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Currency hierarchy and the nature of peripheral currencies' internationalization

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ABSTRACT

Currency internationalization, often defined by the use of a local currency beyond the national frontier, has been a topic widely discussed in the literature. The recent rise of currencies from emerging market economies in the international market has suggested that some peripheral currencies have become more internationalized. However, their position in the currency hierarchy, which is formed by the US dollar at the top and other central currencies in an intermediate position, has remained the same. This paper investigates the different types of currency internationalization, which are reflected in the currency hierarchy, and adopts a Post-Keynesian perspective to shed light on the subordinate position of peripheral currencies in the International Monetary System. We suggest that emerging market currencies are mainly internationalized as a speculative investment currency, which reinforces their subordinate position in the currency hierarchy.

KEYWORDS

Currency Internationalization; currency hierarchy; functions of international money; speculative investment currency; peripheral currencies

Introduction

The asymmetric nature of the international monetary system, where a few currencies – or even just one currency – assume most international money functions, has been a long-standing academic and policy interest. Recently, a few emerging market (EM) currencies, in particular, the Chinese Renminbi, but also other currencies such as the Mexican Peso, the Brazilian Real, and the South African Rand, have experienced a significant increase in their international use (Maziad *et al.* 2011, McCauley and Scatigna 2011, Mohan, Patra, and Kapur 2013, Ma and Villar 2014). The Chinese Renminbi aside, empirical evidence shows that this internationalization has taken place in a highly skewed way. That is, nonresident demand for EM currencies has remained

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limited to fickle holdings of (short-term) domestic currency assets, rather than being broad-based across several money functions (e.g. to invoice trade or denominate holdings of long-term wealth). This skewed type of currency internationalization, most evident in the notorious carry-trade activities, has, however, exacerbated some of the characteristics specific to EM currencies, such as their excess volatility, external vulnerability, and a potential loss of policy autonomy (Andrade and Prates 2013, De Paula, Fritz, and Prates 2017).

This paper conceptualizes this skewed nature of EM currency internationalization and links it to the hierarchical nature of the international monetary system analyzed by scholars in International Political Economy (e.g. Kindleberger 1981, Strange 1971a, Cohen 1998) and Post-Keynesian Economics (e.g. Andrade and Prates 2013, Prates, Plihon, and De Conti 2014, De Paula, Fritz, and Prates 2015, Kaltenbrunner and Painceira 2015, Kaltenbrunner 2015, De Paula, Fritz, and Prates 2017, Ramos 2019, Prates 2020). Specifically, it makes two contributions to that literature. First, it argues that not only is the international use of many currencies limited, but also that currencies do not internationalize in the same way, as they assume different functions of money in the international market. These different types of currency internationalization can be seen as indicators of a currency's position in the hierarchical international monetary system, i.e. the currency hierarchy. Second, this paper extends the existing analysis of the Post-Keynesian currency hierarchy literature, which focuses on Chapter 17 of the General Theory (Keynes 1936), by complementing it with the work of Sheila Dow on the international demand for money and that of Malcolm Sawyer, who distinguishes between store of wealth and store of value functions of money. Based on this Post-Keynesian monetary theory, this paper introduces a novel type of currency internationalization that accounts for the skewed nature of EM currency internationalization, namely their internationalization as speculative investment currencies.

Scholars in International Political Economy (IPE) have long analyzed the asymmetric nature of the international monetary system, dominated by a few major currencies. Based on the seminal work by Cohen (1971), Kenen (1983), and Krugman (1984), theoretically, this literature has concentrated on whether and to what extent currencies assume money functions (to act as a medium of exchange, a unit of account and a store of value) in the international economy. So far, though, this literature has largely focused on the top currency (in Keynes' times the Pound Sterling, today the US Dollar), and its potential contenders (once the Euro, now the Chinese Renminbi) (Chen and Peng 2010, Li and Liu 2010, McCauley 2011, He, Luk, and Zhang 2016). Despite the growing participation of EM currencies in international financial markets, little has been written on the

internationalization experience of currencies further down the hierarchy. Post-Keynesian (PK) scholars, on the other hand, have an acute awareness of the potential implications of issuing a "subordinate" currency, ranging from excess volatility, external vulnerability, and severe constraints on macroeconomic policy autonomy. In this literature, however, there has been little explicit engagement with the process of currency internationalization. Moreover, as in the IPE scholarship, there seems to be an implicit assumption that the higher the international acceptance of peripheral currencies, the higher will be its position in the international currency hierarchy. This view of currency internationalization, though, fails to take into account the varied ways currencies can internationalize, and the qualitatively different implications these varied types of currency internationalization will have on domestic macroeconomic dynamics. Indeed, peripheral currencies might get trapped in certain adverse functions of international money, such as the speculative demand for a currency, which is not equivalent to other types of currency internationalization (Belfrage, Jäger, and Kaltenbrunner 2016, Kaltenbrunner 2018). In other words, it is not so much *whether* but *how* and along which functions currencies internationalize. Moreover, though having grown rapidly over recent years, there is still little work in the currency hierarchy literature on how to measure a currency's position in the international monetary system. The nature of currency internationalization could be one way of approximating empirically a currency's position in the international monetary system.

Following this introduction, the second section of this paper outlines the dominant approach to analyzing currency internationalization, rooted in the International Political Economy (IPE) perspective on the international monetary system (IMS). The third section offers a Post-Keynesian (PK) analysis of the IMS, often referred to as the currency hierarchy literature, which builds on and departs from the IPE framework by employing a distinct theoretical lens. The fourth section develops the paper's main theoretical contribution: a PK interpretation of the internationalization of peripheral currencies, culminating in the proposal of a novel category: *the speculative investment currency*. The fifth section presents an empirical analysis of the asymmetric use of currencies within the IMS. Finally, the sixth section summarizes the key findings and concludes the paper.

The international political economy (IPE) perspective on global monetary relations

Currency pyramid: the IPE origins of monetary ordering

The literature on currency hierarchy was first developed in IPE under the concept of 'Currency Pyramid' (Cohen 1998). Susan Strange (1971b) was

the pioneer of classifying currencies into several categories in an attempt to formulate a political theory of international currencies. Her criticism of the existing economic analysis of international currencies was based on the fact that economists, mostly from a mainstream apparatus, seemed to focus on rigorous mathematical models to explain the international use of currencies while taking for granted historical and political factors that influence this process. Cohen (1998) further developed the categories proposed by Strange (1971b) into a more detailed, hierarchical classification, as shown in Figure 1. His aim was also to provide a better understanding of the structures of governance and political power in the international monetary system.

At the top of the Currency Pyramid, Cohen (2015) identified currencies that are widely accepted for most, if not all, cross-border transactions, meaning they perform nearly all the functions of international money.[1] The 'top currency' is used extensively across the globe and is not limited to the region where it is issued. Although the US dollar alone currently occupies this position, the British pound sterling used to be a top currency before World War II.

In contrast, the 'patrician currency' plays a secondary role in the international monetary system, fulfilling fewer functions and being largely confined to a single region, as exemplified by the euro and the Japanese yen. Following this one, the 'elite currency' occupies a less prominent position in the IMS. While it performs some monetary functions internationally, its influence is largely confined to its national borders, with limited impact beyond them. Today, examples of currencies in this category are the British pound sterling, Swiss franc, and the Australian and Canadian dollars. In the near future, the Chinese yuan may be part of this category (Cohen 2015).

Next in the pyramid is the 'plebeian currency,' which has minimal presence in international markets, apart from its modest role in trade invoicing. This category includes currencies from smaller industrial countries (e.g., Scandinavian countries), middle-income developing countries (e.g., South Korea and Singapore), and oil-exporting countries (e.g., Kuwait and Saudi Arabia). The remaining categories – 'permeated currency,' 'quasi-currency,' and 'pseudo-currency' – describe currencies that fail to perform all functions of international money, and at least one of the key functions of money domestically. The 'permeated currency' does not serve as a reliable store of value but still functions as a medium of exchange and a unit of account, such as currencies from Latin America and Southeast Asia, as

[1]The top positions in the Currency Pyramid proposed by Cohen (2015) include all types of currency internationalisation originally identified by Strange (1971b) – i.e. Top Currency, Master Currency, Negotiated Currency and Neutral Currency.

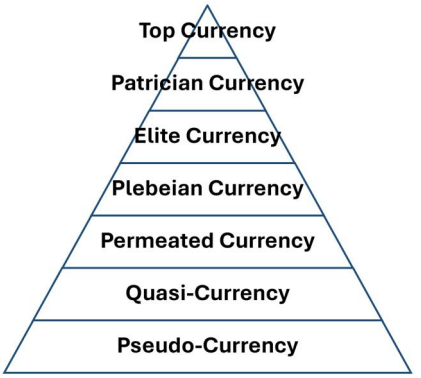

Figure 1. Currency pyramid.
Source: Cohen (1998, 2004, 2015), author's elaboration.

highlighted by Cohen (2015). The 'quasi-currency' fails to fulfill any of these roles domestically, typically being replaced by a more internationalized currency, often the top currency. Lastly, the 'pseudo-currency' has nearly ceased to exist, playing no significant role in either domestic or international markets. While a 'quasi-currency' is weakened but still present in the domestic economy, a 'pseudo-currency' has effectively lost all its monetary functions, with no practical use in either the domestic or international markets.

The analysis of Cohen (1998, 2004, 2015) draws a clear parallel between each of these categories and the functions of international money, in which the Currency Pyramid is just a useful illustration of the geography of money, i.e. the organization of currency relations in the international market.

Though the IPE literature makes important contributions to understanding the hierarchical position of currencies in the international monetary system, and the relation of this hierarchy to global political, power and governance structures, it pays little attention to the economic implications this hierarchy has for peripheral currencies. Moreover, the IPE literature does not further elaborate on the types of internationalization experienced by peripheral currencies, particularly those issued by emerging market economies,[2] which have been growing despite their political weakness. These gaps can be addressed with a Post-Keynesian analysis of currency hierarchy and monetary theory.

[2]Emerging currencies are those issued by Emerging Market Economies (EMEs). While the term 'peripheral currencies' encompasses these emerging currencies, it also includes those with even more limited participation in the international market.

Currency internationalization and the functional approach to international money

The concept of currency internationalization generally refers to the process whereby currencies are used outside the country of origin for international transactions. It is widely discussed in the field of International Political Economy (IPE), which establishes a bridge between international relations (politics) and economics. Based on the seminal work by Benjamin J. Cohen (1971), from an economic vantage point, currency internationalization in this literature is analyzed through the extent to which currencies assume the traditional three functions of money, i.e. medium of exchange, unit of account and store of value, in the international market.[3] In this analysis, a currency is fully internationalized when it performs all three functions of money outside its country of origin. These three functions are analyzed for the private and official sectors respectively, which produce six different roles of international money as summarized in Table 1. Given the predominant position of private demand for international currencies,[4] this paper focuses on the types of currency internationalization from the perspective of private actors.

The first function of money, to act as a medium of exchange, refers to the ability of a domestic currency to facilitate international trade. In the private sector, this function of international money initially gave rise to the 'transaction currency', which is a currency that circumvents the problem of 'double coincidence of wants' (Cohen 1971, Eichengreen, Chițu, and Mehl 2016). More recently, the literature on currency internationalization has replaced the 'transaction currency' with two other, more specific, roles of international money. In this more recent literature, a currency is an international medium of exchange when it is employed as a vehicle for foreign exchange operations (vehicle currency) and/or an instrument for trade settlement (trade settlement currency). Although these two types of currency internationalization are intertwined and, for this reason, they have been used interchangeably in this literature, they are not synonyms (Cohen 2013). The vehicle currency serves as an intermediary to triangulate the currency pairs that are not traded directly (Goldberg and Tille 2005). This type of currency internationalization differs from that of trade settlement, which is the currency directly used for the payment of goods and services in the international market.

[3]While IPE scholars take into consideration some of the economic factors that contribute to the internationalisation process, they are mainly interested in the relationship between political power and the international use of currencies. This paper presents a critical analysis of their economic arguments.

[4]Government may also use foreign currency to invest in real and financial assets in the private market (e.g. sovereign wealth fund).

Table 1. The roles of international money.

Function	Private	Official
Medium of Exchange	Vehicle currency Trade Settlement currency	Intervention currency
Unit of Account	Trade Invoicing currency	Exchange Rate Anchor
Store of Value	Investment currency	Reserve currency

Source: Cohen and Benney (2014).

The second function of international money measures the relative price of assets, goods and services in the international market – the unit of account function. According to the IPE literature, in the private sector, a currency is internationalized as a unit of account when foreign investors use it to invoice trade operations.[5] Although the currency used for trade settlement may differ from the currency used for trade invoicing, empirical evidence suggests that they are normally the same (Friberg and Wilander 2008, Ito and Chinn 2014).

Lastly, the third function of money in this framework is the store of value function, which indicates the ability of a currency to preserve its value through time. Economic agents store their wealth by investing in assets that not only serve as a store of value themselves but, most importantly, in assets that are denominated in a stable currency, both with regard to domestic inflation and exchange rate volatility. In the private sector, this role of international money is called the 'investment currency' (Cohen and Benney 2014).[6]

Based on this classification, both IPE scholars and economists have extensively analyzed the current state of the international monetary system – largely focused on the US Dollar as *the* international currency – and the potential of some contenders, such as the Euro and the Chinese Renminbi, to progressively assume those functions and challenge the US Dollar's leading position. Large parts of that literature, though, in particular in economics, focus either on a few select functions, such as the private medium of exchange (trade invoice and settlement currency) and public store of value (reserve currency) functions, or on the analysis of a few central currencies (e.g. US Dollar, Euro and Renminbi) across several money functions.

Although the analysis proposed by IPE scholars provides an intuitive method to understand the role of currencies in the IMS, which is particularly valuable to measure the use of central currencies, it fails to describe the role of peripheral currencies. **To understand the international demand for peripheral currencies, this paper provides a comprehensive analysis of the functions of international money, with a particular focus on the role and limitations of the 'store of value' function**.

[5]Post-Keynesian authors instead highlight more the role of currencies to denominate international financial contracts (see e.g. Kaltenbrunner 2015; Belfrage, Jäger, and Kaltenbrunner 2016).

[6]Cohen (1971) initially referred to this type of currency internationalisation as the 'asset currency'.

Moreover, there is very little engagement with the various implications that different functions of money, and hence types of currency internationalization, might have for macroeconomic dynamics. Indeed, there seems to be an implicit assumption that once internationalizing, this process would take place homogeneously across all money functions; an assumption that is arguably the result of this literature's near-exclusive focus on the leading currencies in the international monetary system. However, as the recent experience of EM currency internationalization has shown, this might not be the case. Instead, those currencies might get caught in certain types of internationalization with detrimental implications for exchange rate dynamics, external vulnerability, and macroeconomic autonomy. This skewed nature of currency internationalization, this paper argues, is both a manifestation and further cements those currencies' subordinate position in the international currency hierarchy – a literature that we turn to in the next section.

A Post Keynesian (PK) analysis of the international monetary hierarchy

The psychological incentives to international liquidity preference

The PK literature on currency internationalization is essentially intertwined with that on currency hierarchy. The PK theory, however, relies on a completely different economic apparatus than mainstream economists and IPE scholars. Their main contribution to this debate is precisely to stress the hierarchical nature of the international monetary system and, in particular, the implications of these asymmetries for developing and emerging economies. Whereas the IPE literature largely focused on political factors to explain the different ranks of the international monetary hierarchy, the PK literature has applied Keynesian monetary theory – using liquidity preference theory – to explain the *economic* determinants of this subordination in the context of fundamental uncertainty.

Paul Davidson (1982) was among the first heterodox economists to identify the need for a theory on international liquidity preference. His aim, however, was not to develop a theory on currency hierarchy but rather an exchange rate theory under the presence of uncertainty. In this PK perspective, which puts analytical primacy on the store of value function, the international liquidity of currencies depends on the confidence of foreign agents in the ability of the central bank to work as a lender of last resort by using its reserves to preserve the value of the domestic currency value; an ability which is unlimited for the central bank of the global reserve currency (i.e. the US Dollar) (Davidson, 2002).

In the theory of demand for money in a closed economy, Keynes (1936) defined three motives of domestic agents to demand money: transaction,

precaution and speculation. Sheila Dow (1999) was the pioneer to explore these three motives at the international level to shed some light on the theory of international liquidity preference.

In the first motive, Dow (1999) argues that the transaction demand for international money relates to the demand for a currency that can be used to pay for goods, services and assets. This demand bears a relationship with two different types of international flows. There is a transaction demand for a currency that can be used in the payment of international trade, which holds a strong relationship with the volume of trade-related flows (i.e. goods and services), and a transaction demand related to capital flows (i.e. assets). Particularly in moments of instability in the international financial market, there is more incentive for capital flows to circulate around the globe, resulting in a greater demand for an international currency that performs the means of payment function. In parallel to the functions of international money proposed by Cohen (1971), international actors generally demand a currency that can perform the means of payment function in the international market for both trade- or investment-related payments, i.e. 'trade-settlement currency' and 'vehicle currency', respectively.

The second motive, the precautionary motive to demand an international currency, is driven by the concern of international agents about meeting unforeseen imbalances and contractual obligations (Davidson, 2002). This motive relates to the instability of international markets, as the demand for international liquidity increases with the deterioration of international actors' confidence in their expectations (Dow, 1999). In times of higher liquidity preference, as in a situation of financial distress or a general loss of confidence in international assets, there is an increasing demand for a currency that performs the store of value function – in the currency internationalization literature, the 'investment currency'. Correspondingly, the foreign reserves of central banks, the 'reserve currency', may also reflect the precautionary demand for an international currency in the public sector, which may be used to offset exchange rate devaluations.

The precautionary demand for an international currency is also related to the unit of account function. Kaltenbrunner (2015) uses a Minskyan approach to stress the importance of the currency denomination of international debt contracts, which she refers to as the 'funding currency'. International agents, both private and public, generally keep their assets denominated in the same currency as their liabilities (debt contracts) to avoid problems of currency mismatch. Thus, the use of an international currency as a unit of account to denominate trade or financial contracts leads to greater use of this currency as a means of payment and store of value, respectively.

The last motive to hoard money in the Keynesian theory of international liquidity preference is the speculative demand for money. In a closed economy, it refers to individuals' choice between holding money (i.e. the purest form of liquidity) or other longer-term, and therefore less liquid, assets. By "knowing better than the market what the future will bring forth", these individuals speculate on the price of assets based on their expectations for future interest rates (Keynes, 1936: p. 146). Therefore, the speculative demand for money describes the preference to hold money rather than longer-term assets, given the speculative expectations that the prices of other assets are likely to fall. It is important to notice that while the precautionary demand for money reflects low confidence in future expectations, the speculative demand for money reveals confidently held expectations on future asset prices and capital gains (Runde, 1994), which may, however, be mistaken.

In the IMS, however, multiple currencies are available for transactions, and these currencies denominate a range of underlying assets, which increases the complexity of the speculative motive at the international level. The tradeoff is not only between several currency assets but also between short and long-term assets (Dow, 1999). Put differently, in the open economy, agents do not only choose whether to hold money or a yielding asset as in a closed economy, but international actors must also decide on which international currency they prefer to hold. Thus, international liquidity preference is reflected both in the liquidity of an asset (short or long-term) as well as in the liquidity of the currency that denominates that asset (liquidity premium).[7]

The demand for money analyzed by Keynes (1936) in the context of a closed economy is analogous to the demand for central currencies in the open economy, which reflects their high liquidity premia in the IMS. The demand for international liquidity is, therefore, observed when international agents demand central currencies as a result of (a) confidently-held expectation of upcoming changes in interest rates in the periphery or exchange rate depreciation of peripheral currencies (speculative motive) or (b) deterioration of their confidence in expectations about the market conditions (precautionary motive), which varies according to international liquidity cycles.[8]

In periods of low liquidity preference (or excess of international liquidity), international investors have a greater appetite for risk and may engage in short-term operations denominated in less liquid currencies, such as in

[7]Liquidity premium is an attribute of money, and it reflects the convenience or security an asset provides by being readily exchangeable without significant loss of value. This concept is further explored in the context of an open economy in the next section.

[8]The transactions motive, which reflects the demand for a central currency for trade settlement or investment-related activities, is implied in both the speculative and precautionary motive.

the years preceding the Global Financial Crisis or in periods of a commodity boom. Although peripheral currencies have lower liquidity premia, this attribute can be compensated by monetary returns, such as higher interest rates (Andrade and Prates, 2013, De Conti *et al.*, 2013, Fritz *et al.*, 2014, De Paula *et al.*, 2015, Kaltenbrunner, 2015). During times of economic and financial boom, when international investors are 'searching for yield', capital flows tend to move toward those peripheral countries whose exchange rate is expected to appreciate or remain stable for the foreseeable future. If the exchange rate of a peripheral currency is expected to appreciate as a result of higher interest rates, the international demand for this currency would increase, but as an appreciating asset rather than as money. Although this demand for peripheral currencies reflects a speculative decision of international agents, the speculative demand for money, which holds the highest liquidity premium described in Keynes (1936) and revisited in Dow (1999), is actually materialized when these capital flows move toward central currencies.

The influence of international liquidity preference on the demand for a central or peripheral currency rests on two main factors (Dow, 1999). The first one refers to the extent to which a currency satisfies the preference for liquidity, i.e. the liquidity premium. For a certain degree of liquidity preference, expectations of the deterioration of economic conditions in the periphery generally increase the demand for central currencies, given that peripheral currencies poorly satisfy the preference for liquidity of international agents. For instance, confident (albeit speculative) expectations for a relative decrease in interest rates or an exchange rate depreciation in the periphery increase the demand for central currencies, which hold a higher liquidity premium.

The second factor that influences the international demand for a central or peripheral currency refers to the fluctuations in the international liquidity preference, given the extent to which a currency satisfies the preference for liquidity. While the first factor depends on the inherent characteristics of the currency (i.e. liquidity premium), the second source of liquidity preference is independent of the economic and financial conditions of the peripheral countries. In periods of higher liquidity preference, when international agents become more risk-averse, there is a greater (precautionary) demand for more liquid currencies. As currencies from emerging economies have lower liquidity premia, these are the first ones to bear the consequences of the 'flight to quality' movement of capital flows (Andrade and Prates, 2013). Whenever currencies experience an exchange rate depreciation, particularly peripheral currencies, economic agents become more pessimistic about their future value. As a result, these agents substitute transactions and assets denominated in the weakened currency for

currencies that are perceived as strong. This substitution accentuates the weakness of the depreciated currency, which leads to more volatility and depreciation in a self-reinforcing cycle (Davidson, 1982).

Regardless of the source of changes in liquidity preference, which can be either triggered by speculative or precautionary motives, it is clear that the nature of the demand for peripheral currencies is not only temporary, but it also reveals a profit-seeking feature, as international investors perceive these currencies as an appreciating asset rather than money.

Currency hierarchy and the essential properties of international money

The application of liquidity preference theory to the open economy was further extended by authors who applied the concept of the 'own rate of interest' of an asset (r), proposed by Keynes (1936) in Chapter 17 of the 'General Theory of Employment, Interest and Money', to the international context, as displayed in Equation 1 (Riese, 1986, Andrade and Prates, 2013, De Conti *et al.*, 2013, Fritz *et al.*, 2014, De Paula *et al.*, 2015, Kaltenbrunner, 2015, Ramos, 2019).

$$r = (q - c) + a + l \tag{1}$$

In this theory, an asset's own rate of interest is determined by three specific attributes that are assessed by agents when deciding which currency to operate in. The asset return (q) is the output or yield produced by an asset denominated in the domestic currency, such as interest rates in the context of bank deposits or bonds. The carrying costs (c) of an asset in the open economy have been either interpreted as the degree of financial openness (De Paula *et al.*, 2015) or – in a Minskyan interpretation of the own rate of return – as the repayment needs in the foreign currency set up by an existing liability stock (Bonizzi and Kaltenbrunner 2019). For instance, capital controls increase the costs of international investors to access the domestic or foreign currency and, consequently, reduce the yield net of carrying costs (q - c) on assets denominated in the domestic currency. Another relevant variable, the appreciation of an asset (a), represents its expected appreciation (or depreciation) against the numeraire – i.e. money in the closed economy and the top currency in the open economy.

The final attribute, and perhaps the most important contribution of the PK literature, is the liquidity premium (l). Analogous to its definition in a closed economy, the liquidity premium (or currency premium in the German Monetary School, following the work of Riese (1986)) expresses the price agents are willing to pay for the 'power of disposal', which "may offer a potential convenience or security" (Keynes, 1936: p. 143), a

convenience that induces agents to hold this money despite having no pecuniary return of its own.

The key currency of the international monetary system holds analogous attributes to money in a closed economy: the yield, carrying costs, and expected appreciation are negligible or nil, while the liquidity premium is the highest among the existing currencies. Given these attributes, the preference for liquid currencies essentially represents a tradeoff between monetary returns $(q - c + a)$ and the international liquidity premium of a currency (l) (Andrade and Prates, 2013).

As a result of the different degrees of liquidity premium, currencies have different levels of attractiveness for international agents. When this Keynesian theory is applied to the international level, currencies can be ranked following their liquidity premium to shape a currency hierarchy (Fritz *et al.*, 2018). This hierarchy is formed by a top currency, currently, the US dollar, which has the highest liquidity premium. This currency is generally used for international transactions, and it is followed by some intermediate currencies, such as those issued by other developed countries. They hold a relatively high liquidity premium, though not as high as the US dollar, and they are often used in the international market for various purposes, e.g. as a unit of account and store of value (Andrade and Prates, 2013). Lastly, the unstable currencies, whose liquidity premium is the smallest of the IMS, are located at the bottom of the currency hierarchy as a result of their inability or poor ability to perform the functions of international money.[9]

The monetary subordination of currencies with a low liquidity premium, i.e. peripheral currencies, in turn, has fundamental implications for exchange rate and domestic macroeconomic dynamics. Changes in international liquidity preference might change the composition of international agents' asset holdings, without necessarily any changes in the domestic conditions of the countries that are issuers of peripheral currencies. Countries that issue peripheral currencies must compensate for the lower liquidity premium (l_p) to create conditions to attract capital flows. While the liquidity premium is a rigid variable in the short term, policymakers may have a direct influence on the degree of openness, interest rates and exchange rates. In this vein, the central banks that issue peripheral currencies can

[9]At this point, it is important to distinguish two terms emphasised by the Post-Keynesian literature on currency hierarchy – liquidity premium and liquidity preference. The liquidity premium is an intrinsic characteristic of an asset and a result of the degree of trust of international agents in the ability of an asset to perform the functions of international money. The international preference for liquidity refers to the demand of foreign agents for international assets with stable value (Dow 1999). This preference is a choice of international agents based on their expectations, which are affected by international conditions and are subjected to sudden changes, regardless of economic fundamentals. While the liquidity preference varies with the economic cycle, the liquidity premium is rather rigid in the short term, which explains the inertial component of currency hierarchy and the reason why it can only be influenced by policy variables in the long term (Fritz, DE Paula, and Prates 2018).

raise interest rates (q) to encourage exchange rate appreciation (a), *ceteris paribus*. Another alternative is to remove barriers to capital inflows and outflows, which increases the degree of openness and reduces the costs (c) of operating with this currency (Fritz *et al.*, 2014).

The Post-Keynesian literature on currency hierarchy seems to understand, often implied in their arguments, that a currency's liquidity premium relates to its ability to perform the functions of international money (e.g. Andrade and Prates, 2013). However, these functions appear to be considered equivalent, and there seems to be an implicit assumption that currencies will climb the currency ladder as they internationalize. While that is *grosso modo* true, this view neglects the fact that different functions of international money– e.g. being a unit of account for trade operations or investment currency – might have very different implications for exchange rate and macroeconomic dynamics and that not all currencies will assume all functions equivalently as they internationalize. Indeed, as discussed above, empirical evidence shows that international demand for emerging market currencies has been skewed toward (short-term) investment currency internationalization; very few emerging market currencies are used to denominate international trade, for example, even in regional operations. This skewed internationalization, however, runs the risk of exacerbating some of the negative implications of being a lower-ranked currency, such as high exchange rate volatility, external vulnerability, and constraints on macroeconomic policymaking.

Revisiting the functional approach to international money: the speculative investment currency

Although extensive research on peripheral currencies has been carried out in the currency hierarchy literature, it lacks a type of currency internationalization that represents the role of peripheral currencies in the international monetary system (IMS). First, this paper addresses this issue by adopting elements of the international liquidity preference theory developed by Sheila Dow (1999). Second, it also contributes to the Post-Keynesian literature on currency hierarchy by analyzing the distinction between the store of value and wealth functions of international money, as put forward by Malcolm Sawyer (2003) in the context of a domestic economy.[10] Inspired by their approach to understanding the international demand for liquidity and the functions of money, this paper motivates a novel type of currency internationalization to account for the short-term nature of the demand for assets denominated in peripheral currencies.

[10]The 'store of wealth' function of money was analysed by Sawyer (2003) in the context of a closed economy.

To put forward a theory that describes the use of peripheral currencies in the international monetary system, this paper also adopts a theoretical framework developed by Sawyer (2003)[11], who emphasizes the distinction between the 'store of value' and the 'store of wealth' functions of money.

The definition of the store of value suggests that money "must retain most of its value over the period for which it is held between its receipt and its disbursement", which is relatively short (Sawyer, 2003: p. 4). The store of value function is, therefore, a precondition for money to perform the means of payment (or medium of exchange) function, in which holding money is only temporary, given that individuals have the intention to dispose of it (Shaw *et al.*, 1997). The store of wealth, on the other hand, implies that individuals hold money in their portfolios to preserve (or increase) their wealth in the long run.

Although Sawyer (2003) provides a theoretical contribution to the context of a closed economy, the same analysis of the functions of money is still valid for the international market. The most distinct aspect of the international liquidity preference is that international actors must decide (i) the currency that denominates their assets, which can be ranked in a hierarchy according to their liquidity premium; and (ii) the liquidity of those assets, i.e. they must choose either holding money or other longer-term assets.

When money is used for international payments, i.e. to settle trade or to move capital across borders, it is generally held in its most liquid form – (digital) cash, given that this demand for money has the only purpose of disbursement. This illustrates the transaction motive to demand money, which is mostly satisfied by the central currencies, in particular, the US dollar, given that they are generally accepted for transactions in the international market.

Similarly, when there is a precautionary demand for an international currency, international agents will generally hold assets denominated in a central currency with a high liquidity premium. The main reason for holding assets, as opposed to money itself, lies in the fact that the returns paid on foreign currency savings are often very low, particularly for central currencies. The base interest rate may not be enough to offset inflation, which could probably represent a capital loss in real terms. For instance, central banks mostly hold their foreign exchange reserves in liquid assets denominated in central currencies, normally the US dollar, to maintain (and potentially increase) the real value of their reserves, i.e. to store their wealth. These foreign exchange reserves may be diversified, with gold,

[11]Additionally, the 'medium of exchange' function implies that money serves as a solution to the double coincidence of wants problem, as it is always exchanged for other goods and services. This function is, however, better described by the term adopted by Post-Keynesian economists – the 'means of payment' function, in acknowledgement that money can be used in any form of transactions, including the payment of debt obligations or taxes.

Special Drawing Rights (SDR) and other liquid assets denominated in various currencies, yet, according to data from the IMF,[12] nearly 60% of foreign exchange reserves held by central banks are denominated in US dollars. Given the potential capital loss in holding cash reserves, most of them are invested in other liquid assets denominated in a central currency, such as the US government bonds.

The speculative motive to demand money follows a similar pattern in the sense of holding assets instead of money. In a world of low yields, particularly in times of low international liquidity preference, the higher interest rates offered in the periphery may attract "unwanted attention" of international investors, i.e. speculative capital flows (McCauley and Scatigna, 2011: p. 74). The speculative demand for money is described by the demand for a liquid asset denominated in a central currency following an adjustment in investors' confident expectations of an upcoming depreciation of assets denominated in the peripheral currency. The speculative operations that were profiting from interest rate differentials in countries that are issuers of peripheral currencies ('target currencies') tend to return to countries that are issuers of central currencies ('funding currencies') (De Conti *et al.*, 2013). The temporary nature of this demand for peripheral currencies describes another type of currency internationalization that is typically experienced by emerging economies that are issuers of peripheral currencies: the **speculative investment currency,** as described in Table 2.

Peripheral currencies that are internationalized as speculative investment currency must be able to store value at least in the short term, i.e. relatively low inflation and exchange rate stability (or appreciation) as a precondition for this type of internationalization. Holders of speculative investment currencies lack confidence in their ability to preserve wealth in the long run. Instead, they rely on these currencies' ability to store value within a (short) investment window. The investors of speculative currencies are drawn to the potential for higher returns provided by the countries issuing these currencies, driven by financial incentives rather than long-term stability or intrinsic value.

Table 2. A new role of international money.

Function	Types of Currency Internationalization
Means of Payment	Vehicle currency Trade
	Settlement currency
Unit of Account	Trade Invoicing currency
Store of Value	Speculative Investment currency
Store of Wealth	Investment currency

Source: Authors' elaboration based on Cohen and Benney (2014*)*

[12]Allocated reserves from the Currency Composition of Official Foreign Exchange Reserves (COFER), International Monetary Fund (IMF).

Table 3. Post-Keynesian classification of currency internationalization.

	Means of Payment		Unit of Account		Store of Value		Store of Wealth	
	Domestic	Internat.	Domestic	Internat.	Domestic	Internat.	Domestic	Internat.
Top Currency	Highest	Highest	Highest	Highest	Highest	Highest	Highest	Highest
Patrician Currency	Highest	High	Highest	High	Highest	High	Highest	High
Elite Currency	Highest	Medium	Highest	Medium	Highest	High	Highest	Medium
Plebian Currency	High	Low	High	Low	High	Low	High	Low
Permeated Currency	High	Lowest	Medium	Lowest	Low	Lowest	Low	Lowest
Quasi Currency	Low	Ignored	Low	Ignored	Low	Ignored	Low	Ignored
Pseudo Currency	Ignored	Ignored	Ignored	Ignored	Ignored	Ignored	Ignored	Ignored

An important conclusion of this theoretical approach is that when a currency is internationalized as a speculative investment, international agents do not expect it to store its value (or wealth) in the long term. Thus, this type of currency internationalization does not stem from the greater confidence of international investors in this currency, but instead from lower international liquidity preference. As a result, the liquidity premium of this currency remains rather low, and its position in the hierarchy is not enhanced.

This Post-Keynesian interpretation of currency hierarchy is illustrated in Table 3, which organizes the various ranks of the 'Currency Pyramid' based on the functions of money, both domestically and internationally. While the unit of account function is a necessary condition for a currency to be positioned at the top of the hierarchy, a weak ability to perform the store of wealth function places currencies in lower positions in the hierarchy. The factors that influence a currency's ability to serve as a store of wealth – such as economic stability, low inflation rates, strong financial institutions, and high levels of investor confidence – are often deep-rooted and difficult to alter. For this reason, currencies ranked below the 'elite currency' have little chance of competing for significant roles in international markets, at least in the short term.

As discussed in the previous session, the 'plebeian currency,' which represents the currencies of smaller industrialized countries, wealthier oil exporters – as argued by Cohen (2015) – may also extend to encompass most emerging market economies (EMEs), which typically experience higher demand during periods of economic prosperity. This is often driven by government policies that create favorable conditions, such as high interest rates and reduced capital controls, to attract foreign capital. While these measures may provide opportunities for short-term speculative gains and enhance the currency's role as a store of value, they do little to improve its function as a long-term store of wealth, reinforcing these currencies' lower position in the hierarchy. During periods of economic distress, however, capital flows tend to reverse, gravitating back toward the currencies at the top of the hierarchy – namely, the 'top' and 'patrician' currencies.

Variegated currency internationalization and currency hierarchy

As we argued in this paper, in contrast to the widespread assumption in the IPE literature, currency internationalization is not a linear, nonhierarchical process – where currencies progressively assume international money functions and those functions are neutral with regard to currencies' position in the international currency hierarchy – but is highly variegated and stratified. That is, different currencies internationalize in very different ways, and some might get stuck in "non-developmental" money functions that further cement their subordinate position in the international monetary system. Figure 2 shows the rising participation of emerging currencies[13] in the global foreign exchange market turnover, which refers to the total value of currencies traded internationally.

Since 2001, the share of these currencies in total currency trading has risen from about 3.9% to 16.1% in 2022. This increase has been particularly strong for the Chinese Renminbi, the Indian Rupee, and the Mexican Peso, which in 2022 accounted for 7%, 1.6%, and 1.5% of total turnover, respectively. To gain a more nuanced understanding of the international standing of these currencies, we can examine the same data by currency, comparing their usage from 2001 to 2022, as illustrated in Figure 3.

Although this provides a general approximation of the shape of a currency hierarchy, it is essential to further examine the distinct functions of international money that these currencies fulfill (i.e. the different types of currency internationalization they embody) to fully understand their relatively disadvantaged position in the International Monetary System (IMS). The mere increase in the usage of these currencies does not automatically translate into a higher position within the hierarchy. From a developmental perspective, it is crucial to analyze the nature of their internationalization to gain an accurate understanding of the asymmetries in the IMS.

While the use of emerging market economy (EME) currencies has indeed risen in recent years, this apparent rise in their internationalization masks significant differences in the *nature* of this process and the specific functions these currencies assume. For this reason, this paper closely examines each of the three functions of international money outlined by Cohen (1971, 2013).

As discussed in Sections 2 and 4, each of these functions gives rise to different types of currency internationalization. For instance, the means of payment function describes the use of an international currency both as a *vehicle currency* and as a *trade settlement currency*, which are illustrated below in Figure 4 by the share in global foreign exchange turnover (as

[13]While this paper has included the Chinese Yuan as an emerging currency, it recognises that this is rather a currency in the transition from the periphery to the centre.

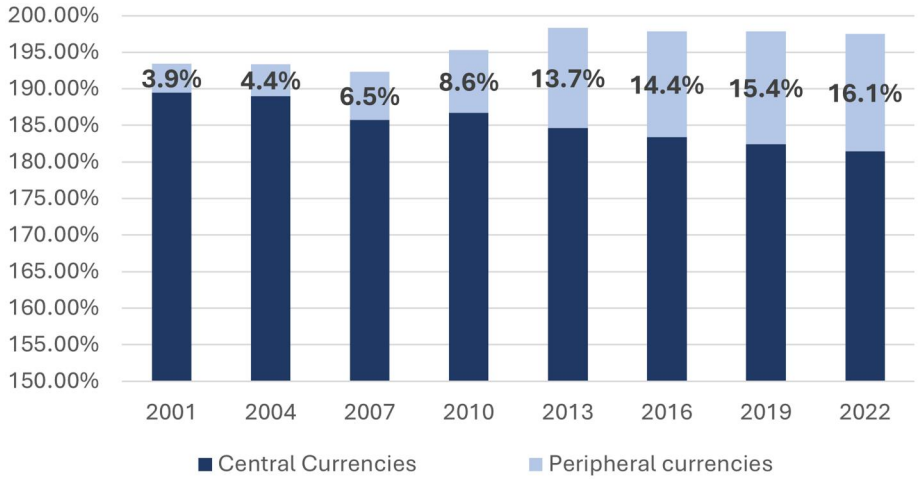

Figure 2. Share of central and peripheral currencies in global foreign exchange turnover.
Source: BIS Triennial Central Bank Survey; Note: Given that two currencies are involved in each FX transaction, the sum of the percentage shares of individual currencies totals 200% instead of 100%. Data was found on the following peripheral currencies (18 in total): Chinese Yuan (CNY), Mexican Peso (MXN), Indian Rupee (INR), Russian Ruble (RUB), South African Rand (ZAR), Turkish Lira (TRY), Brazilian Real (BRL), Polish Zloty (PLN), Thai Baht (THB), Indonesian Rupiah (IDR), Hugarian Forint (HUF), Chilean Peso (CLP), Philippine Peso (PHP), United Arab Emirates Dirham (AED), Colombian Peso (COP), Saudi Riyal (SAR), Malaysian Ringgit (MYR) and Romanian Leu (RON). Other peripheral currencies with limited data (OTH) were also included in the sample as a group of currencies; and central currencies (17 in total): United States Dollar (USD), Euro (EUR), Japanese Yen (JPY), Pound Sterling (GBP), Australian Dollar (AUD), Canadian Dollar (CAD), Swiss Franc (CHF), Hong Kong Dollar (HKD), New Zealand Dollar (NZD), Swedish Krona (SEK), South Korean won (KRW), Singapore Dollar (SGD), Norwegian Krone (NOK), New Taiwan dollar (TWD), Danish Krone (DKK), Czech Koruna (CZK) and Israeli New Shekel (ILS).

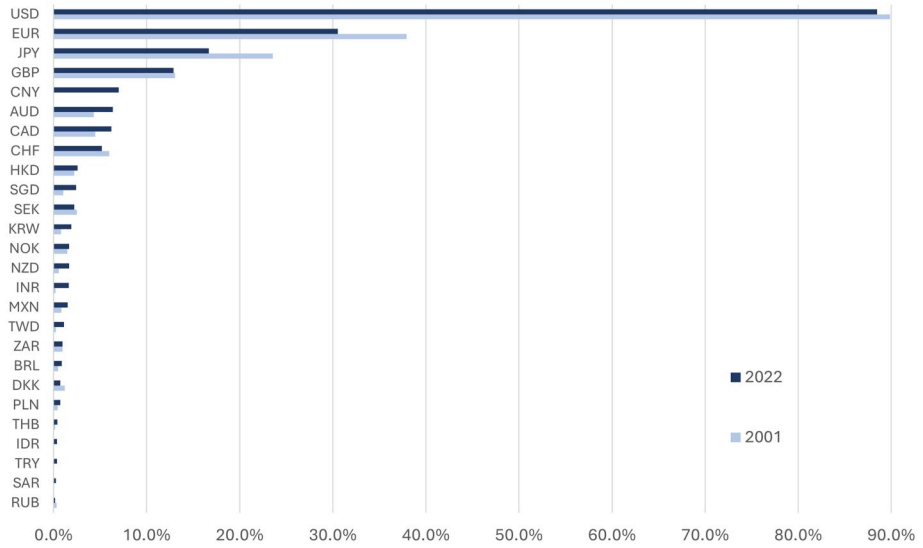

Figure 3. Hierarchical analysis of central and peripheral currencies in global foreign exchange turnover in 2001 to 2022.
Source: BIS Triennial Central Bank Survey (2001, 2022).

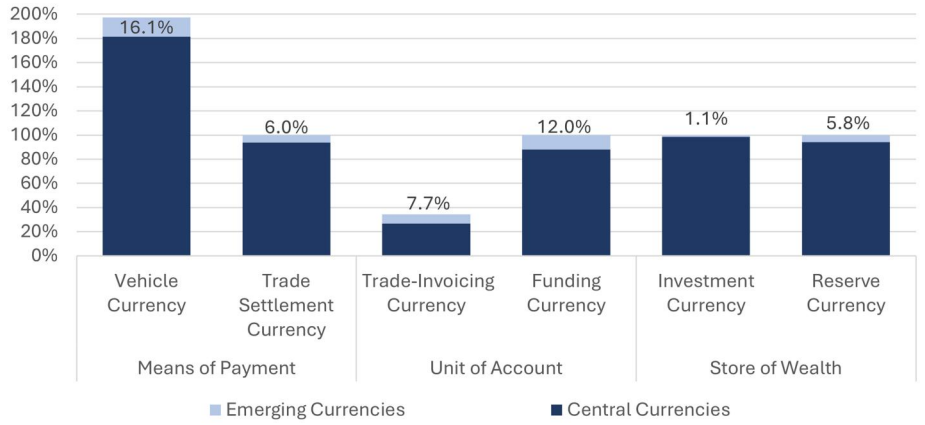

Figure 4. International use of central and emerging currencies.
Sources: Data for foreign exchange turnover and the currency denomination for international payments are from the BIS Triennial Central Bank Survey (2022) and SWIFT RMB Tracker Report (2021), respectively; Trade invoicing data are calculated as the average exports of central and peripheral economies denominated in local currency, using data from Boz et al. (2020) and the denomination of international cross-border loans from the BIS International Banking Statistics (2022); data for the currency denomination of international debt securities and official foreign exchange reserves are from the BIS International Debt Securities Statistics (2022) and the IMF Currency Composition of Official Foreign Exchange Reserves (2022). Note: the sum of the percentage shares of individual currencies totals 200% for the FX Turnover data.

depicted in the graph above), and the currency denomination of the international payment system reported by SWIFT, respectively. The unit of account function is represented by the *trade-invoicing currency* and the *funding currency*, approximated by the share in global trade invoicing and the denominator of cross-border loans. Lastly, the store of wealth function, as argued in this paper, emphasizes the use of a currency for long-term investment purposes – serving as an *investment currency* in the private sector, denominating international debt securities. This function can also be examined from the perspective of the public sector, where the currency acts as a *reserve currency*, measured by data on foreign exchange reserves. These types of currency internationalization are demonstrated below using data from 2022.[14]

One can observe that whilst peripheral currencies now make up for a larger share of the global foreign exchange volume, their role in denominating foreign exchange reserves and, even less so, international debt securities, as indicators of the public and private store of value functions respectively, is still very limited. Although peripheral currencies seem to be somewhat more important as a unit of account in international trade (average), this is driven largely by the Russian Rouble (22.9%), South African

[14]For the variables that were not available in 2022, the most recent data was used.

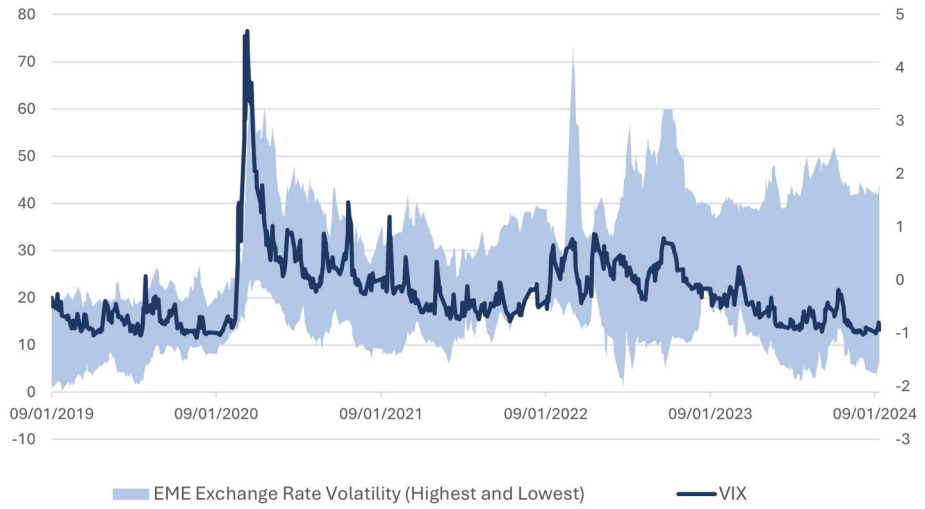

Figure 5. Exchange rate volatility and the VIX index.
Source: Author's calculation. The Cboe Volatility Index (VIX Index), on the left-hand side (LHS) of the graph; Shaded area: highest and lowest values of exchange rate volatility for a group of selected peripheral currencies (i.e. Mexican Peso (MXN), Indian Rupee (INR), Russian Ruble (RUB), South African Rand (ZAR), Brazilian Real (BRL), Polish Zloty (PLN), Thai Baht (THB) and Chilean Peso (CLP)). This data was calculated as the standard deviation of IMF's currency unit per US dollar, on the right-hand side (RHS) of the graph.

Rand (31.5%) and the Thai Baht (12.8%), partly due to their significant regional use (e.g. the South African Rand in Southern Africa).

Thus, whilst emerging market currencies have increased their presence in the global economy, this increase has not been broad-based across different money functions. Instead, this paper argues that the internationalization of peripheral currencies has been skewed toward speculative investments (e.g. "carry trade currencies"), which are only held for a rather short amount of time to benefit from favorable interest rate differentials and exchange rate movements in the periphery. EME currencies' use as a means of payment, or indeed a more long-term store of value, remains very limited. This skewed currency internationalization, however, as discussed in the previous section, comes with peculiar exchange rate dynamics which undermine emerging market currencies' ability to assume alternative international money functions, and thus further cement their subordinate position in the currency hierarchy.

Unfortunately, accurate data on these more speculative operations does not exist for a broad range of countries. The literature on the carry trade (see e.g. Heath *et al.*, 2007, Burnside *et al.*, 2011, Daniel *et al.*, 2014) has thus worked with a range of approximations, such as the observed interest rate differential or exchange rate behavior. One such potential approximation is a currency's sensitivity to international market conditions. This vulnerability arises, as these currencies are mainly held for short-term

speculative gains – both on the interest rate differential and the exchange rate changes – which are sensitive to changes in international market conditions (liquidity preference), and funding costs.

Figure 5 shows this sensitivity, approximated by the co-movement between the VIX – a common indicator of international risk aversion – and the highest and lowest values of exchange rate volatility vis-à-vis the US dollar for selected emerging market currencies.

One can observe the strong co-movement between the emerging market currencies, which broadly coincides with the developments of the VIX. When the VIX rises, that is, international risk aversion increases, most emerging market currencies depreciate (and vice versa for declines and exchange rate appreciations). This co-movement is particularly visible at the beginning of 2020, during the COVID-19 shock. Interestingly, this co-movement seems to have broken down since 2022 and the Russian invasion of Ukraine. Since then, we have observed a clear separation between currencies that have depreciated (the Russian Rouble, the Chinese RMB, and the Indian Rupee) and currencies which have appreciated, together with a decline in the VIX, and remain firmly connected to the Western (US) financial system (e.g. the Mexican peso).

In sum, one can observe that EM currencies fulfill very few money functions internationally. Those that have internationalized (to the exception of the Chinese RMB) have been skewed toward fickle speculative investment currency internationalization, often driven by speculative carry-trade purposes, as theoretically exposed, using a Post-Keynesian framework, in the previous section.

Conclusion

Currency internationalization is an important topic in the research agenda of policymakers worldwide and, as such, it has been broadly discussed in the literature. Most academics analyze this phenomenon through the lenses of the functions of international money, i.e. medium of exchange, unit of account and store of value, which were originally proposed by Cohen (1971), and further explored by Post-Keynesian economists in the currency hierarchy literature. The types of currency internationalization that arise from this analysis, however, fail to describe the recent process of internationalization experienced by peripheral currencies, which is crucial to understanding their subordinate position in the so-called currency hierarchy.

In the existing literature, it is often implied that a greater degree of currency internationalization enhances the position of a currency in the hierarchy. However, this paper argued instead that the position of a

currency in the hierarchy is not equally influenced by the different types of currency internationalization. Therefore, it is crucial to understand not only the extent to which a currency is used in the international market but also its type of internationalization. To address this issue, this paper adopted a Post-Keynesian framework to theoretically contribute to the currency hierarchy literature and suggested an additional type of currency internationalization: the speculative investment currency.

One way to analyze the demand for peripheral currencies is through the Post-Keynesian theory on international liquidity preference. The currency hierarchy literature stresses that countries that issue peripheral currencies typically offer higher interest rates to compensate for their lower liquidity premium. As a consequence of changes in the international preference for liquidity, the capital flows that once migrated to these peripheral countries with the prospect of higher returns (i.e. speculative capital) eventually 'flight to quality'. This speculative demand for international money, or for assets denominated in central currencies, echoes a confident expectation of future depreciation of assets denominated in peripheral currencies (or appreciation of assets denominated in central currencies). As a result of these capital movements, the exchange rate of peripheral currencies becomes more volatile, which reinforces the lack of international investors' confidence in these currencies, i.e. their liquidity premium. Thus, internationalization as a speculative investment currency does not enhance the position of a currency in the hierarchy.

Many Post-Keynesian economists also stress the importance of currency stability to improve their position in the hierarchy, which gives greater emphasis to the store of value function. However, monetary theory in the context of a closed economy argues that this function is closely related to the means of payment, in which a currency preserves its value for a short period between receipt and disbursement. This paper theorizes the speculative investment currency as a type of currency internationalization under the 'store of value' umbrella, while the latter function describes the ability of money (or less liquid assets) to preserve or increase wealth in the long term.

The store of value, therefore, describes the use of peripheral currencies, which, in times of low international liquidity preference, are the target of international investors seeking capital gains. When there is a shift in their expectations concerning the periphery (whether driven by domestic or international factors), capital flows tend to migrate toward the currencies positioned at the top of the hierarchy, such as the US dollar. While the store of value function is indeed a precondition for a currency to serve as an international means of payment and unit of account, the primary feature of a speculative currency is its predominantly internationalized nature

in this capacity, with limited or no involvement in other roles within the International Monetary System (IMS).

In a nutshell, this paper brought together elements from the Post-Keynesian literature on monetary theory, international liquidity preference and currency hierarchy to present a theoretical contribution that sheds some light on the position of peripheral currencies in the hierarchy. It argued that the liquidity premium manifests itself in different ways in each type of currency internationalization, which shapes the currency hierarchy. Interestingly, the different functions that currencies perform as international money broadly coincide with their perceived position in the currency hierarchy, potentially offering a proxy for measuring that hierarchy.

Though currency internationalization and currency hierarchy are correlated to each other, they do not hold a linear and positive relationship, as generally assumed in the literature. An increase in the degree of currency internationalization cannot necessarily be understood as an increase in the position of this currency in the hierarchy. Under this approach, currency hierarchy is shaped by the different types of currency internationalization, which influence the liquidity premium of each currency in different ways. In fact, one can think of a hierarchy of types of currency internationalization. The 'speculative investment currency' would be in an inferior position in this hierarchy, as an undesirable type of internationalization that mostly brings adverse consequences to the economy, such as exchange rate volatility, external vulnerability, and a potential loss of policy autonomy (Andrade and Prates, 2013, De Paula *et al.*, 2017), as well as the maintenance of the subordinate position of those peripheral currencies at the lower ends of the currency hierarchy.

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