all new deals entered into during a given period and is measured by the nominal or notional amount of the contracts. Because two currencies are involved in each transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%. The figure uses the daily average of reported turnover in April, adjusted for local and cross-border inter-dealer double-counting ("net-net" basis). TS=top side.

Source: Bank for International Settlements.

Despite the continued rise of the dollar over the years, Figure 6 also shows that the utilisation of ASEAN+3 local currencies in diverse cross-border transactions has also been steadily increasing. The volume of transactions has shifted over the past decade from major currencies like the JPY and EUR to other regional units, including CNY, SGD, and Korean Won (KRW). Specifically, CNY-denominated FX trade is expected to continue its observed upward trajectory given the country's efforts towards bilateral swap arrangements (Ong, 2023). Meanwhile, Singapore's global prominence as a consolidator and FX trading hub reveals that the presence of financial centres has helped drive the shift towards non-traditional currencies. This shows that, apart from economic dominance, an economy's extensive involvement in financial intermediation can leverage on network effects and encourage the use of its currency for international transactions.

The dominant role of the USD in global transactions is underpinned by self-reinforcing dynamics that strengthen its centrality over time. As shown in Figure 7, OTC FX market turnover by currency and currency pairs consistently places the USD at the core of global trading activity. This dominance has held for more than a decade, with the USD becoming even more prominent and interconnected between 2010 and 2022. Significant amounts of international transactions denominated in USD drives higher demand for the currency, granting the USD an exceptional advantage from lower borrowing costs (Ong, 2023). This persistent structural demand for the USD also results in liquidity conditions unmatched by any other currency.

Figure 7: Global Over-the-Counter Foreign Exchange Market Turnover by Currency and Currency Pair
(in % of total)



Note: Node size represents an individual currency's total turnover; edge thickness represents the turnover for the currency pair. Because two currencies are involved in each transaction. Edges for turnover amounts below a billion are no longer reflected.
Source: BIS and author's calculations.

The long-standing prominence of the USD in cross-border payments, however, crowds out essential market interest and investment in local currency infrastructure. This structural bias toward the dollar reinforces its global liquidity advantage while undermining the demand conditions necessary for the development of deeper local currency markets. Inefficiencies in price discovery—stemming from shallow and illiquid local cross-currency markets—also exacerbate currency and liquidity risks for market participants. Effectively addressing these challenges calls for proactive and well-coordinated policy action; without which, the entrenched dominance of the USD over local currencies is likely to persist. As a result of this two-way feedback loop, the USD has become entrenched as the preferred global vehicle currency, even when other economies possess comparable fundamentals (Gopinath and Stein, 2021).

2.3 Offshore Funding

Financial flows are similarly dominated by the USD, specifically in offshore funding markets where financial market participants invest, raise debt or obtain loans in foreign currency. Figure 8 shows that at least 70% of all Philippine international debt securities and cross-border banking flows issued in these offshore funding markets are denominated in USD. As of end-2024, the amount of Philippine funding denominated in USD where neither the issuer/borrower nor the lender is a PH resident is estimated to be at 74% of debt, 86% bank claims and 79% of bank liabilities. This is despite the more diversified set of origin countries for these funding instruments, with the U.S. accounting for only 2% of debt, 20% of claims and 37% of liabilities. Although USD dominance in financial flows is less pronounced than in trade settlement, its prevalence in Philippine offshore financial transactions remains notable—above both the international[6] and ASEAN+3[7] averages (Cheng and Pande, 2024; H. Ito and Kawai, 2021; Maronoti, 2022). However, a stronger USD dominance is observed in financial investments, with most investment types showing USD shares exceeding 90% of transactions. This is despite the fact that in 2024, the U.S. accounted for at most 35% of direct investments owing to disposition of financial assets and as little as 2% of direct investments owing to equity placements. Foreign direct investments through intercompany loans are an exception, however, with the USD share at around 70% for both inward and outward transactions and JPY accounting for most of the remainder. This may reflect the strong presence of Japanese multinationals in the Philippines, which have likely increased financing to their local subsidiaries through JPY-denominated loans that are relatively cheaper and more stable than a USD alternative.

The composition of financial flows by origin country tends to reflect underlying economic structures and historical ties. For external debt, Japan is the Philippines' largest creditor, reflecting its long-standing position as the country's largest official development assistance partner, particularly through the Japan International Cooperation Agency (JICA). Many large-scale infrastructure projects—such as railways, flood control systems, and transport networks—are financed by long-term, low-interest yen-denominated loans.[8] In contrast, other ASEAN nations are the primary source of cross-border bank flows, reflecting decades of regional financial cooperation. Initiatives such as the ASEAN Banking Integration Framework (ABIF) and the ASEAN Capital Markets

6. As of Q2 2022, the amount of global debt and loans denominated in USD where neither the issuer/borrower nor the lender is a U.S. resident is estimated to be 88% of total international USD-denominated debt and 65% of total international USD bank loans.

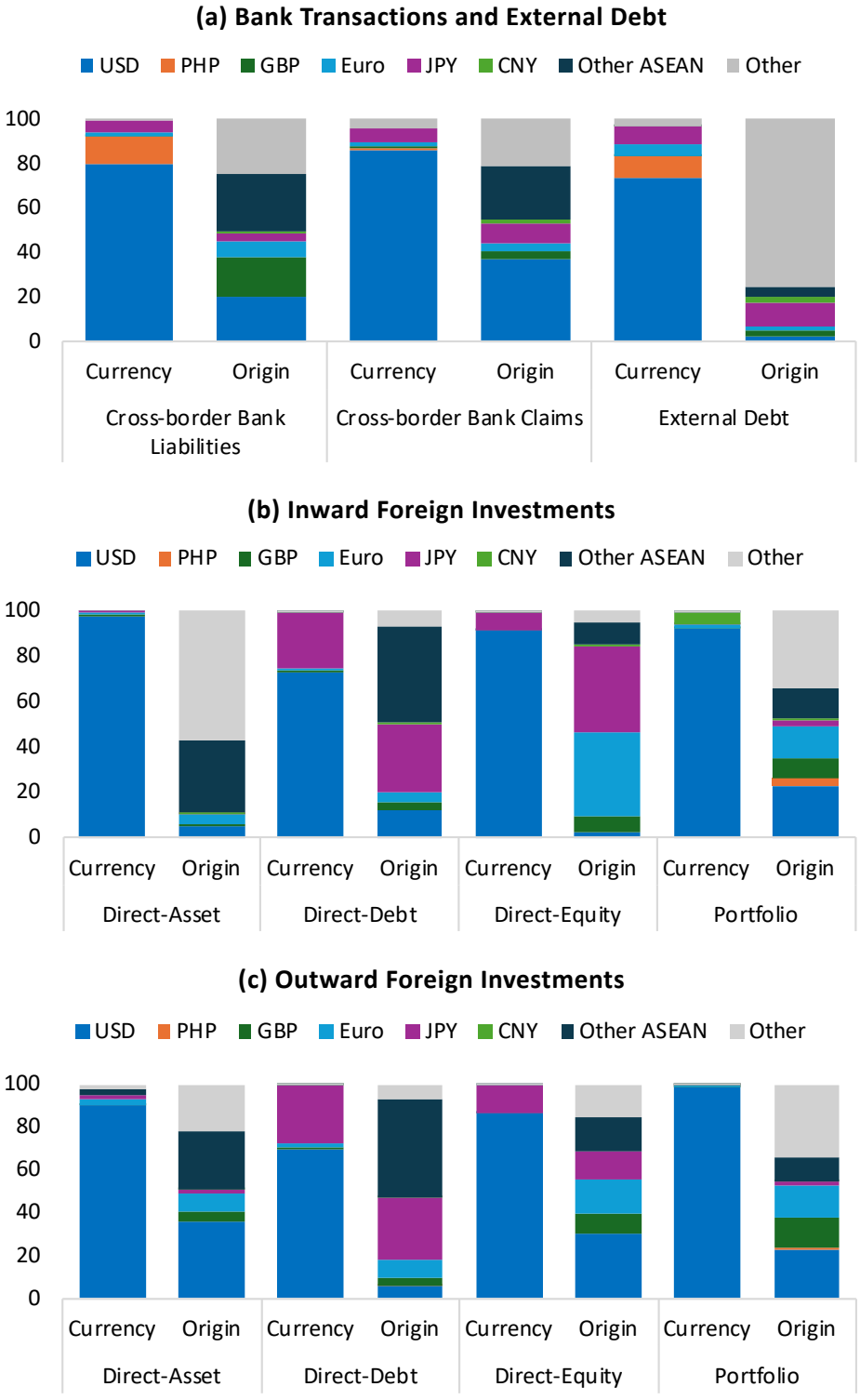
7. For ASEAN+3, more than half of banks' cross-border assets and liabilities and 75% of external debt are dollar-denominated.

8. Department of Finance. 2021. Japan Is Top PHL Bilateral ODA Partner in 3 Administrations. August 10. Accessed August 5, 2025. *https://www.dof.gov.ph/japan-is-top-phl-bilateral-oda-partner-in-3-administrations/*

Forum (ACMF) have supported the expansion of regional banks, many of which now maintain a strong presence in the Philippine financial system. Specifically, the 2014 foreign bank entry liberalisation in the Philippines attracted 10 new foreign commercial banks, bringing the number of foreign universal and commercial banks (UKBs) to 26—surpassing the approximately 20 locally owned UKBs as of end-2024 (Parcon-Santos et al., 2021). Notably, cross-border financial liabilities are more often settled in local currency compared to financial assets—that is, 12% versus 1%. This is intuitive, as liabilities typically represent inward investment into the domestic economy—where local currency is more acceptable or even preferred—whereas financial assets reflect outward investments, which are often denominated in foreign currency.

The Philippines, like many ASEAN economies, continues to rely on the USD as the primary vehicle for international financial intermediation. Nonetheless, diversification efforts have led to a gradual shift away from the dollar (Figure 9) toward greater use of regional and local currencies. For instance, the share of cross-border claims denominated in JPY increased from 3% in 2016 to 6% in 2024. In addition, the share of local currency loans in the Philippines is now on par with the Asian average of 13% and significantly higher than the 4% observed in other regions (H. Ito and Xu, 2021). Moreover, FDI-related debt saw an increase in JPY-denominated transactions in 2024, with preliminary data for 2025 suggesting a continuing upward trend. This reflects the strong domestic presence of Japanese multinationals with a preference to fund local subsidiaries using cheaper and more stable JPY-denominated loans, rather than the volatile and more expensive USD alternative. Further strengthening regional or local currency funding markets is essential—not only to broaden financial intermediation channels, but also to enhance demand for regional and domestic currencies and reduce vulnerability to external shocks.

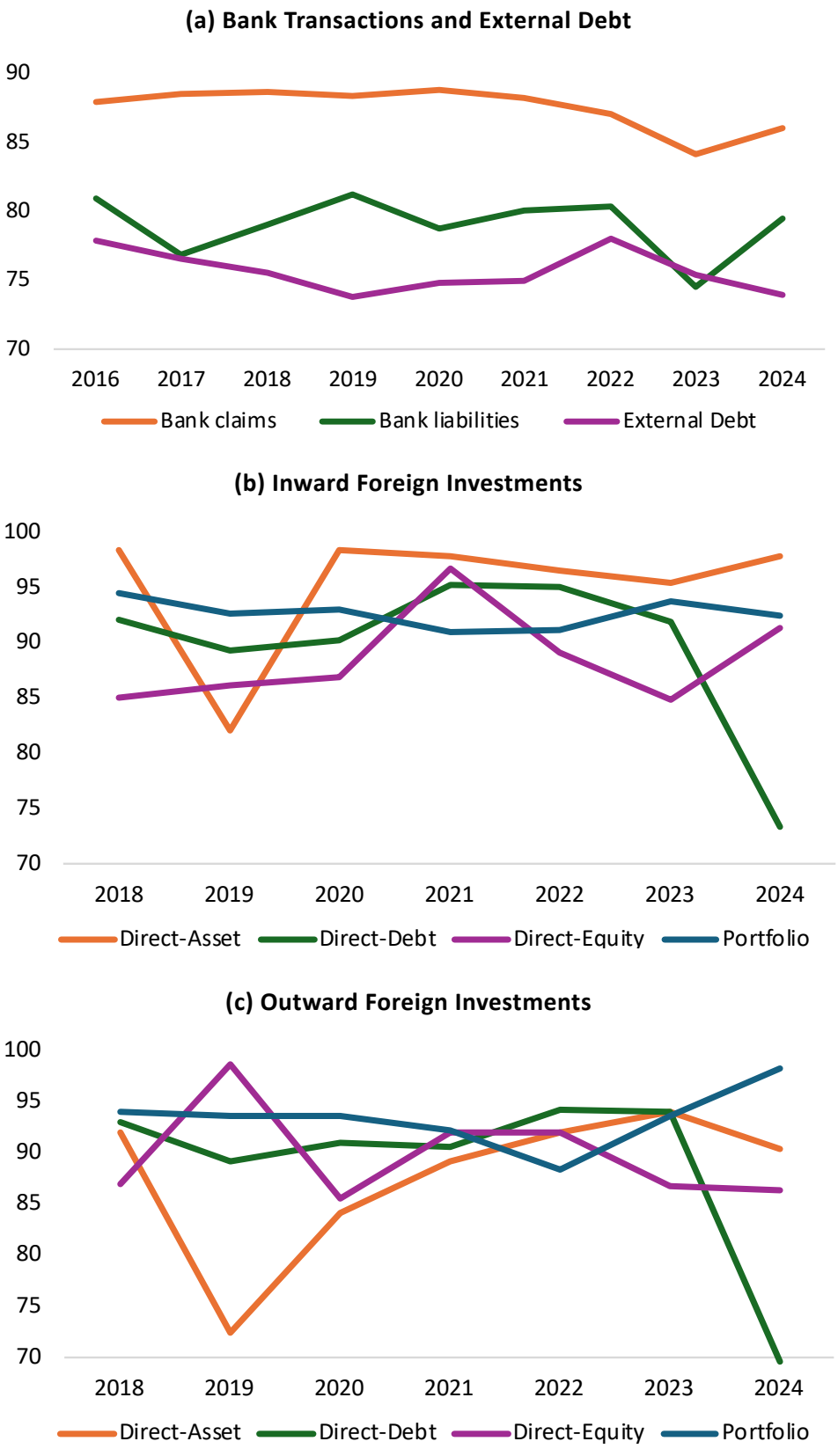
Figure 8: Currency and Origin of Offshore Funding
(in % of total)



Note: *Data for bank transactions and external debt refer to end-2024 values while investment flows refer to total 2024 values. Due to data limitations, external debt by origin country for the Euro area only includes Germany. External debt originating from other entities mainly include multilateral agencies, bond and noteholders. Other investment transactions mainly involve Switzerland and Hong Kong, China.*

Source: *BSP, BIS.*

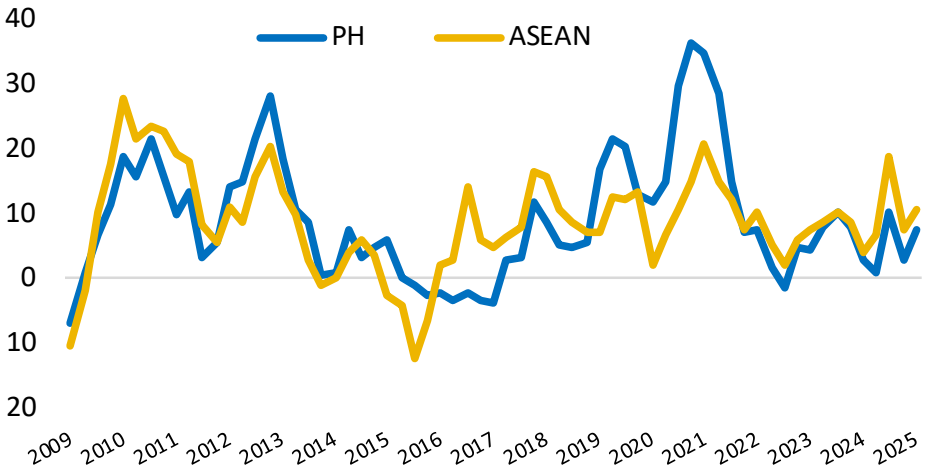
Figure 9: USD Share in Offshore Funding Markets
(in % of total)



Source: BSP, BIS.

Initiatives such as the Asian Bond Market Initiative (ABMI) and Asian Bond Fund (ABF), with support from the Asian Development Bank helped stimulate both demand for and supply of local currency bonds and attract more regional savings for intraregional investments (Sussangkarn, 2019). ASEAN+3 local currency bond markets have grown steadily over time, with the expansion largely driven by a few key economies. The Philippines has generally tracked the ASEAN average (Figure 10), though its growth has been primarily fueled by government bonds. Notably, the Philippine bond market outpaced the regional average during the pandemic period, as the central bank introduced BSP bills, and the government ramped up borrowing to finance the COVID-19 response.

Figure 10: Growth in Local Currency Bonds
(in % year-on-year)

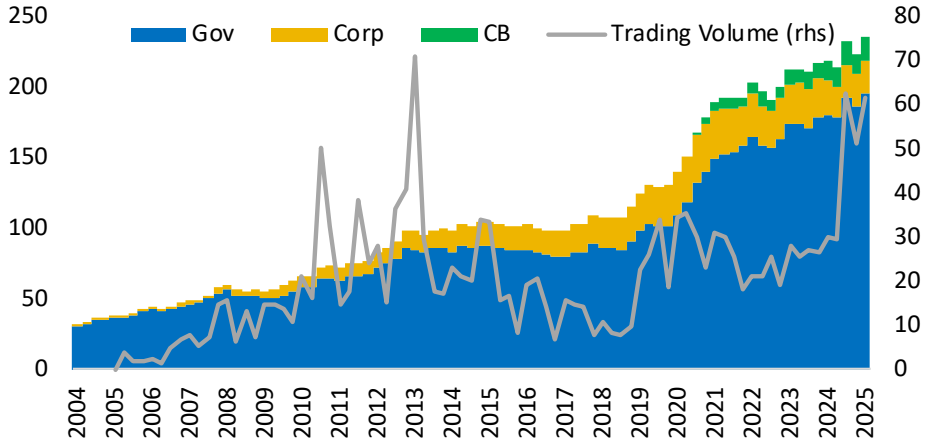


Source: Asian Bonds Online.

The Philippine local currency bond market has expanded over time but plateaued during the pandemic. As of Q1 2025, outstanding bonds reached USD 235.1 billion (Figure 11)—equivalent to 48.8% of gross domestic product (GDP). This growth, however, remains heavily concentrated in government securities, with treasury bonds comprising 83% of the total bond stock. Bond trading volumes similarly stagnated in 2021 and 2022, as central banks globally tightened monetary policy in response to surging inflation (Figure 11). Since 2024, however, market activity has regained momentum which may be attributed to a combination of supportive monetary conditions and market infrastructure reforms. A gradual monetary easing cycle starting in late 2023 helped lower yields and boost investor activity. In parallel, the introduction of the Peso Interest Rate Swap (IRS) market in 2024 enhanced price discovery and contributed to the development of the yield curve, thereby supporting secondary market liquidity.[9] Together, these factors appear to have facilitated more active trading in Philippine government securities compared to regional peers.

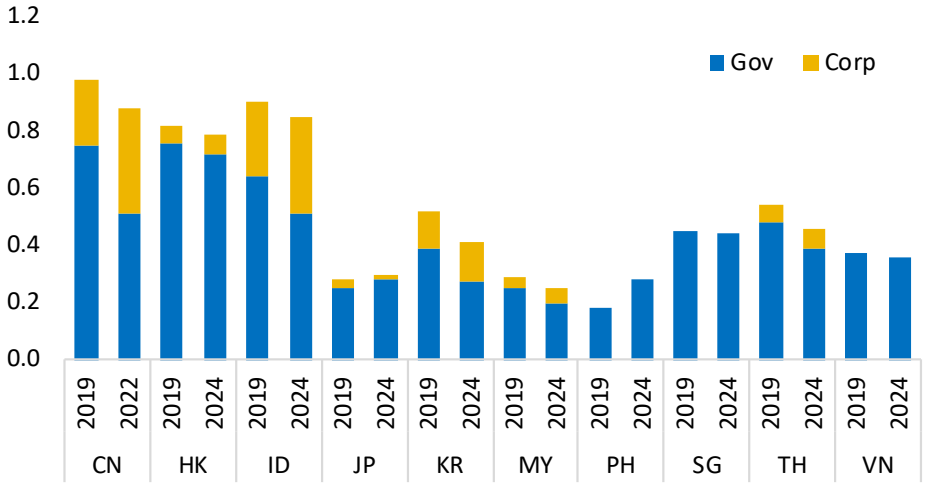
9. See Section 5.3 for more details.

Figure 11: Local Currency Bonds Outstanding and Trading Volume
(in billion USD)



Source: Asian Bonds Online.

Figure 12: **Local Currency Bond Turnover Ratios**



Note: The bond turnover ratio serves as an indicator of bond market liquidity; it measures the level of trading activity that occurs in the secondary market in relation to the average amount of bonds outstanding, which is determined by taking the average value of the bonds outstanding at the beginning and end of the year. Data on corporate bonds for Singapore, Philippines, Vietnam are not available.

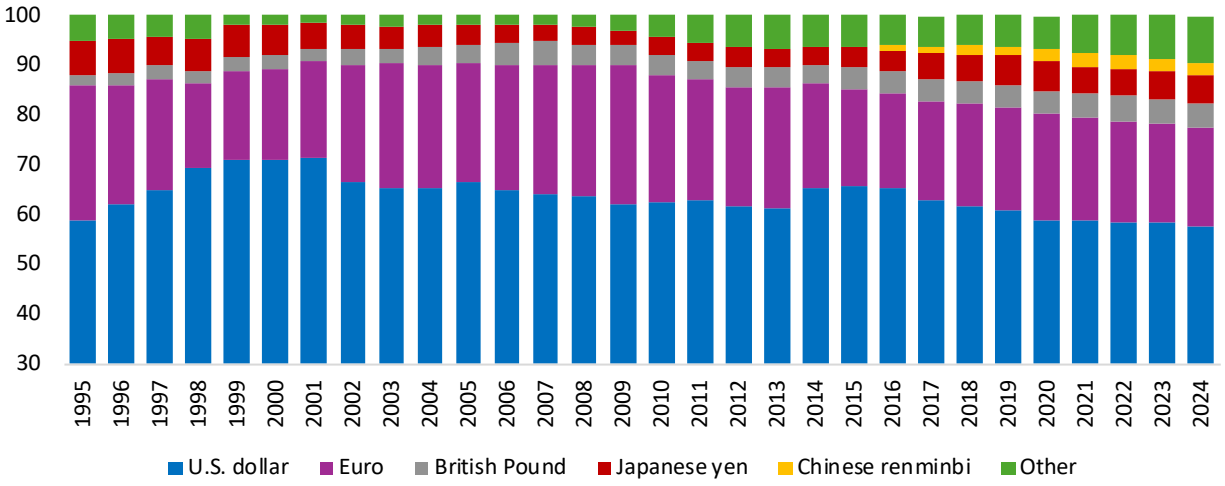
Source: Asian Bonds Online.

Despite the steady expansion of ASEAN+3 local currency bond markets, liquidity remains relatively thin across much of the region and has yet to return to pre-pandemic levels. In 2024, bond turnover ratios—defined as the value of bonds traded relative to the total outstanding stock, with higher ratios signaling deeper market liquidity—remained below their 2019 levels in many economies within the region (Figure 12). Notable exceptions were Japan and the Philippines, where turnover ratios either held steady or improved. In the case of the Philippines, the significant increase in turnover could again be supported by the introduction of the BSP bill, a gradual monetary easing cycle and the launch of the Peso Interest Rate Swap market.

2.4 Safe Haven Asset

The prominence of the USD as an international reserve asset is grounded on its dual role as both a system maker and privilege taker. In this role, the USD fulfills three criteria: economic mass, maturity of the financial market, and ability to hold its value. Mateos Y Lago et al. (2009) also argue that the exorbitant privilege of the USD is not merely inherited but earned, given its enduring influence and centrality to global economic and financial system. Another significant driver of the USD's continued dominance is the network effect, wherein its widespread use creates a powerful inertia in international finance and payments (Chinn et al., 2024). Finally, the Triffin Dilemma postulates that the global demand for dollar stability amplifies the power of U.S. domestic economic and monetary policies, effectively granting the U.S. a pseudo supranational status (Padoa-Schioppa, 2010).

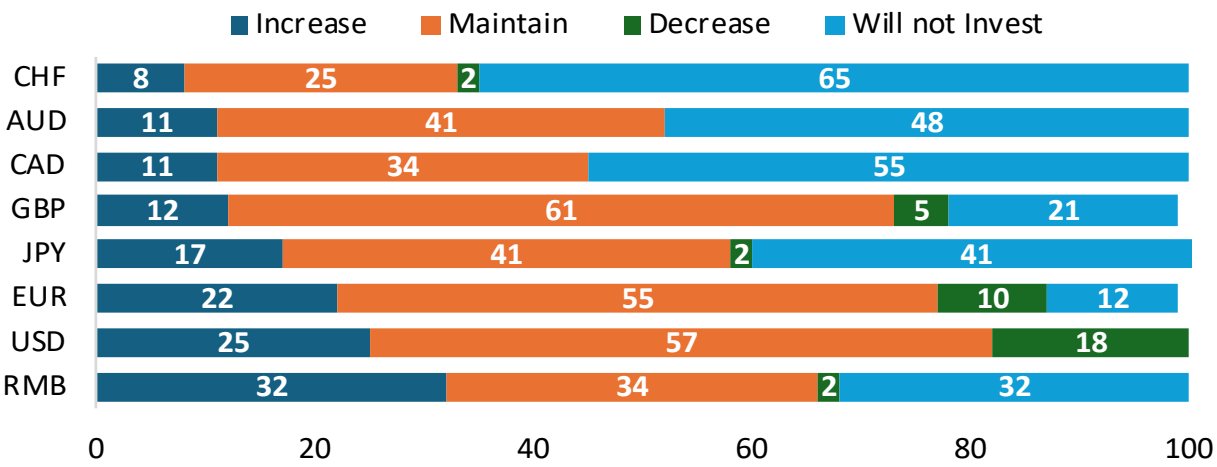
Figure 13: Composition of International Foreign Exchange Reserves



Source of basic data: International Monetary Fund, Composition of Foreign Currency Exchange Reserves.

The dominance of the USD in the international reserve market, however, is not without criticism, and in recent years, many economies have begun diversifying away from holding a majority of their reserve assets in USD. Within just a few decades, the USD is already entering the second phase of a gradual decline in its share of international reserves held by central banks (Chinn et al., 2024). The first instance was in 2001, when the share of the EUR and GBP in global reserves reached a peak of 27.7% and 4.7%, up from 19.2% and 2.7%, respectively (Figure 13).

Figure 14: Diversification of Currency Holdings of Central Banks



Source of basic data: Official Monetary and Financial Institutions Forum Global Public Investor Survey 2025.

The second phase of the composition shift shows central bank reserves transitioning towards Asian currencies, with JPY and CNY increasing from 4.0% and 1.1% in 2016 to 5.8% and 2.2% in 2024, respectively. This aligns with the findings of Arslanalp et al. (2024), which notes a decline in the share of traditional global reserves currencies like the USD and EUR, in favour of non-traditional currencies like the CNY. This is also consistent with the 2025 Official Monetary and Financial Institutions Forum (OMFIF) Global Public Investor survey which reports that central banks show the strongest increase in appetite for CNY holdings among all surveyed currencies (Figure 14).[10] These phases of USD decline have been driven by the globalisation effect, particularly the expansion of international trade volumes and routes (Gerding and Hartley, 2024).

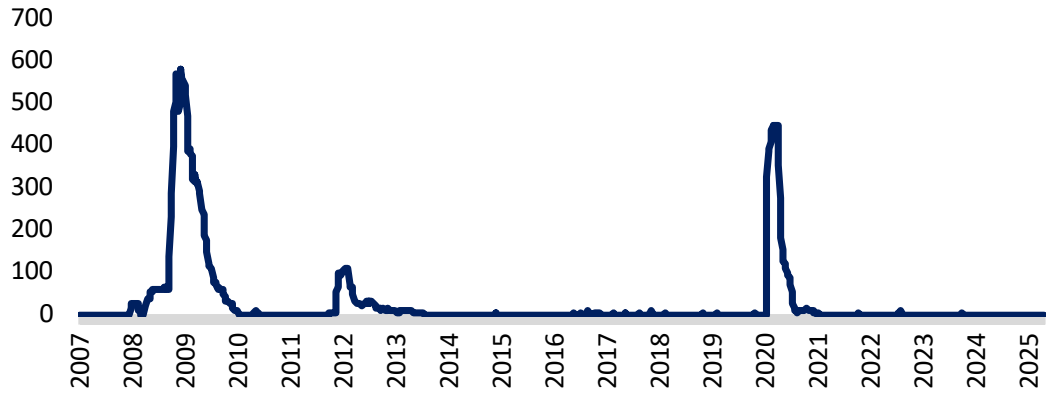
Despite the rise of other currencies, creating a decisive challenger to the USD requires an equal level of global confidence in another currency for major economic players to shift the notional reserve currency status. This is a key challenge to overcome, as dollar-denominated liabilities to the U.S. by national governments and private investors are still significant globally (Yap, 2011). As such, only regional efforts are seen to drive a significant reform to the system that will require the development of a regional capital market, strengthened exchange rate coordination, and the eventual development of a regional currency.

10. The OMFIF Global Public Investor 2025 survey was conducted from March to May 2025 among approximately 75 central banks worldwide, focusing on reserve currency composition and management strategies.

3. Consequences of the Wide Use of USD in the International Monetary System

The prominence of the USD in global trade and funding markets has several consequences for the international economy, including heightened liquidity risk, increased funding cost, greater exchange rate volatility, potential for currency weaponisation and amplified financial shock transmission. During times of crisis or global shocks, the demand for the USD surges as it is widely perceived as a safe-haven currency. However, in times of global shocks and when international markets stall, market participants who are holding USD are often unwilling to let go of their safe-haven assets, thereby increasing liquidity risk. Moreover, an increase in the demand for USD drives up its value, which raises funding costs for countries reliant on the currency (Wells, 2024). As such, financial transactions may stall or fail altogether when USD liquidity tightens, and dollar funding becomes more expensive in global markets.

Figure 15: U.S. Fed Central Bank Liquidity Swaps
(In Billion USD)



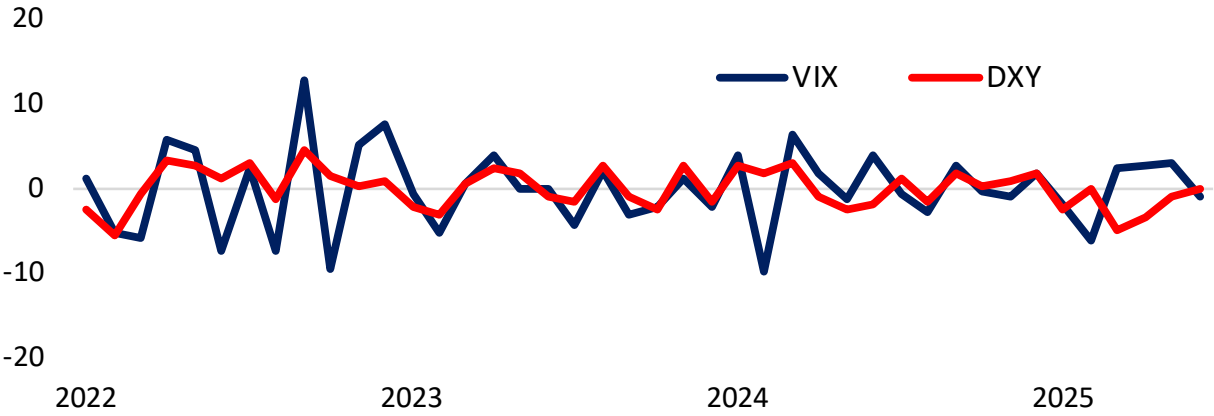
Source of basic data: Federal Reserve Bank of St. Louis.

The presence of swap lines (Figure 15) from the U.S. Federal Reserve (U.S. Fed) further demonstrates this point, as these facilities were designed precisely to ease dollar funding strains during periods of market stress.[11] The swap lines were initially established during the Global Financial Crisis (GFC) to provide USD liquidity to other central banks (Central Bank Liquidity Swap Operations, n.d.). Through this mechanism, foreign central banks act as lender of last resort for their respective countries, with the U.S. Fed serving as the ultimate source of dollar liquidity (Bordo et al., 2014). The central banks lend out the injected liquidity to domestic banks and ensures the continued flow of funds for trade and investment. This setup reflects how heavily economies rely on the U.S. Fed for USD liquidity—not only during systemic global crises such as the GFC and the COVID-19 pandemic, but also amid region-specific shocks like the European sovereign debt crisis.

11. Central banks would swap their respective currencies for an equivalent value in USD from the U.S. Fed. These central banks would then return the USD with interest to the U.S. Fed and the U.S. Fed would also return the domestic currency at the original exchange rate at a predetermined date.

During times of crisis or global shocks, the USD also tends to become more volatile, amplifying the transmission of financial stress across markets. Looking at Figure 16, the USD Index (DXY) which is a measure of the value of the USD relative to a basket of major foreign currencies, commonly appreciates in line with the Volatility Index (VIX) which is a real-time measure of market's expectations for volatility over the next 30 days. The rise in global risks cause market players to gravitate towards USD-denominated assets, which is perceived as relatively liquid and safe (Müller et al., 2021). Moreover, the appreciation of the USD can increase the effects a global risk shock and worsen economic contractions of countries dependent on the USD (Müller et al., 2021).

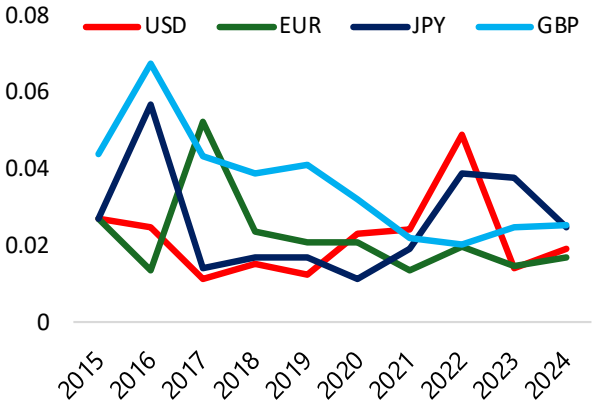
Figure 16: DXY and VIX Indexes
(In month-on-month change)



Source of basic data: Bloomberg.

Figure 17: PHP-USD Exchange Rate
(monthly average)

Figure 18: Exchange Rate Volatility of the Philippine Peso



Note: Volatility is computed through the coefficient of variation which is the ratio of the exchange rate's standard deviation and average exchange rate (The Exchange Rate: Key Definitions and Concepts, n.d.)
Source: Authors' calculations using data from Bloomberg.

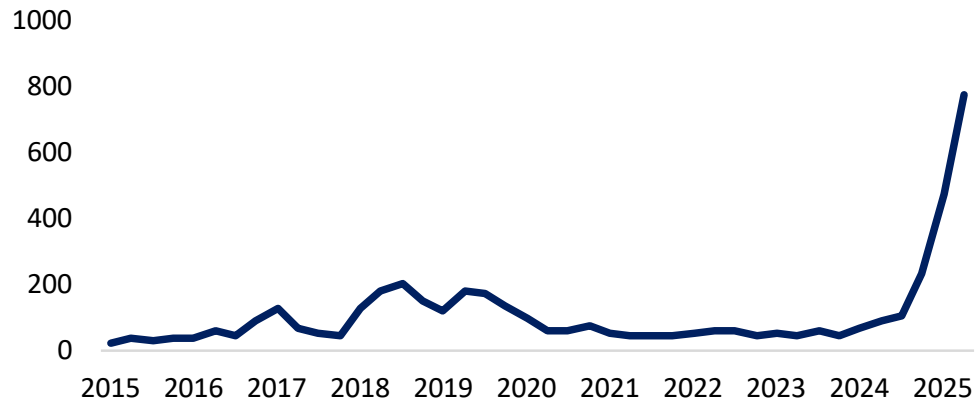
For the case of the Philippines, the synchronisation of global risk and USD volatility was particularly evident in 2022 as the value of the peso against the USD reached its lowest level (Figure 17) and demonstrated the highest volatility among major currencies (Figure 18). This volatility was driven by rising global risks following the onset the Ukraine-Russia conflict and the start of the U.S. Fed's tightening cycle. At the same time, the Philippines faced heightened domestic uncertainties due to a surge in COVID-19 infections and persistently high inflation caused by successive supply shocks.

Apart from the risks and spillovers that the USD diffuses in times of crisis, the USD has also been considered in the context of geopolitical tensions. Prior to 2020, financial sanctions were imposed on countries such as North Korea, Venezuela, and Iran, restricting their central banks' access to USD reserves and the U.S. financial system. These measures, aimed at curbing nuclear proliferation or constraining political power, have had the effect of crippling central banks' ability to secure liquidity, particularly during periods of crisis (United States Department of the Treasury, n.d., 2019, 2025).

Post 2020, the start of the Ukraine-Russia conflict in 2022 provided one of the most significant episodes of the use of USD as geopolitical tool as the U.S. imposed a set of financial sanctions on Russia. The sanctions on Russia's central bank and private sector include a freeze on USD assets, a block on Society for Worldwide Interbank Financial Telecommunications (SWIFT) access to foreign banks, and price caps on Russian goods such as oil (United States Department of the Treasury, 2023). Further sanctions were imposed by the European Union (EU) which froze Euro-denominated Russian assets to deter Russia from continuing the war with Ukraine. Within a year of the financial sanctions, Russia experienced depletion in military supplies, decline in exports, and deterioration of its fiscal position (United States Department of the Treasury, 2023). While successful in raising the economic costs of war, the sanctions have thus far proven insufficient to deter its continuation (Caprile and Cirlig, 2025).

Other countries, such as the Philippines, remain vulnerable to the geopolitical use of the USD and can become targets of financial sanctions if relations deteriorate. While direct sanctions are highly unlikely given the current state of Philippines-U.S. relations, indirect effects may still arise if financial sanctions are imposed on major economic partners. The potential spillover effects could translate into losses in production, income, and output for the Philippines, particularly if sanctions are imposed on economies that are deeply integrated in the country's economic and financial system. Overall, the geopolitical use of the USD serves as a powerful lever, given the heavy reliance of global trade and finance on the USD.

Figure 19: Trade Policy Uncertainty



Note: TPU is generated through an index calculating the number of times terms regarding "uncertainty" and "trade policy" are mentioned together across major newspapers (Caldara et al., 2020).
Source of basic data: Caldara et al. (2025).

More recently, U.S. trade policies have contributed to heightened global risks and uncertainty, owing to the imposition of the "Liberation Day" tariffs, the renewed escalation of the U.S.–China trade conflict, and sudden tariff increases on Mexico, Canada, and the European Union. Moreover, the announcement of amendments, increases, and postponements on said tariffs further increased the magnitude of uncertainty. The latest readings of the Trade Policy Uncertainty (TPU) Index (Figure 19) show that uncertainty surrounding trade policy has reached its highest level since the index's inception (Caldara et al., 2025).

The continued uncertainty and volatility stemming from U.S. policies may influence global demand for the USD. While historical patterns suggest that heightened uncertainty typically leads to dollar appreciation, recent movements in the DXY index point to the opposite effect (Figure 16), with the dollar depreciating following the announcement of new tariffs. This apparent disconnect may signal that countries have diversified the composition of their reserves to minimize the effect of movements in the USD and possibly other major currencies to their respective economies. This aligns with the findings of Arslanalp et al. (2024), who observed that the share of non-traditional currencies on global reserves has risen at the expense of traditional currencies like the USD. In the short run, these developments imply that the markets may be inclined to veer away from the USD to reduce exposure to U.S. trade policy shocks. The longer-term implications, however, remain uncertain—particularly on whether recent developments could threaten the dominant role of the USD in global markets.

4. Network Analysis of Volatility Spillovers in the FX Market

A significant consequence of the prominence of the USD in global trade and funding markets is the amplification financial shock transmission (Anderson et al., 2020; Arslanalp et al., 2024; Cheng and Pande, 2024; Gopinath and Stein, 2021; Mercado et al., 2022). To evaluate this mechanism, volatility spillovers in foreign exchange markets are analysed using a network approach which quantifies risk propagation, reveals the structural wide use of the USD and highlights its central role in the transmission of financial shocks. Volatility spillover is measured via variance decompositions based on the connectedness framework proposed and developed in a series of papers by Diebold and Yilmaz (2009, 2012, 2014).[12] Similar to Diebold and Yilmaz (2009), volatility measures are computed following Garman and Klass (1980) and Alizadeh et al. (2002) by taking the difference between the natural logarithms of daily high, low, opening, and closing prices of each asset, such that:

$$GK_t = \sqrt{0.5\left(\log\frac{H_t}{L_t}\right)^2 - (2\log 2 - 1)\left(\log\frac{C_t}{O_t}\right)^2}.$$

Computed volatilities are then modeled using a high-dimensional vector autoregression (VAR) framework, incorporating shrinkage and selection through the least absolute shrinkage and selection operator (LASSO). In addition, a measure for common currency movements (CF) derived from principal components analysis is incorporated in the underlying VAR model to control for shocks that propagate across multiple countries.[13] This approach resolves the problem of disentangling common shocks from idiosyncratic shocks. The forecast error variance decomposition (FEVD) matrix derived from the VAR model is then used as the network adjacency matrix, forming the basis for the connectedness table as prescribed in Diebold and Yilmaz (2009, 2012, and 2014). The models are run on both a full sample and 1,000-day (i.e., approximately four years) rolling regressions with lag order of three. In line with Diebold and Yilmaz (2009, 2012, and 2014), full sample refers to static estimates and rolling sample to dynamic estimates.

12. Details of the methodology are provided in Annex 2.

13. Principal Component Analysis (PCA) is a linear dimensionality reduction technique that transforms a set of possibly correlated variables into a smaller number of uncorrelated variables called principal components. The measure of common movement (CF) is derived from the first principal component which accounts for approximately 55% of the variation in the data.

The spillover network is generated from daily FX rates against the British Pound extracted from Bloomberg for the period 2 January 2012 to 21 July 2025.[14, 15] The sample includes the 31 top traded currencies based on total turnover from the 2022 BIS Triennial Survey, namely: the prominent currency of the United States (USD); ASEAN countries such as Indonesia (IDR), Singapore (SGD), Thailand (THB), Malaysia (MYR) and the Philippines (PHP); other Asian economies such as Chinese Taipei (TWD); Rep. of Korea (KRW); Japan (JPY); and Hong Kong, China (HKD); BRICs members such as China (CNY), Brazil (BRL), Russia (RUB), India (INR) and South Africa (ZAR); European territories such as Euro Area (EUR), Czech Republic (CZK), Switzerland (CHF), Sweden (SEK) and Norway (NOK); Latin American economies such as Mexico (MXN), Chile (CLP), Colombia (COP) and Argentina (ARS); Middle Eastern countries such as Turkey (TRY), Israel (ILS), Saudi Arabia (SAR) and United Arab Emirates (AED); and other major economies such as Australia (AUD), New Zealand (NZD) and Canada (CAD).

Network analysis of volatility spillovers (Figure 20) in the foreign exchange market reveals the USD as the dominant structural core of the system.[16] Although several currencies appear comparable to the USD in size and centrality, this is largely an artifact of institutional arrangements: the AED and HKD are pegged to the USD, while the SGD is linked to a trade-weighted basket, which means their apparent importance may primarily reflect underlying USD dynamics. Based on network statistics, the USD shows the highest asymmetry[17] and lowest reciprocity[18] score within the system, which may indicate its role as a primary transmitter of volatility with limited spillback from other currencies. Moreover, the network's low average clustering coefficient suggests that the volatility

14. The spillover network presents and examines 31 currency nodes and estimates 961 (31x31) pairwise variance decompositions. The visualisation of the estimated network is generated through Python's NetwoRkX library.

15. Our application veers away from the conventional use of the USD as the numeraire in order to explicitly analyse its role in the global foreign exchange market. The GBP is chosen as the numeraire because it is one of the most actively traded currencies and provides a relatively neutral benchmark for our analysis. To address outliers stemming from political events unique to the UK (e.g., Brexit) that affect the GBP, we winsorise the data at the 99.8th percentile for the PCA, VAR, and network analysis. Results from runs without winsorisation yield similar patterns of volatility spillovers, reinforcing the robustness of our conclusions. Furthermore, using the Swiss franc—often considered an even more neutral currency—as the numeraire yields consistent results, further confirming the robustness of our findings to the choice of numeraire.

16. Refer to Annex 3 for estimated connectedness matrix and network statistics.

17. Asymmetry score reflects the imbalance between volatility transmitted and received by each node. It is computed as the difference between total outgoing and incoming spillover weights for each node, normalised by their sum.

18. Reciprocity score measures the extent to which volatility spillovers between two nodes are mutual. It is calculated as the proportion of total edge weight that is reciprocated—that is, where spillovers occur in both directions between pairs of nodes—relative to all possible bidirectional interactions (Hagberg et al., 2008).

spillover structure is hub-and-spoke rather than tightly interconnected.[19] In such a configuration, peripheral currencies primarily interact via central hubs, with limited direct spillovers among themselves.

The USD's role as a central hub is further reinforced by its highest hub centrality score[20] and lowest average shortest-path distances[21] to other nodes. This means that volatility originating from the USD spreads more efficiently and broadly across the currency system than from any other currency. These results confirm that the USD acts as a key global conduit for the transmission of financial shocks, amplifying the international impact of U.S. monetary and fiscal policies across currency markets. Such scale and network externalities stem from the role of the USD—issued by a prominent economy, the United States—as the leading international medium of exchange (Krugman, 1980; Matsuyama et al., 1993).

The clustering of Asian currencies around the USD underscores the dollar's deep entrenchment in the trade and funding structures of Asian economies, as discussed in earlier sections. Regional blocs such as the Brazil, India, China and South Africa (BRICS) and the Euro area exhibit a strong geographic preference, with volatility linkages largely concentrated within their own regions and limited spillovers beyond (Albrecht and Kočenda, 2024; He and Zhang, 2024; Hussain Shahzad et al., 2025; H. Wang et al., 2021; Wen and Wang, 2020).

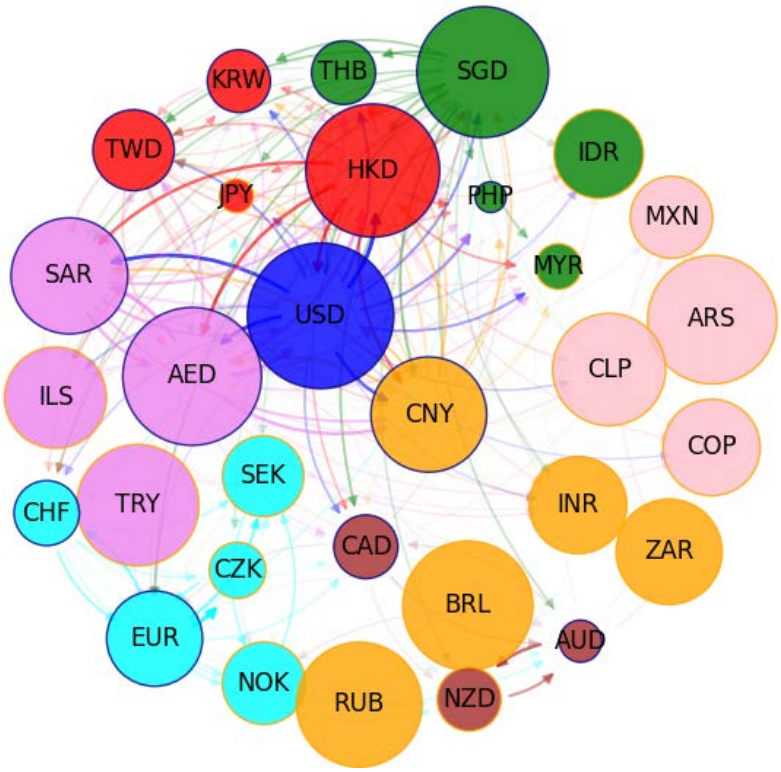
Key currency hubs like the EUR, SGD, HKD and CNY also appear to exert localised influence while maintaining strong connections with the USD. The multiplicity of equilibria implies the existence of alternative currency options, with the choice determined by a country's confidence, faith, and social custom in the context of the chosen currency, so long as the patterns of payments and market structures minimise transaction costs (Matsuyama et al., 1993). This pattern also suggests that financial shocks originating from the USD could likely be transmitting directly to a country as well as through regional hubs that then diffuse the shock more broadly within their respective blocs, thereby amplifying the propagation of U.S.-sourced financial shocks.

19. The average clustering coefficient measures the tendency of nodes to form tightly knit groups. The local clustering of each node in the network is the fraction of triangles that actually exist over all possible triangles in its neighborhood (Hagberg et al., 2008).

20. The hub centrality score measures a node's outgoing links to authoritative nodes and is computed via the Hyperlink-Induced Topic Search (HITS) algorithm (Hagberg et al., 2008).

21. The single source Dijkstra's method computes the shortest path length between source and all other reachable nodes for a weighted graph (Hagberg et al., 2008). The node with the lowest average shortest-path distance is referred to as the root of the Dijkstra Shortest Path Tree.

Figure 20: Volatility Spillover Network in the Foreign Exchange Market

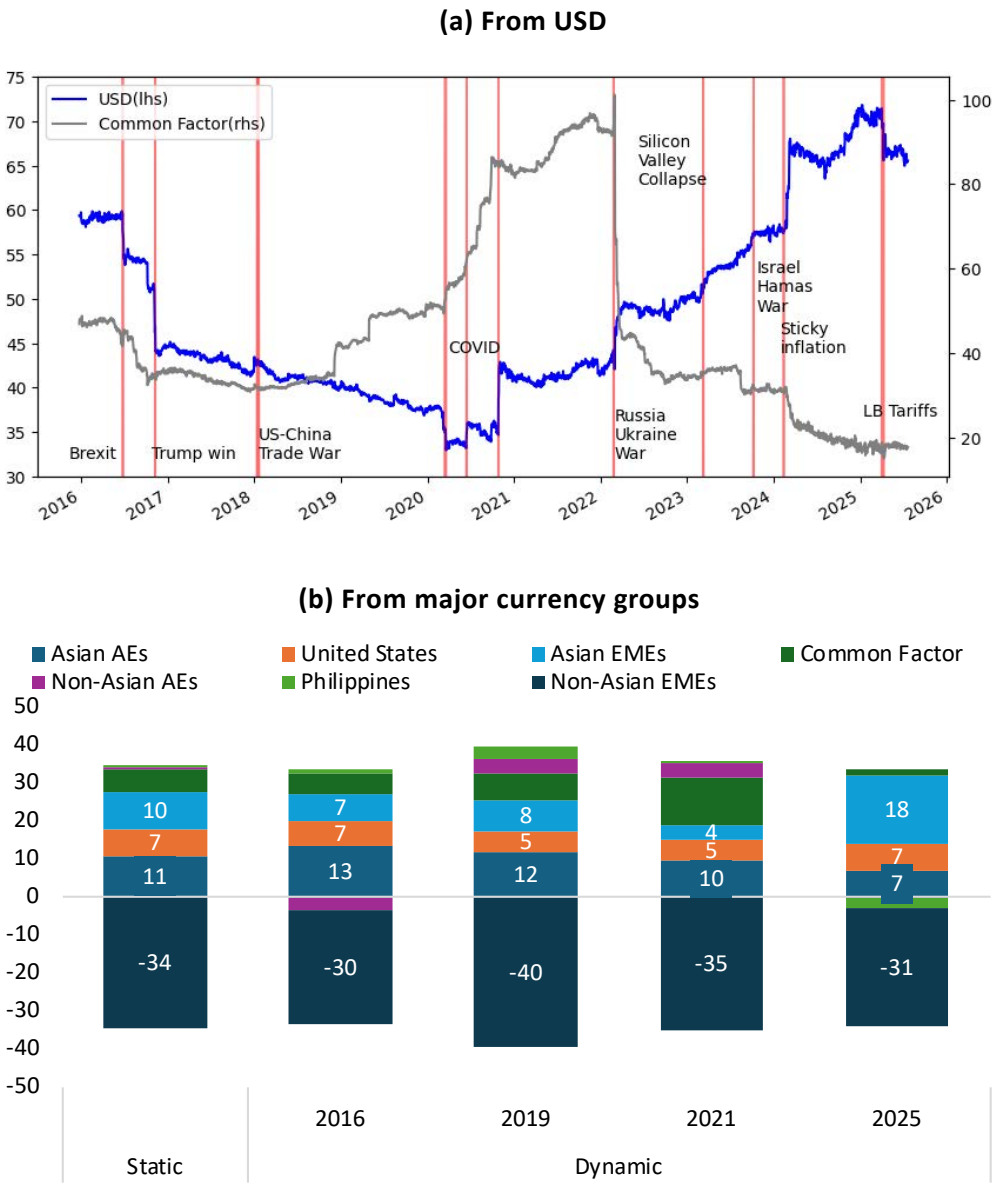


Note: Node size represents net spillovers (from − to), while node color denotes the country group or trading bloc. Border color indicates a currency's role in the network: blue for net sources and orange for net recipients. Edge thickness and transparency reflect the strength of pairwise spillovers, with edge color matching the source node.

Source: Author's calculation.

Despite the global centrality of the USD, regional currency hubs—particularly in Asia—have gained significant ground in recent years. Figure 21 shows a general decline in net spillovers from the USD during the pre-pandemic half of the sample. Most volatility spillovers originate from Asian economies and the U.S., with non-Asian emerging market economies (EMEs) bearing the brunt of the impact. The decline in spillovers during 2020 reflects the globally synchronised nature of the COVID-19 shock which amplified financial risk contagion as evidenced by a heightened common volatility factor (Hussain et al., 2024; Hussain Shahzad et al., 2025; Y. Wang et al., 2024). Outside this episode, the USD's central role persists, across both normal and crisis periods, with spillover intensity typically rising during episodes of geopolitical tensions or disruptive policy shifts. More recently, the lead-up to the 2024 U.S. election and expectations of a Trump victory reignited concerns over TPU, contributing to further upward pressure on global spillovers. The subsequent decline, however, may again be signaling a shift away from the USD amid waning safe-haven appeal.

Figure 21: Historical Net Volatility Spillovers

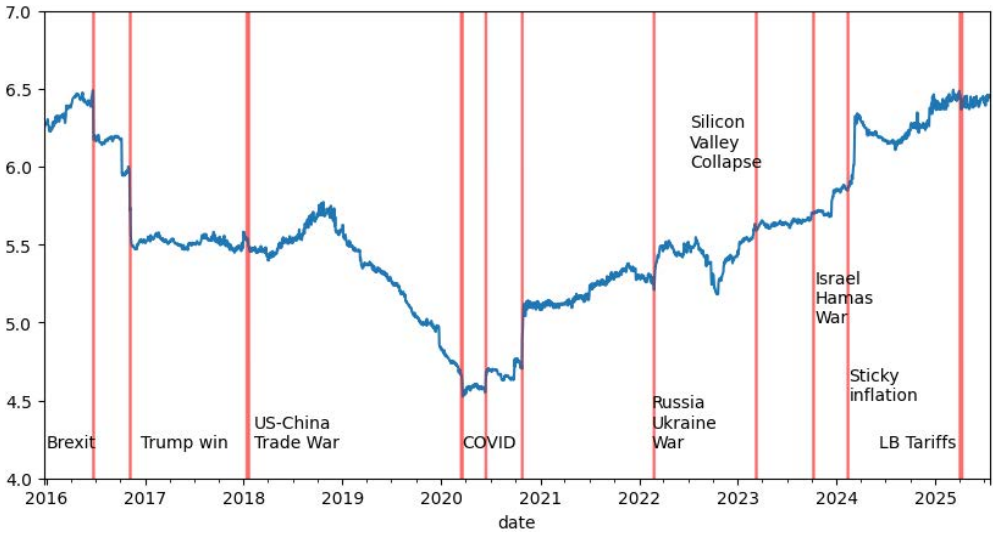


Note: *Dynamic estimates in Figure 21b refer to end-of-year values. Classifications of economies follow the IMF World Economic Outlook (April 2025) grouping. Asian advanced economies (AEs) comprise South Korea, Hong Kong SAR, Japan, Singapore, Chinese Taipei, and Israel. Asian emerging market economies (EMEs) include Malaysia, Indonesia, Thailand, India, China, the United Arab Emirates, and Saudi Arabia. Non-Asian AEs comprise the Euro area, Switzerland, Sweden, Norway, New Zealand, Australia, and Canada. Non-Asian EMEs comprise the Czech Republic, Argentina, Chile, Mexico, Colombia, Türkiye, Brazil, South Africa, and Russia.*

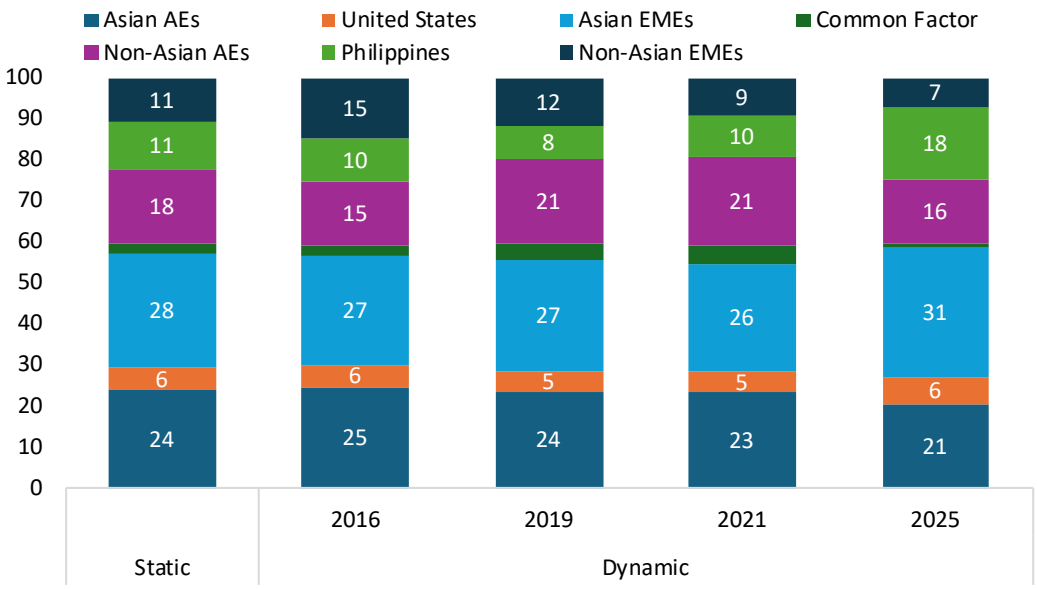
Source: *Author's calculation.*

Figure 22: Historical Volatility Spillover to PHP

(a) From USD



(b) From major currency groups



Note: Dynamic estimates in Figure 22b refer to end-of-year values. Classifications of economies follow the IMF World Economic Outlook (April 2025) grouping. Asian advanced economies (AEs) comprise South Korea, Hong Kong SAR, Japan, Singapore, Chinese Taipei and Israel. Asian emerging market economies (EMEs) include Malaysia, Indonesia, Thailand, India, China, the United Arab Emirates, and Saudi Arabia. Non-Asian AEs comprise the Euro area, Switzerland, Sweden, Norway, New Zealand, Australia, and Canada. Non-Asian EMEs comprise the Czech Republic, Argentina, Chile, Mexico, Colombia, Türkiye, Brazil, South Africa, and Russia.

Source: Author's calculation.

The network analysis underscores the vulnerabilities of peripheral currencies—such as the PHP—that are highly exposed to shocks originating from the USD and other major currencies. Asian EME currencies (which include CNY) exhibit significant and consistent spillover dynamics to the Philippines, reflecting their relatively strong positions in the regional financial network (Figure 22). Meanwhile, the influence of other emerging market currencies in Asia have been increasing, suggesting a gradual diversification of spillover channels within the region. Several global events, however, coincided with periods of heightened PHP exposure to USD volatility, suggesting that the USD may have served as a key transmitter of these shocks to the Philippines.

To conclude, the network-based analysis of volatility spillovers in the foreign exchange market reaffirms the continuing structural dominance of the USD as a global transmitter of financial shocks, while also highlighting the role of regional currency hubs. Peripheral currencies such as the PHP remain acutely vulnerable to external shocks, particularly during periods of global uncertainty, mainly due to their direct reliance on the USD. These findings underscore the importance of continued efforts to strengthen regional financial resilience, deepen local currency markets, and promote broader international cooperation to mitigate the transmission of global volatility across emerging market economies.

5. Developments in Local and Alternative Currency Financing

While the USD is expected to remain the dominant global currency in the foreseeable future, governments can implement targeted strategies to mitigate the risk of dollar dominance and encourage greater use of local or alternative currencies in cross-border transactions. Critically, such efforts will only be effective if transaction costs of bilateral currency exchange are low enough and market liquidity deep enough to make local or alternative currency use economically viable. In support of this objective, various policy measures are being pursued, including: (1) strengthening external positions while reducing reliance on USD-denominated borrowing and deposits by domestic investors; (2) developing deep and liquid local currency markets; and (3) engaging in bilateral and multilateral initiatives to facilitate local or alternative currency usage. The BSP actively supports these efforts by advancing foreign exchange liberalisation, promoting external debt sustainability, deepening, capital markets, enhancing regional payment connectivity through initiatives like Project Nexus, and participating in regional financial safety nets like the Chiang Mai Initiative Multilateralization.

5.1 FX Liberalisation

FX liberalisation plays a pivotal role in reducing dollar dependence and fostering broader participation in peso- and non-USD-denominated transactions. The BSP initiated the liberalisation of FX policies as early as the 1990s. Originally, this was meant to (1) promote vibrant business activities; (2) broaden financing options and promote portfolio and risk diversification by investors; (3) align rules with international standards, and

(4) support greater integration with regional and global markets. Over the years, the liberalisation was executed in a systematic manner, while still being responsive to the needs of a dynamically growing Philippine economy.

The wide use of the USD deepened as the Philippine economy expanded, with the USD becoming the preferred currency for most FX transactions. This reliance did not stem from any formal mandate but emerged organically from the USD's dominance in international markets.[22] Accordingly, FX liberalisation is not intended to reinforce reliance on a single prominent currency but rather to promote a more diversified and resilient currency environment by improving access to FX resources across instruments and participants. In recent years, further FX liberalisation initiatives have also included policies encouraging foreign investments into the Philippines while also facilitating ease in digital payments and electronic transactions. A diverse investor pool could invite non-USD denominated investments, which could lessen the country's dependence on the USD for access to capital and possibly increase the utilisation of the Philippine Peso (Burger and Warnock, 2003). The BSP's recent initiatives related to local and alternative currency financing include amendments under the FX Manual and multiple circulars (see Annex 4).

Bayangos et al. (2024) finds that FX reforms introduced from 2007 to 2022 together with the improvements in stock market and portfolio investments, ultimately supported higher real GDP growth of the country. Looking ahead, FX policies are expected to continue encouraging more diverse foreign-currency denominated transactions in the Philippines, which should help reduce the dependence of the Philippines on the USD, while possibly increasing the international use of the PHP (Burger and Warnock, 2003). Despite the potential benefits of promoting the PHP in cross-border settlement, the local currency is not yet positioned as a major international currency. This limitation is reflected in the BSP's FX regulations under the Manual of Regulations on Foreign Exchange Transactions (FX Manual), which limits the amount of PHP that any person may physically or electronically bring into or out of the country to PHP 50,000.00. These limits highlight both the current developmental stage of the Philippine financial system and the challenges in elevating the PHP's role in global finance. Nonetheless, the BSP has indicated that it is reviewing these regulations to assess the appropriateness of the current limit in light of evolving market dynamics and broader economic conditions.

5.2 External Debt Resilience

Prior to the Asian Financial Crisis (AFC), emerging market debt was often burdened by double mismatch: local borrowers relied on short-term, foreign currency-denominated debt to finance medium- to long-term projects that generated revenues primarily in local currencies (Sussangkarn, 2019). This reliance on foreign currency financing was partly

22. The BSP's FX policies under the Manual of Regulations on Foreign Exchange Transactions (FX Manual) do not prescribe a specific foreign currency to use in any transaction. The USD is only used to define a reference currency when there are threshold/limits for FX transactions.

a consequence of shallow local currency (LCY) bond markets, which lacked the depth and liquidity needed to serve as a viable alternative during periods of high inflation and exchange rate volatility (Eichengreen et al. 2005). This vulnerability is compounded by the inability of some emerging economies to borrow externally in their own currency—a phenomenon commonly referred to as the "original sin". The AFC underscored the critical importance of developing regional long-term capital markets to channel surplus savings within the region toward long-term investment needs—particularly in local currencies. Such development would enhance access to stable, long-term financing for both sovereigns and private sector entities, thereby mitigating currency and maturity mismatches and ultimately, reducing the risk of future financial crises.

In the past five years, the country's debt portfolio has been focused on domestic sources. Data from the Department of Finance and Bureau of the Treasury show that the country's level of debt in PHP averaged around 68.46% from December 2019 to May 2023, while dollar denominated debt averaged around 24.94% during the same period. This ultimately helps reduce the country's exposure to volatile and sudden movements in the foreign exchange market. This was experienced in May 2023 as debt on variable rates rose significantly from 10.2% in 2021 to 11.64% due to the depreciation of the Philippine peso in the foreign exchange market.

The increase in domestic sources of borrowing stems from the Philippine government's goal to improve the resiliency of Philippine debt, with the goal of minimising exposure to external shocks and uncertainties. The Philippines aims to achieve domestic-sourcing of around 75 to 80% of gross borrowings. Moreover, the government is geared to further diversify its holdings of external issuances, which grants the country access to numerous markets for more cost-effective borrowing. A way that the country aims to achieve a large percentage of domestic funding of debts is through the development of the local bond market. This is because government securities help provide pricing guidance for corporate bonds. Developing LCY bond markets is a strategy widely adopted across emerging Asian economies (Relucio, 2023).

Strong local currency markets diversify financing sources and boost demand for domestic currencies, thereby reducing exposure to vulnerabilities associated with USD dominance and foreign currency-denominated lending. LCY bonds help cushion exchange rate shocks during periods of financial stress, as evidenced by emerging market economies with more developed LCY markets experiencing smaller currency depreciations during the GFC and the taper tantrum (Park et al., 2021). Moreover, domestic LCY financing enhances monetary policy autonomy, as it allows central banks greater control over interest rates and inflation by limiting the spillover effects of U.S. monetary tightening (IMF 2016). Local currency bond markets provide a stable source of funding during global volatility by anchoring domestic investment, while also reducing reliance on foreign capital and curbing excessive cross-border flows (IMF 2016). Moreover, issuing in local currency strengthens the domestic investor base and supports financial deepening, fostering more resilient and self-sustaining financial systems by expanding bond maturities, enhancing local

market flexibility and the efficient intermediation of funds into productive investments (Caballero et al. 2008; Bhattacharyay 2013).

The development of LCY bond markets in emerging Asian economies continues to face both long-standing and evolving challenges. Persistent inefficiencies and limited capital market activity highlight the urgent need to enhance pricing transparency and develop robust repo and derivatives markets to address the shortage and high cost of hedging instruments—especially for interest rate and foreign exchange risks. In addition, market fragmentation—stemming from inconsistent tax and legal frameworks—and an overreliance on a narrow domestic investor base further hinder market depth and liquidity (IMF 2016; IMF 2020; JMoF 2023). To address these issues, regional cooperation initiatives such as the ABMI, ABF and the ASEAN+3 Bond Market Forum (ABMF) have focused on promoting cross-border harmonisation, enhancing market infrastructure, and developing local currency derivatives markets.

5.3 Deepening Capital Markets

Strengthening the domestic capital market is essential to reducing the Philippines' reliance on USD–denominated financing and fostering a more resilient, peso-based financial ecosystem. The Philippine capital market remains relatively underdeveloped compared to regional peers, marked by shallow depth, low liquidity, and limited investor participation. Several obstacles have been noted to constrain broader participation in peso-denominated instruments, namely: (1) lack of active two-way quoting; (2) fragmented issuance; (3) unfavourable tax regime; (4) underdeveloped derivatives and hedging instruments; and (5) small and predominantly buy-and-hold institutional investors (OECD, 2024).

In response, the Philippine government has undertaken concerted efforts to deepen the capital markets. The BTR released the new enhanced Government Securities Eligible Dealers (GSED) market-making programme to foster continuous price discovery. Recent reforms streamlined tax treaty processes to improve foreign investor access, including one-time registration, simplified documentation and automatic application of treaty rates.[23] These reforms aim to broaden the investor base which remains shallow as institutional investors account for only 18.6% of GDP (OECD, 2024). In addition, the passage of the Capital Market Efficiency Promotion Act (CMEPA) harmonised the withholding tax on interest income, while preserving fiscal safeguards by excluding revenue-eroding measures.[24]

23. Bureau of Treasury. (5 November 2024). The Bureau of The Treasury Launches Streamlined Tax Treaty Procedure for Government Securities. *Press Release*. Accessed on 25 Sept 2025 through *https://www.treasury.gov.ph/?p=67258*

24. PwC Philippines. (5 June 2025). CMEPA: A new era for investment taxation. Taxwise or Otherwise. Accessed on 25 Sept 2025 through *https://www.pwc.com/ph/en/tax/tax-publications/taxwise-or-otherwise/2025/cmepa-a-new-era-for-investment-taxation.html*

The BSP, for its part, focuses on: (1) establishing a robust yield curve supported by credible benchmarks; (2) promoting a more inclusive and accessible corporate bond market; and (3) securing the inclusion of peso-denominated government securities in global bond indices. To advance these objectives, the BSP shifted to variable-rate auctions (VRAs) for the overnight reverse repurchase (RRP) facility to enhance price discovery, and expanded access to BSP Bills, allowing participation by trust entities such as unit investment trust funds (UITFs) and investment management accounts (IMAs). The BSP also plans to transition to Global Master Repurchase Agreement-based documentation for overnight RRP and overnight lending facility (OLF) transactions, aligning practices with global standards. The BSP also continues to enhance its liquidity management framework through a strategic review of open market operations, including the streamlining and rationalisation of BSP monetary instruments.

Most notably, the BSP supported the development of the Peso Interest Rate Swap (IRS) market, which is expected to enhance price discovery and contribute to the development of the yield curve. The Bankers Association of the Philippines developed the enhanced Peso IRS overnight reference rate (ORR) based on the BSP's variable overnight RRP rate, which is set in an active daily auction. Sixteen banks have committed to be market makers, quoting two-way prices for short- and long-term swaps against the ORR.[25,26] These market-based quotes from a broad set of banks will establish reliable benchmarks for loan pricing, and is expected to facilitate the use of hedging instruments, strengthen capital market infrastructure, and enhance the transmission of monetary policy.

A more robust long term funding market is critical to help sustain long-term investment and economic growth. The Philippine government, thus, remains committed to addressing gaps in the capital market by promoting liquidity, encouraging broader investor participation, and providing reliable risk management options.

5.4 Retail Local Currency Payments

In 2022, Bank Indonesia (BI), Bank Negara Malaysia (BNM), Bangko Sentral ng Pilipinas (BSP), Monetary Authority of Singapore (MAS), and Bank of Thailand (BOT) agreed to strengthen and enhance cooperation on payment connectivity to support faster, cheaper, more transparent, and more inclusive cross-border payments. A Memorandum of Understanding (MOU) on Cooperation in Regional Payment Connectivity (RPC) was signed on 14 November 2022 in Bali, Indonesia, on the sidelines of the G20 Leaders'

25. BSP. (30 September 2024). BSP, BAP Promote Capital Market Development by Enhancing Benchmarks for a Yield Curve. Accessed on 6 August 2025 through *https://www.bsp.gov.ph/SitePages/MediaAndResearch/MediaDisp.aspx?ItemId=7266*

26. Ta-Asan, K. (18 November 2024). Enhanced PESO IRS market goes live. The Philippine Star. Accessed on 25 Sept 2025 through *https://www.philstar.com/business/2024/11/18/2400932/enhanced-peso-irs-market-goes-live*

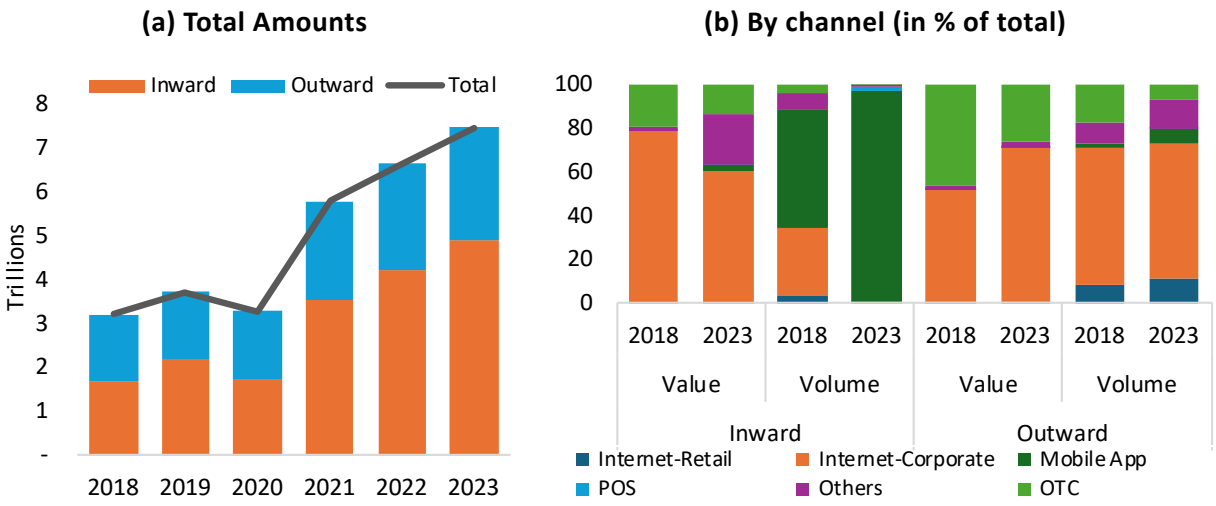
Summit. The MOU outlines the commitment of the ASEAN towards RPC, aligned with the G20's roadmap to improve the efficiency of cross-border payments.

The RPC initiative tackles long-standing challenges in cross-border transactions, where payments often rely on multiple banking intermediaries and the conventional use of the USD. By enabling payments in local currencies, RPC eliminates unnecessary steps, reducing both costs and transaction time. Traditionally, cross-border payments within ASEAN have been fragmented, slow, and costly. A buyer in one country making a payment to a seller in another typically involves multiple banks and currency conversions, leading to high fees and delays. With RPC, however, payments can be made directly in local currencies. For example, if a Thai buyer purchases a product from Malaysia, RPC enables the buyer to pay in THB, while the Malaysian seller receives payment in MYR. This process enables faster, cheaper, and more transparent cross-border payments while promoting financial inclusion, especially for micro, small, and medium enterprises (Han and Abdi, 2025).

5.4.1 Scope and Key Features

The RPC is expected to be a significant contributor to accelerating regional economic recovery and promoting inclusive growth. The implementation of cross-border payment connectivity serves to support and facilitate cross-border trade, investment, remittance, tourism, and other economic activities, as well as a more inclusive financial ecosystem in the region. Specifically, RPC is expected to ease cross-border transfers defined as wire transfers where the beneficiaries and originators are located in different countries.

Figure 23: Cross-border Transfers



Note: POS refers to transaction performed by swiping, dipping or tapping credit/debit cards into the Point-of-Sale (POS) terminals or scanning the QR code displayed on the terminal screen. OTC refers to transactions made through a face-to-face interaction with bank staff/agents.

Source: Electronic Payment and Financial Services (EPFS) Monthly Report, BSP.

In the Philippines, cross-border transfers have increased significantly (Figure 23a), more than doubling over five years from Ph₱3 trillion in 2018 to Ph₱7 trillion in 2023. This growth has been made possible by advances in financial technology that has enabled faster, cheaper, and more convenient payments by lowering transaction costs, and expanding access—particularly for retail clients and micro, small, and medium enterprises (MSMEs) seeking to participate in international trade and e-commerce. This greater adoption of digital payment technology is reflected in the rising value and volume of cross-border transactions conducted through internet and mobile application services (Figure 23b). In contrast, OTC transfers have declined in volume and value for both inward and outward transfers (Figure 23b), underscoring the shift toward more efficient, technology-driven channels.

Since its inception in 2022, the RPC has strengthened the central banks' ability to foster and accelerate the development of payment connectivity in the region through, among others, quick response (QR) code-based payment and fast payment modalities. QR code-based payment is a contactless payment method being integrated across participating central banks to standardise national payment systems through a common QR code format, ensuring seamless cross-border transactions. Currently, several QR code payment systems have already been interconnected, including Cambodia's KHQR, Indonesia's QRIS, Lao PDR's Lao QR, Malaysia's DuitNow, Singapore's PayNow, Thailand's PromptPay, and Vietnam's VietQR. While the Philippines' QR Ph is part of the regional initiative, it is not yet interoperable with the other ASEAN jurisdictions. As the vision is an ASEAN-inclusive regional payment system connectivity, the remaining ASEAN member states (AMS) were also invited to participate in the MOU, taking into account their readiness and country circumstances.[27]

5.4.2 Project Nexus

An initiative aligned with the intent of the RPC is Project Nexus, previously led by the Bank for International Settlements (BIS) Innovation Hub in its earlier phases. Nexus is a multilateral instant payment scheme that aims to enable safe, efficient (fast and low cost), transparent, and accessible cross border payments by connecting participants' domestic instant (or "real time" or "fast") payment systems (IPS) globally. Unlike current bilateral arrangements, Project Nexus offers greater efficiency and scalability, enabling ASEAN central banks to manage cross-border payments and fund transfers across the region and beyond.

27. Since the execution of the MOU on Cooperation in RPC in 2022, the following AMS central banks have joined: (i) State Bank of Vietnam, (ii) Brunei Darussalam Central Bank; (iii) Bank of the Lao PDR; and (iv) National Bank of Cambodia.

Three phases of the Nexus project have so far been completed.[28,29] The project is currently in Phase 4 where the five first mover countries (FM5) (i.e., Reserve Bank of India, BNM, BSP, MAS, and BOT) in Project Nexus are working towards the live implementation of the Nexus scheme, with the European Central Bank and BI as special observers. In March 2025, the Nexus Global Payments Ltd. (NGP) was incorporated as a company limited by guarantee in Singapore to operationalise and manage the Nexus scheme. NGP's incorporation by the FM5 marks the transition of the Nexus initiative from a BISIH project to real-world implementation. At launch, Nexus will support low- and medium-value account-to-account payments, from person to person, business to business and person to business (or vice versa). Payments to merchants (P2M) at the point of sale or online additional use cases and countries beyond the FM5 will be added to the Nexus roadmap. Nexus' features and benefits include:

- An open-loop, 24/7 and near-instant cross-border payment that will be processed within 60 seconds.
- Payments can be addressed conveniently and confidently through the use of proxy payments and confirmation of payee features.
- To ensure transparency, fees for both the sender and recipient are calculated upfront while payment completes or fails within seconds.
- Cost-wise, the expectation for the total cost to senders is within the G20 cross border payments' target of 3% of the transaction value.

Nexus will contribute to the fulfillment of various commitments, such as the: (1) economic integration in the region, which includes financial integration through payments connectivity, formalised in the MOU on Cooperation in RPC; and (2) contributing to the G20 Roadmap for Enhancing Cross-border Payments that highlights Nexus as a priority action that could have a significant impact on the cross-border payments targets.

5.5 Regional Financial Safety Nets

The Chiang Mai Initiative Multilateralization (CMIM) is a multilateral arrangement among the finance ministries and central banks of the ASEAN+3 member economies (collectively, the CMIM Parties and each a CMIM Party) that is governed by a single

28. Phase 1 saw the development of the Nexus blueprint under the BISIH. Phase 2 successfully conducted the Proof-of-Concept with the MAS, Banca d' Italia, BNM, Payments Network Malaysia Sdn Bhd (PayNet) and Banking Computer Services Private Limited (Singapore). In Phase 3, the BISIH, central banks and IPS operators of Indonesia, Malaysia, the Philippines, Singapore and Thailand collaborated to: (1) establish governance, oversight, and regulatory frameworks that accommodate regulatory differences while ensuring risk management, safety, efficiency, and resilience for Nexus payments; (2) develop a sustainable business and revenue model for Nexus that encourages participation and supports financial self-sufficiency, including an expansion strategy and product roadmap; and (3) finalise the technology architecture and operational model based on lessons learned from the proof-of-concept software.

29. BSP has been a participant in Project Nexus since Phase 3.

contractual agreement for the purpose of providing financial support in USD and/or LCY of CMIM Parties through currency swap transactions. The CMIM is important to the Philippines in two ways: (1) as a contributor to the multilateral swap facility, the Philippines will be able to provide liquidity assistance to another CMIM member which is experiencing liquidity difficulty; and (2) as a recipient, the Philippines may be able to borrow up to USD 22.76 billion from the facility to help avert an impending or actual BOP problem (BSP, 2025). The CMIM offers the following facilities:

- CMIM-Precautionary Line (PL) - a crisis prevention facility which may be tapped for potential crisis or liquidity difficulties;
- CMIM-Stability Facility (SF) - may be availed for crisis resolution; and
- Rapid Financing Facility (RFF) - liquidity support in response to actual and urgent BOP difficulties stemming from sudden exogenous shocks (e.g., natural disasters, pandemics).

The inclusion of local currency swap mechanisms decreases the region's reliance on dollar funding during crises. The members' local currency swaps can also reduce dependence on IMF assistance, which is often dollar-based. CMIM also promotes intra-regional use of local currencies (e.g., CNY, JPY) by providing a safety net for local currency-denominated transactions, which then reduces the network effects that reinforce dollar usage in trade and finance.

Aside from available USD and members' local currency swaps, CMIM also resulted in the establishment of the AMRO which serves as an independent regional surveillance organisation that ensures timely monitoring of the ASEAN+3 economies. This surveillance mechanism will in turn promote regional macroeconomic coordination and capacity building. By strengthening local financial systems and regional cooperation, CMIM helps build confidence in non-dollar alternatives and encourages the development of regional reserve currencies like the CNY or JPY.

Despite its intended role in supporting regional financial stability, the CMIM facility has yet to be activated—even after 15 years of existence and several economic disruptions within the region. Key criticisms of the CMIM include insufficient overall funding, persistent stigma associated with IMF linkage, and a complicated activation process (Negus, 2020). Although the CMIM has expanded to a total size of USD 240 billion, the maximum swap quota available to any single member is likely inadequate for effective crisis prevention or response (Kawai, 2015). Moreover, demand for the CMIM safety net may be limited given the availability of more flexible and readily accessible alternatives, such as the Fed's temporary Foreign and International Monetary Authorities (FIMA) repo facility and the IMF's Short-term Liquidity Line and Flexible Credit Line programs (Negus, 2020). Similarly, local currency swap lines under the CMIM may be less attractive than bilateral arrangements, such as those established by China and Japan with ASEAN countries.

The enduring IMF stigma especially among countries impacted by the 1997–98 AFC (T. Ito, 2012), further dampens the appeal of the facility.[30] Under CMIM-PL and CMIM-SF, the IMF Linked Portion (ILP) refers to the maximum amount that may be drawn in circumstances where an IMF Supported Program exists or is expected to come into existence in the very near future. However, discussions are underway on increasing the IMF De-linked Portion (IDLP), which would allow members to access CMIM funds more quickly and independently, even without an IMF programme. There is also a lack of clarity and timeliness regarding procedural matters related to CMIM activation, including the specific economic information required for member countries to make decisions, as well as information on contact points for emergency assistance. Finally, the CMIM activation process is also relatively slow and cumbersome, requiring the Executive Level Decision-Making Body (ELDMB) to convene and decide within two-weeks from the swap request notice (BSP, 2025).

Following the unprecedented economic impact of the COVID-19 pandemic and heightened geopolitical risks, the CMIM and other financial safety nets have become increasingly vital in bolstering regional financial stability and reducing reliance on the USD. ASEAN+3 members have reaffirmed their commitment to strengthening the regional financial safety net and continue to advance discussions on various aspects of the CMIM. The ASEAN+3 Finance Process remains focused in transforming the CMIM into a more responsive, effective, and attractive financing mechanism to address potential economic and financial vulnerabilities. This involves improving existing facilities, exploring more robust financing structures, and ensuring that CMIM remains a relevant and reliable pillar of regional financial stability (BSP, 2025).

6. Concluding Remarks

The USD is deeply entrenched in global and regional financial networks. This chapter contributes to the literature on USD dominance by providing a comprehensive, multi-dimensional analysis of the phenomenon in the Philippine context—covering trade invoicing, cross-border financing, reserve composition, and network-based volatility spillover transmission. Drawing on both official statistics and original BSP survey evidence, this chapter offers granular insights into the sectoral and currency-specific patterns behind dollar use and situates these within the broader ASEAN+3 and global financial architecture. The network analysis further reveals that the PHP remains structurally peripheral, with spillover risks transmitted primarily through the USD and, increasingly, through regional hubs like the CNY. These findings reaffirm that while the USD delivers liquidity, pricing efficiency, and deep market access, its dominance exposes the Philippines to heightened vulnerabilities such as external shocks, funding

30. Thailand, Indonesia, and Korea received IMF loans with a long list of conditions on macroeconomic policy and structural reform. However, the tight and procyclical conditionality did not contribute to managing the crisis or to limiting contagion. Asian policymakers also felt politically humiliated by IMF leaders and officials.

pressures, and exchange rate volatility, which become more pronounced during episodes of global uncertainty.

Mitigating these vulnerabilities calls for a multi-pronged strategy. First, deepening and diversifying local currency markets—particularly capital markets—can enhance monetary autonomy, expand financing options, and build a broader domestic investor base. Second, continued liberalisation of the foreign exchange framework, alongside measures to improve capital market infrastructure and hedging instruments, can reduce reliance on USD-denominated transactions. Third, expanding regional payment connectivity and participation in initiatives such as Project Nexus can lower transaction costs and facilitate the use of local currencies in cross-border payments. Finally, strengthening engagement with regional financial safety nets, notably through reforms to the CMIM, can provide crisis buffers that are less dependent on USD liquidity.

While the USD is likely to remain the dominant global currency in the foreseeable future, sustained policy commitment to developing resilient domestic markets, strengthening regional cooperation, and enhancing the operational readiness of financial safety nets will be critical. Such efforts will not only help shield the Philippine economy from external volatility but also support a gradual and credible shift toward a more diversified and balanced international monetary system.

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Annexes

Annex 1. Questionnaire for "Survey on Currencies Utilised in Trade Invoicing"

1. What is the predominant currency used in invoicing international trade transactions facilitated by your bank?

2. What are the primary factors contributing to the use of the currency identified in question 1?

3. Does your bank offer multi-currency trade finance or invoicing support? If yes, which currencies, aside from the USD, are most frequently used?

4. Based on your client transactions, are there particular commodities or trading partners for which invoicing is predominantly conducted in non-USD currencies (e.g., Japanese Yen, Chinese Renminbi, Euro)? Kindly specify.

5. Are there particular client segments (e.g., SMEs, large corporates, specific industries) that are more inclined to use non-USD currencies for trade invoicing? Please elaborate.

6. Have you observed any significant shift or client preference in recent years toward trade invoicing in alternative currencies, or a reduction in reliance on the USD (i.e., de-dollarisation)? If so, how is your bank supporting these developments?

7. Have recent global developments (e.g., geopolitical tensions, sanctions, changes in monetary policy) influenced your clients' currency preferences for trade invoicing? Please provide examples or trends observed

8. Are there operational or legal constraints that limit the use of non-USD currencies in trade invoicing (e.g., correspondent banking limitations, foreign exchange liquidity, availability of hedging instruments)?

9. From your bank's perspective, what are the key risks and benefits associated with increasing trade invoicing in non-USD currencies (e.g., currency mismatch risk, foreign exchange volatility)?

10. What are your expectations regarding the use of alternative currencies in trade invoicing over the next 6–12 months? Do you foresee an increase, decrease, or stability in their usage?

Annex 2. Network Analysis Methodology

Volatility spillover in the foreign exchange markets is measured via variance decompositions based on the connectedness framework proposed and developed in a series of papers by (Diebold and Yilmaz 2009, 2012, 2014). There are four benefits to using variance decomposition in measuring connectedness. First, studies on connectedness usually concern a sizeable number of entities and the relationships among them. Conveniently, vector autoregression (VAR) is a widely used method for high-dimensional time series analysis and even allows for shrinkage estimations to recover degrees of freedom. Second, variance decomposition is able to transform the array of VAR coefficients in a compact summary of connectedness. Third, interrelationships can be analysed at the most granular pairwise level (i.e., whether shocks originate from within a country or from another country in the system). These pairwise relationships can then be aggregated in various ways to obtain country-specific, region-specific or system-wide measures. Finally, variance decomposition is closely linked to modern network theory and recently proposed measures of various types of systemic risk, such as marginal expected shortfall (Acharya et al., 2012) and CoVaR (Adrian and Brunnermeier, 2009).

A. VAR and Variance Decomposition

Vector autoregression (VAR) is a widely used econometric technique for multivariate time series analysis. The underlying VAR model for studying volatility spillovers among N economies of order P takes the following form:

$$[Vol_t] \equiv v_t = \mu + \sum_{i=1}^{P} \Phi v_{t-i} + \epsilon_t \quad (1)$$

where $\pi_t = \pi_{1,t,\ldots,}\pi_{N,t}$, π_{t-i} is the vector containing the ith lag of π, μ is a vector of intercepts, Φ is an NxN matrix of coefficients, and ϵ_t is a vector of disturbances with covariance matrix $E[\epsilon_t \epsilon_t^{'}] = \Sigma$. Under this framework, all variables in the system are subject to shocks simultaneously.

For VAR to be estimable in high dimensions, degrees of freedom are recovered by a combination of shrinkage and selection using variants of the least absolute shrinkage and selection operator or LASSO.[31] In such penalised estimations, concave penalty functions (as in LASSO) produce selection, whereas smooth convex penalties (as in ridge regressions) produce shrinkage. To understand the LASSO, consider the ordinary least-squares (OLS) estimation:[32]

$$\hat{\beta} = \arg_{\beta} min \sum_{t=1}^{T} (y_t - \sum_i \beta_i x_{it})^2 \quad (2)$$

subject to the constraint $\sum_{i=1}^{K} |\beta_i|^q \leq c$. An extension of the LASSO called the adaptive elastic net, averages the LASSO penalty (q=1) with a ridge penalty (q=2) and weighs the average by the inverse OLS parameter estimates. The weighting shrinks the "smallest" OLS-estimated coefficients most heavily toward zero. The adaptive elastic net is then solved by:

$$\hat{\beta}_{AEnet} = arg_{\beta} \min \left[\sum_{t=1}^{T} (y_t - \sum_i \beta_i x_{it})^2 + \lambda \sum_{i=1}^{k} w_i \left(\frac{1}{2} |\beta_i| + \frac{1}{2} \beta_i^2 \right) \right] \quad (3)$$

where $w_i = 1/\left|\hat{\beta}_{i,OLS}\right|$ and λ is selected via 10-fold cross-validation.[33]

Variance decomposition interprets the VAR model by splitting the forecast error variances of each variable into parts attributable to components in the system. Assuming that the VAR system is covariance stationary, the moving average representation of the VAR exists and is given by:

$$\pi_t = \Theta(L)\epsilon_t \quad (4)$$

where $\Theta(L) = (I - \Phi L)^{-1}$. Simply rewriting the moving average representation, we show that:

$$\pi_t = A(L)u_t \quad (5)$$

where $A(L) = \Theta(L)Q_t^{-1}$, $u_t = Q_t \varepsilon_t$, $E(u_t u_t') = I$ and Q_t^{-1} is the unique lower-triangular Cholesky factor of the covariance matrix, ε_t. For a two-variable VAR, the optimal one-step ahead forecast would then be given by:

$$\pi_{t+1,f} = \phi \pi_t \quad (6)$$

31. The LASSO was introduced in the seminal work of Tibshirani (1996).

32. A generic regression equation y→x is used to present the LASSO. In subsequent equation-by-equation VAR estimation, the right-hand-side variables in each equation are p-lags of each of the N variables.

33' The weighting by inverse estimates is responsible for the oracle property.

with corresponding H-step ahead error vector:

$$e_{t+1,f} = \pi_{t+1} - \pi_{t+1,f} = A^H u_{t+1} = \begin{bmatrix} a_{11}^H & a_{12}^H \\ a_{21}^H & a_{22}^H \end{bmatrix} \begin{bmatrix} u_{1,t+1} \\ u_{2,t+1} \end{bmatrix} \quad (7)$$

which has a covariance matrix of:

$$E\left(e_{t+1,f} e_{t+1,f}^{'}\right) = A_0 A_0^{'} \quad (8)$$

Hence, the variance of the error in forecasting $\pi_{1,t}$ is $a_{11}^H + a_{12}^H$ and the variance of the one-step-ahead error in forecasting $\pi_{2,t}$ is $a_{21}^H + a_{22}^H$. To begin the discussion on the connectedness framework, we identify the matrix A^H in Equation 7 as the variance decomposition matrix, and its off-diagonal elements, a_{12}^H and a_{21}^H as the measures of pairwise directional connectedness in the system, also known as spillovers.

B. Connectedness Measures

The connectedness framework proposed by Diebold and Yilmaz begins with the most disaggregated (e.g., microeconomic, pairwise-directional) connectedness measures and aggregates them in various ways to obtain country-specific, region-specific or system-wide measures. In the case of an N-variable model, we define a_{ij}^H as a measure of pairwise directional connectedness, which comprise the variance decomposition matrix (A^H) or the upper-left NxN portion of Table 2. For i,j=1, 2,…,N (i as rows and j as columns), the share of variance originating from within the country corresponds to where i=j, while the cross variance shares, or spillovers of shocks to/from other countries correspond to off-diagonal elements where $i \neq j$.

Table 2: Connectedness Table Schematic

	π_1	π_2	…	π_N	**From Others**
π_1	a_{11}^H	a_{12}^H	…	a_{1N}^H	$\sum_{j=1}^{N} a_{1j}^H, j \neq 1$
π_2	a_{21}^H	a_{22}^H	…	a_{2N}^H	$\sum_{j=1}^{N} a_{2j}^H, j \neq 2$
⋮	⋮	⋮	⋱	⋮	⋮
π_N	a_{N1}^H	a_{N2}^H	…	a_{NN}^H	$\sum_{j=1}^{N} a_{Nj}^H, j \neq N$
To Others	$\sum_{i=1}^{N} a_{i1}^H$ $i \neq 2$	$\sum_{j=1}^{N} a_{i2}^H$ $i \neq 2$	…	$\sum_{i=1}^{N} a_{iN}^H$ $i \neq N$	$\frac{1}{N}\sum_{i,j=1}^{N} a_{ij}^H$ $i \neq j$

The connectedness table is constructed by augmenting A^H with a bottom row and a rightmost column containing sums that represent total directional connectedness. The rightmost column contains row sums that correspond to the total influence each country receives from the system ($C^H_{j\to i,i\neq j}$). Meanwhile, the bottom row contains column sums that represent total connectedness each country contributed to the system ($C^H_{i\to j,i\neq j}$). Net, as opposed to gross, pairwise directional connectedness measures an individual country's overall influence in the system and is computed by:

$$Net\ connectedness = C^H_{i\to j} - C^H_{j\to i} \tag{10}$$

where $i \neq j$. Finally, the bottom-right element of the table is computed by:

$$Spillover\ Index = \frac{1}{N}\sum_{i,j=1}^{N} a^H_{ij}, i \neq j \tag{11}$$

and represents the grand total of all off-diagonal elements, also known as the net total connectedness or the Spillover Index.

C. Network Visualization

Research on networks has grown explosively in recent years. The structure of a network composed of N entities will contain N nodes that represent each entity, and L links that connect each node to one another. The distance d_{ij} between two nodes i and j is the shortest link that must be traversed to go from node i to node j. In its most basic form, a network is an NxN adjacency matrix D of zeros and ones or $D = [d_{ij}]$, where $d_{ij} = 1$ if nodes i and j are linked, and $d_{ij} = 0$ otherwise. In this case, D is symmetric, because if i and j are connected, then so too must be j and i.

As it turns out, the connectedness framework, although proposed in Diebold and Yilmaz (2009) independent of the network literature, are closely related to aspects of network connectedness. In fact, the variance decomposition matrix A^H, which defines our connectedness table is a network adjacency matrix D. In this case, nodes refer to the variables in the VAR system, while links refer to elements in the variance decomposition matrix A^H.

In contrast to classical network structures, networks defined by variance decompositions are more sophisticated and more informative. First, the adjacency matrix D is no longer a matrix filled with zeros and ones. Using the variance decomposition matrix A^H, the entries are now weights that can be used to characterise strong or weak connections. Second, the adjacent matrix D is no longer symmetric. The links are now directed, such that the strength of the ij link is not necessarily the same as that of the ji link. Third, the sum of weights by row ($C^H_{j\to i,i\neq j}$) and by column ($C^H_{i\to j,i\neq j}$) as well as the total connectedness measure or Spillover Index can now be used to characterise the members of the network, and the network as a whole.

Annex 3. Connectedness Network

A. Matrix of Pairwise Volatility Spillovers

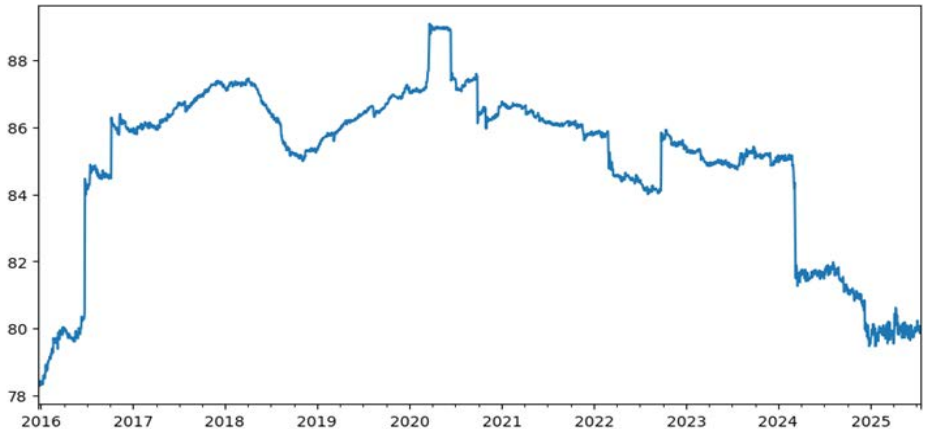
	AED	ARS	AUD	BRL	CAD	CF	CHF	CLP	CNY	COP	CZK	EUR	HKD	IDR	ILS	INR	JPY	KRW
AED	8.4	3.3	3.4	3.4	4.5	3.6	4.0	4.5	6.9	4.4	3.4	4.2	7.3	4.3	4.8	4.5	4.5	5.0
ARS	0.7	38.7	0.5	0.9	0.7	0.7	0.6	0.7	0.7	0.8	0.5	0.6	0.7	0.6	0.5	1.4	0.6	0.6
AUD	2.2	1.6	12.0	2.7	4.2	2.8	3.7	2.3	2.4	2.9	3.3	3.8	2.4	2.4	2.7	2.7	3.8	2.9
BRL	0.8	1.4	1.1	27.1	0.9	1.3	0.8	1.7	0.7	1.9	0.7	1.0	0.8	1.5	0.7	1.4	0.7	1.0
CAD	3.2	2.1	4.5	2.6	10.7	3.0	3.9	2.7	3.3	3.1	3.2	4.0	3.5	2.5	2.9	3.0	3.4	3.3
CF	2.9	2.7	3.3	3.9	3.2	13.8	3.2	4.0	3.0	4.4	3.8	3.1	3.0	3.1	3.6	2.7	3.2	3.4
CHF	2.9	2.0	4.1	2.1	4.1	2.8	11.3	2.4	3.0	2.7	4.6	5.5	3.1	2.2	3.4	2.5	4.7	3.1
CLP	1.7	1.1	1.3	2.3	1.4	1.9	1.3	21.3	1.5	3.0	1.3	1.3	1.7	1.1	1.5	1.3	1.3	1.9
CNY	6.2	2.8	3.3	2.6	4.1	3.3	3.7	4.0	9.1	3.7	3.4	3.9	5.9	4.0	4.2	4.1	4.1	4.9
COP	1.9	2.1	2.0	3.4	1.9	2.3	1.8	3.7	1.7	16.8	1.3	2.0	1.8	1.3	1.5	1.5	1.5	2.1
CZK	2.0	1.5	3.0	1.7	2.6	2.8	3.6	1.8	2.2	1.9	15.3	5.3	1.8	2.3	2.5	2.5	2.7	2.3
EUR	3.3	2.1	4.5	2.8	4.5	3.1	6.0	2.5	3.6	3.3	8.0	10.6	3.2	2.7	3.2	3.3	3.9	3.5
HKD	7.1	3.1	3.7	3.0	4.8	3.6	4.4	4.2	6.4	4.0	3.1	4.0	8.6	4.1	4.6	4.0	4.7	4.8
IDR	2.0	1.2	2.0	2.5	1.8	1.9	1.6	1.5	2.0	1.7	2.0	1.7	1.9	20.8	1.8	3.7	1.7	2.4
ILS	2.3	1.1	1.9	1.3	1.8	2.2	2.1	1.9	2.2	1.7	2.0	1.8	2.2	1.7	15.8	1.5	2.0	2.2
INR	2.1	2.8	1.8	2.2	1.9	1.5	1.6	1.6	2.1	1.6	1.9	1.9	1.9	3.5	1.6	16.9	1.6	2.0
JPY	2.9	1.5	3.6	1.6	3.1	2.5	4.2	2.3	2.9	2.3	3.0	3.2	3.0	2.1	2.7	2.2	13.2	2.8
KRW	3.5	2.1	3.2	2.6	3.3	3.0	3.1	3.3	3.8	3.3	2.9	3.2	3.4	3.8	3.4	3.2	3.1	10.9
MXN	1.5	1.3	2.7	3.1	2.4	2.5	2.3	2.5	1.5	3.0	2.1	1.8	1.6	2.0	2.1	1.8	2.4	2.0
MYR	3.2	2.2	2.8	2.4	2.9	2.3	2.9	2.0	3.0	2.3	2.0	2.5	3.4	3.4	2.7	3.0	2.7	3.0
NOK	1.5	1.1	3.0	2.0	2.5	2.5	3.2	1.9	1.6	2.2	2.9	2.7	1.8	1.6	2.6	1.9	2.1	1.9
NZD	1.8	1.5	6.0	2.0	3.2	2.4	3.1	1.7	2.0	2.1	2.9	3.2	1.9	2.0	2.3	2.1	3.2	2.5
PHP	3.9	2.3	2.7	2.3	3.2	2.2	2.8	2.6	3.7	3.0	2.3	3.0	3.8	3.4	2.9	3.9	2.9	3.7
RUB	0.3	0.1	0.3	0.4	0.3	10.1	0.3	0.5	0.3	0.7	0.7	0.3	0.3	0.2	0.5	0.1	0.3	0.4
SAR	6.9	3.0	3.1	2.8	4.1	3.3	3.6	3.9	5.9	3.8	3.3	3.5	6.4	4.0	4.5	4.1	4.1	4.4
SEK	1.7	1.2	2.9	1.6	2.5	2.4	3.3	1.5	1.7	1.9	4.1	3.9	1.8	1.6	2.4	1.8	2.4	2.0
SGD	5.3	2.9	4.7	3.1	5.4	3.6	4.6	3.8	5.6	3.8	4.1	5.1	5.4	4.2	4.4	4.4	4.9	5.3
THB	4.3	1.9	3.1	2.0	3.4	2.5	3.5	3.1	4.4	2.8	3.0	3.4	4.1	3.5	3.9	3.4	3.6	4.0
TRY	0.5	1.1	0.4	0.5	0.6	1.3	0.6	0.9	0.5	0.7	0.6	0.4	0.5	0.5	0.6	0.9	0.5	0.6
TWD	4.4	3.1	3.0	2.9	3.5	2.7	3.2	2.9	4.4	3.6	3.0	3.5	4.0	3.7	3.5	4.1	3.3	4.7
USD	7.8	3.4	3.8	3.3	4.9	3.8	4.5	4.6	6.9	4.3	3.4	4.2	7.9	4.4	4.9	4.3	5.0	5.1
ZAR	0.9	1.5	2.3	2.6	1.7	2.1	1.5	1.7	1.0	2.1	1.9	1.6	1.0	1.5	1.1	1.6	1.7	1.4
From Others	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

	MXN	MYR	NOK	NZD	PHP	RUB	SAR	SEK	SGD	THB	TRY	TWD	USD	ZAR	To Others
AED	3.3	5.1	3.2	3.3	5.8	1.1	7.6	3.4	5.5	5.7	2.4	5.8	7.6	2.6	146.7
ARS	0.5	0.7	0.4	0.5	0.8	0.1	0.7	0.5	0.6	0.5	1.1	0.8	0.7	0.8	59.4
AUD	3.8	3.0	4.0	7.1	2.6	1.0	2.2	3.7	3.2	2.8	1.3	2.6	2.3	3.9	104.3
BRL	1.7	1.1	1.0	1.0	0.9	0.4	0.8	0.8	0.9	0.8	0.6	1.0	0.8	1.6	58.9
CAD	3.8	3.3	3.6	4.0	3.4	1.1	3.3	3.5	4.0	3.2	1.9	3.3	3.4	3.3	110.0
CF	4.0	3.1	4.1	3.4	2.5	30.7	2.9	3.8	3.0	2.9	4.8	2.8	3.0	4.2	145.4
CHF	3.4	3.5	4.3	4.0	3.0	0.8	2.8	4.6	3.6	3.4	1.7	3.0	3.0	2.8	110.4
CLP	2.0	1.2	1.5	1.2	1.5	0.9	1.6	1.2	1.5	1.6	1.8	1.4	1.7	1.7	69.0
CNY	3.0	4.4	2.9	3.2	5.0	1.2	6.0	3.0	5.3	5.3	2.1	5.1	6.1	2.6	132.6
COP	2.7	1.8	2.1	1.7	2.0	0.9	1.9	1.6	1.7	1.8	1.6	2.2	1.8	2.4	77.1
CZK	2.4	2.1	3.3	3.2	2.1	1.6	2.1	4.4	2.5	2.3	1.7	2.3	1.9	2.6	92.2
EUR	2.9	3.5	4.2	4.4	3.6	1.2	3.0	6.1	4.3	3.6	1.5	3.7	3.1	3.1	122.3
HKD	3.6	5.3	3.7	3.4	5.4	1.1	6.8	3.6	5.5	5.3	2.4	5.1	7.5	2.8	143.6
IDR	2.1	2.7	1.8	2.1	2.2	0.6	2.0	1.5	2.1	2.2	1.2	2.1	2.0	1.9	80.5
ILS	1.9	2.0	2.2	1.9	1.9	1.3	2.3	2.1	2.1	2.4	1.2	2.1	2.3	1.2	74.7
INR	1.8	2.2	1.8	1.6	2.6	0.3	2.1	1.6	2.1	2.0	1.8	2.4	1.9	2.0	76.8
JPY	3.1	2.8	2.7	3.4	2.8	0.9	2.8	3.0	3.2	3.2	1.5	2.8	3.0	2.7	97.2
KRW	3.1	3.5	3.0	3.1	4.0	1.3	3.4	2.8	3.9	3.9	2.3	4.4	3.5	2.6	109.7
MXN	16.9	2.0	2.9	2.3	1.7	1.2	1.6	2.2	1.7	1.6	2.3	1.7	1.6	4.9	83.5
MYR	2.6	11.2	2.5	2.8	3.1	0.6	3.2	2.5	3.3	3.0	2.0	3.2	3.3	2.7	94.9
NOK	2.8	2.0	14.9	2.9	1.6	1.3	1.6	5.0	1.9	1.8	2.0	1.7	1.7	2.9	83.2
NZD	2.5	2.7	3.2	13.6	2.2	1.0	1.9	2.9	2.7	2.5	1.6	2.3	1.9	3.3	90.1
PHP	2.6	3.4	2.3	2.7	11.4	0.5	3.8	2.1	3.6	3.7	1.5	4.1	3.8	2.2	102.3
RUB	0.4	0.2	0.6	0.3	0.1	41.0	0.2	0.7	0.3	0.3	0.5	0.2	0.3	0.5	61.7
SAR	3.3	4.6	3.1	3.2	5.0	1.0	9.1	3.0	4.7	5.0	2.5	5.1	6.6	2.4	133.1
SEK	2.3	2.1	4.9	2.7	1.6	1.5	1.7	15.1	2.2	1.9	1.0	1.9	1.8	2.4	83.9
SGD	3.5	5.0	3.5	4.4	5.0	1.2	4.9	4.1	8.5	5.6	2.3	5.3	5.2	3.2	142.2
THB	2.4	3.7	2.7	3.1	4.0	0.6	4.1	2.6	4.3	10.0	1.6	4.1	4.2	2.2	110.0
TRY	1.0	0.6	0.8	0.6	0.5	0.5	0.6	0.5	0.5	0.5	43.5	0.4	0.5	1.4	63.7
TWD	2.9	4.1	2.6	3.0	4.7	0.8	4.4	2.8	4.3	4.3	1.6	10.5	4.1	2.5	116.1
USD	3.7	5.5	3.7	3.7	5.8	1.2	7.5	3.7	5.6	5.8	2.6	5.4	8.3	3.0	152.1
ZAR	4.0	1.6	2.2	2.2	1.2	1.1	1.0	1.8	1.3	1.1	2.2	1.3	1.0	21.6	72.7
From Others	100	100	100	100	100	100	100	100	100	100	100	100	100	100	**83.8**

Note: The list of currencies include the United States Dollar (USD), Indonesian Rupiah (IDR), Singapore Dollar (SGD), Thai Baht (THB), Malaysian Ringgit (MYR), Philippine Peso (PHP), Taiwan Dollar (TWD), South Korean Won (KRW), Japanese Yen (JPY), Hong Kong Dollar (HKD), Chinese Yuan (CNY), Brazilian Real (BRL), Russian Ruble (RUB), Indian Rupee (INR), South African Rand (ZAR), Euro (EUR), Czech Koruna (CZK), Swiss Franc (CHF), Swedish Krona (SEK), Norwegian Krone (NOK), Mexican Peso (MXN), Chilean Peso (CLP), Colombian Peso (COP), Argentine Peso (ARS), Turkish Lira (TRY), Israeli Shekel (ILS), Saudi Riyal (SAR), UAE Dirham (AED), Australian Dollar (AUD), New Zealand Dollar (NZD), Canadian Dollar (CAD).

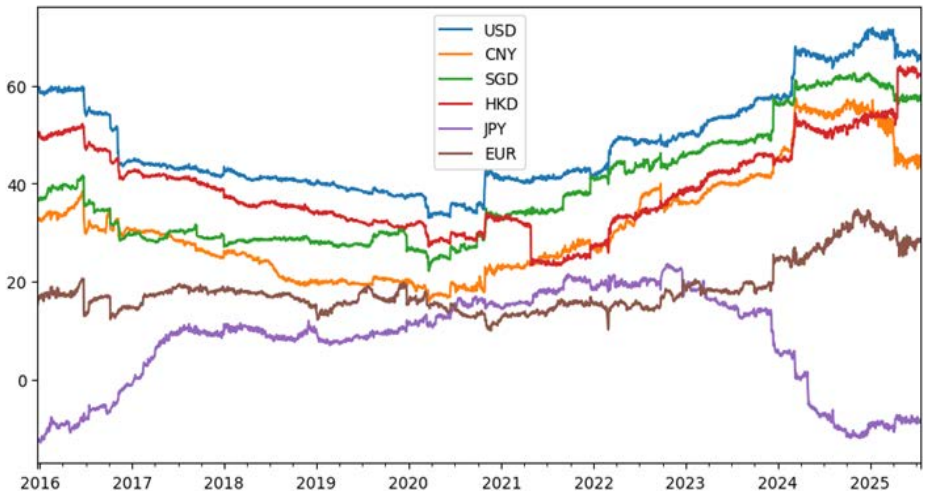
Source: Authors' estimations.

B. Dynamic Global Spillover Index



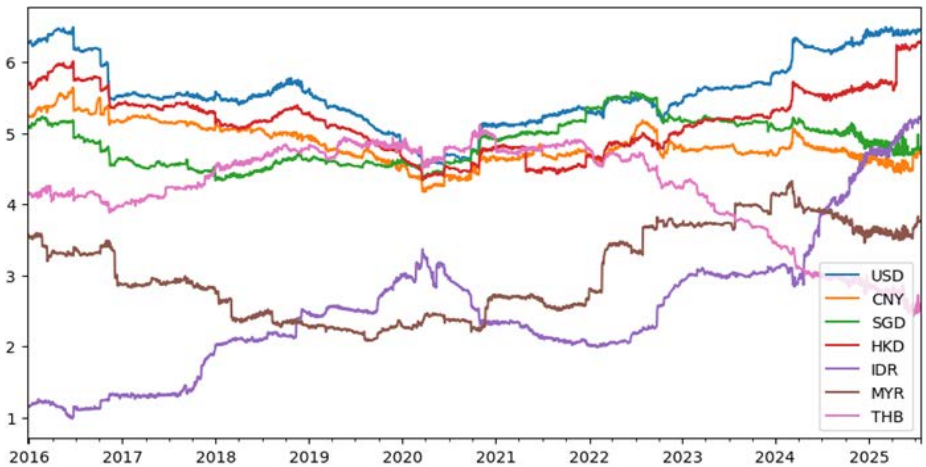
Source: Authors' estimations

C. Net Spillover from Major Currencies



Source: Authors' estimations

D. Volatility Spillover to PHP from Select Currencies



Source: Authors' estimations.

E. Network Statistics

Currency	Hub	Shortest Path	Reciprocity	Asymmetry
USD	0.058	7.387	0.654	0.207
AED	0.056	7.791	0.677	0.189
HKD	0.054	7.841	0.688	0.179
SGD	0.053	7.701	0.694	0.174
SAR	0.050	8.525	0.730	0.142
CNY	0.050	8.496	0.733	0.140
EUR	0.044	9.425	0.776	0.100
TWD	0.042	9.664	0.801	0.074
THB	0.040	10.276	0.833	0.047
CHF	0.039	10.325	0.834	0.049
CAD	0.039	10.041	0.830	0.048
KRW	0.039	9.911	0.824	0.046
PHP	0.036	11.121	0.858	0.011
AUD	0.036	11.382	0.857	0.021
JPY	0.033	11.964	0.890	-0.014
MYR	0.033	11.762	0.883	-0.026
NZD	0.030	13.472	0.919	-0.052
CZK	0.030	12.970	0.901	-0.040
SEK	0.027	14.702	0.943	-0.088
NOK	0.026	14.968	0.935	-0.092
MXN	0.025	15.312	0.920	-0.090
IDR	0.024	16.357	0.942	-0.108
INR	0.024	16.166	0.944	-0.132
ILS	0.023	16.274	0.956	-0.145
COP	0.023	16.549	0.933	-0.130
ZAR	0.019	19.504	0.955	-0.158
CLP	0.018	20.526	0.966	-0.184
BRL	0.012	28.698	0.988	-0.259
ARS	0.008	36.182	1.000	-0.255
TRY	0.006	39.494	1.000	-0.222
RUB	0.002	53.516	1.000	-0.237

Source: Authors' estimations.

Annex 4. Recent FX Liberalisation Reforms

1. BSP Circular No. 922 (23 August 2016) - Increased the limit from PHP10,000 to PHP50,000, the amount a person may import/export, or bring into or take out of the country without proper written authorisation from the BSP.

2. BSP Circular No. 1030 (05 February 2019) – Simplified the documentary requirements for the registration of investments, expanded the coverage of inward foreign investments which may be registered and serviced with FX resources of the banking system. It also lifted the prior BSP approval requirement for the purchase of FX to fund outward investments of residents beyond the annual USD 60 million threshold per investor, subject only to prior notification to the BSP.

3. BSP Circular No. 1124 (10 August 2021) – Allowed as permanent policies the use of e-signatures/digital signatures and electronic submission of duly accomplished applications and supporting documents as part of the temporary measures during the COVID-19 pandemic. Said Circular also expanded the eligible non-trade current account transactions as well as the eligible sources of funds for peso deposit account of non-residents to include trade and loan-related transactions, among others.

4. BSP Circular No. 1171 (29 March 2023) – Set as permanent policies the temporary operational relief measures implemented during the COVID-19 pandemic which include electronic submission of BSP-IOD documents to Authorized Agent Banks (AABs)/AAB forex corps and to the BSP, issuance in electronic form of BSP-IOD documents, among others

5. BSP Circular No. 1192 (11 April 2024) – Streamlined the reporting forms for foreign investments and allowed investments in instruments under Section 37 of the FX Manual to be registered upon reporting thereof by the registering bank to the BSP; and

6. BSP Circular No. 1212 (11 April 2025) – Expanded the list of allowable FX derivatives instruments that banks may offer to their customers and allowed all types of eligible underlying FX transactions to be hedged via FX derivatives. Said Circular also required the use of the BSP-IOD's online system for the submission of applications for registration of inward investments under Section 36.1 and other related requests.

U.S. Dollar Dominance in Trade Invoicing and Cross-Border Investments in SEACEN Economies

The U.S. dollar maintains its structural dominance in the international monetary system due to deep liquidity and powerful network effects, providing global stability while imposing high costs—such as the "Triffin Dilemma" and "original sin" borrowing—on emerging economies. While SEACEN policymakers have introduced measures such as Local Currency Settlement Frameworks, macroprudential regulations, and digital currency exploration to enhance monetary autonomy, empirical findings from this collaborative research project highlight that "invoicing inertia" and global value chain rigidities support the wide use of the U.S. dollar in the region. Consequently, policy considerations may include lowering transaction costs and strengthening institutional requirements of shifting to alternative currencies.

The SEACEN Centre

Since its inception in the early 1980's, the South East Asian Central Banks Research and Training Centre (The SEACEN Centre) has established its unique regional position in serving its membership of central banks and monetary authorities in the Asia-Pacific region through its learning programmes in key central banking areas (including macroeconomics, monetary policy, financial stability, supervision, payments, leadership, governance, and human capital), research work, and networking and collaboration platforms for capacity building in central banking knowledge.

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