ISSN 1680-8819

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Analysis of developing countries' external financial vulnerability

Esteban Pérez Caldentey

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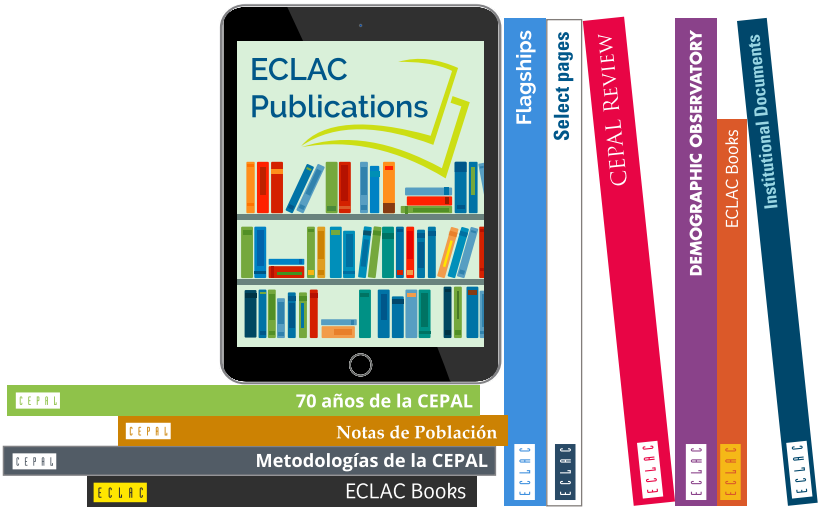

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United Nations publication
ISSN: 1680-8819 (electronic version)
ISSN: 1564-4197 (printed version)
LC/TS.2024/121
Distribution: L

Printed at United Nations, Santiago
S.2401034[E]

This publication should be cited as: E. Pérez Caldentey, "Analysis of developing countries' external financial vulnerability" *Financing for Develelopment series*, No. 276 (LC/TS.2024/121), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2024.

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Abstract

The United States dollar has increased its importance as an international medium of exchange, maintained its strength as a store of value and reinforced its role as the world's unit of account. At the same time the capital market has become a major source of funding throughout the world including for developing countries. This context has major financial implications for the United States and for those countries, mainly developing countries, that are anchored to the dollar. These implications are brought to the fore by focusing on some of the main transmission mechanisms of international financial conditions to developing countries and by analyzing the components of the external balance sheets for the United States and for developing countries. The analysis is placed within the context of some of the changes that have occurred in the international financial system and in the composition of international financial flows in the aftermath of the Global Financial Crisis.

Introduction

The Bretton Woods system placed the United States dollar at the center of the international financial architecture. It is the dominant international reserve currency. Despite recurrent statements to the contrary, the dollar predominance is unrivalled in the short run and will most likely be unquestioned in the medium, and perhaps even in the long run.[1]

The advantages enjoyed by the dollar have allowed the United States to lower its borrowing costs on its liabilities while at the same time earning higher returns on its assets. This has resulted in a significant wealth transfer from the rest of the world and particularly from developing economies to the United States.

Recent evidence shows that other developed countries also exhibit positive yield differentials on their external net assets.[2] Even though the United States is also subject to negative yield valuations on its risky assets during times of crises, the flight to quality reduces borrowing costs for the government.[3]

Its hierarchical role as a medium of exchange, a store of value and unit of account is out of proportion to its importance in the world economy. The exorbitant privilege of earning excess returns in normal times on its international investment position during normal times is attributed in part to the comparative advantage of its financial market. The United States has the largest financial market in the world.[4]

In contrast the countries anchored to the United States dollar such as developing countries have reinforced their financial vulnerability. On the asset side of their external balance sheet the accumulation of international reserves that significantly increased following the Global Financial Crisis

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1 The ideas and content of this paper draws on Pérez Caldentey (2024) How economic crises have strengthened the role of the United States dollar and its implications for developing economies. In Abdrés Arauz and Sylvi Kappes Central Banking, Monetary Policy and The Political Economy Of Dollarization. Cheltham: Edward Elgar. Forthcoming 2025.

2 See Mayer (2021).

3 See Gourinchas et al. (2017); Eichengreen (2011).

4 Eichengreen (2011).

and the Pandemic has proven to be a costly insurance mechanism. On the liability side of their external balance sheet the predominance and dependency of short-term flows and portfolio debt securities makes them highly vulnerable to capital reversals and to changes in international interest rates.

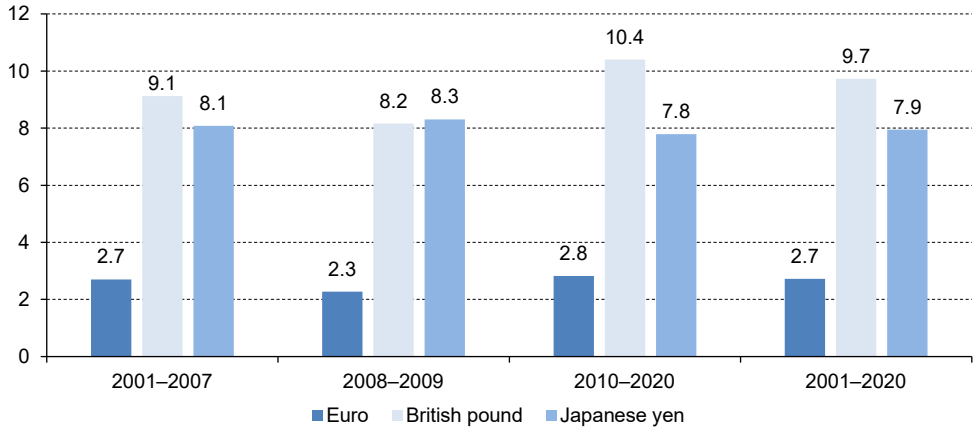
The paper is divided into six sections. The second section presents data on the strength of the dollar as a medium of exchange, a store of value and unit of account. The section argues that the dollar is strongest as an international unit of account. The section also shows the predominance of the dollar is delinked from the relative importance of the United States economy. The third section examines the relationship between the rise in the importance of the international capital market as a source of funding and the primacy of the United States dollar. The fourth and sixth sections exemplify how this overall context affects the external balance sheet positions of the United States and of developing economies. The last section concludes.

I. The predominance of the dollar

The United States dollar is without doubt the most important international reserve currency in the world and there is little evidence that shows that its supremacy will be challenged in the near or medium-term future.

This is adequately captured in figure 1 which shows the evolution of the usage of the United States dollars relative to the Euro, the British Pound, and the Japanese Yen for the period 2001–2020 and the subperiods 2001–2007, 2008–2009, and 2010–2020 (figure 1).

Figure 1
International currency usage of the United States dollar relative to the Euro, the British Pound the Japanese Yen, 2001–2020
(In percentages)



Source: On the basis of Carol Bertaut, Bastian von Beschwitz, & Stephanie Curcuru (2023).
Note: The data was computed by dividing the index of international currency usage of the United States by that of the Euro, the British Pound and the Japanese Yen. The international currency usage index is a weighted average of each currency's share of globally disclosed FX reserves (25 percent weight), FX transaction volume (25 percent), foreign currency debt issuance (25 percent), foreign currency and international banking claims (12.5 percent), and foreign currency and international banking liabilities (12.5 percent).

The data shows how the United States dollar is the most used currency in the world and how it has maintained its predominance over the past two decades (figure 4). For the period 2001–2020 the international currency usage of the United States dollars is almost three time that of the Euro, 9.7 times that of the British Pound and 7.9 times that of the Japanese Yen.

The data also shows that that international status of the United States dollar was not affectred by the Global Financial Crisis (2008–2009). In fact, in the aftermath of the crisis the United States dollar maintained or strengthened its hierarchical role. Thus uderscores the unique historical role of the dollar.

The currency usage of the United States dollar responds mainly to its function as the international store of value and most importantly as the global unit of account.[5] This amounts to a de facto dollarization.

The term dollarization has evolved over time. In the early literature of the 1970s dollarization was synonymous with currency substitution, which denoted the demand for foreign currency by the residents of a country. Later, in the 1990s dollarization was understood to mean the use of the United States dollar (it can also refer to another reserve currency such as the Euro) alongside or instead of the domestic currency. Full (or official) dollarization refers to the adoption of the United States dollar as the main or only legal tender.[6] As a result, the dollar becomes the medium of exchange, the store of value and the unit of account. Dollarization can also be unofficial (or partial) meaning "the process by which individuals substitute domestic currency with foreign currency to make transactions and allocate their financial assets"[7] The use of the term unofficial dollarization leads to the distinction between currency and asset substitution.[8] Asset substitution refers to the holding of financial wealth in foreign denominated assets. Asset substitution is the result of the emphasis placed on money as a store of value.

The indicators that reflect the degree of unofficial (or partial) dollarization of an economy include foreign-currency deposits as a proportion of total deposits in the banking system or as a proportion of total liquidity. Another measure of dollarization is the proportion of dollar notes and/or dollar-denominated assets (e.g. United States Treasury bills) that are held outside the United States. Similarly, the share of international reserves held in United States dollars by central banks around the world is also used as a barometer for the degree to which the dollar is used as a store of value.

The current stage of dollarization is different. The United States dollar has increased its importance as a medium of exchange. According to the Society for Worldwide Interbank Financial Transactions (SWIFT) the dollar usage in international payment transactions, increased from 36.1% of the total in 2013 to 46.5% of the total in 2023. The Euro lost share (36.5% and 24.4% of the total for the same period). For its part international payments transactions in Chinese renminbi remain marginal (0.03% and 3% of the total) for the same period.

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5 The unit of account property of money became prominent during the debate over the recoinage of silver that took place in England in the late 1690s and led to a famous debate between then Treasury Secretary William Lowndes and the philosopher, and also monetary theorist John Locke. The debate revolved around whether the value of coin reflected its metallic content (Locke) or by the units in which it was denominated (Lowndes) (Andréadès, 1935, pp. 100-102; Green, 1992; Joyce, 1997). The debate led to the division between those economists who emphasized the unit of account properties (chartalists such as for example Keynes (1930)) and those that focused on the medium of exchange (metallists and in general quantity theory adherents). The analyses on the unit of account property (overshadowed by those dealing with the store of value and medium of exchange properties. See Doepke and Schneider, 2017) of money have centered on issues such as devaluation and money illusion (Fisher, 1924; Mundell, 1997). More recently the invoicing and funding dimensions of the unit of account property have taken center stage (Gopinath et al., 2020; Alloway and Wiesenthal, 2022). These become highly relevant in an international context dominated by a single reserve currency.

6 See United States Senate (1999), Berg & Borenstein (2000), Quispe-Agnoli (2002).

7 Quispe-Agnoli (2002), p. 4.

8 Ibid and Berg & Borenstein (2000).

There have been initiatives to use non-dollar currencies for payments transactions.[9] In March 2023 Brazil and China announced an agreement to carry out future trade and financial transactions in their local currencies. Another example is the increasing participation of non-dollar currencies including the Chinese yuan, the United Arab Emirates dirham, the Russian ruble and the Indian rupee in oil transactions.[10] Currently non-dollar transactions account for about a quarter of total transactions in the oil market.[11]

The dollar has also maintained its relative strength as a store of value. Following the six year implementation of quantitative easing policies (2008–2013) the share of international reserves held in dollars increased from an average of 62.3% to 65.4% over the period 2014–2016. Still the importance the dollar far exceeds that of other international reserve currencies, including the euro, the English pound, the Japanese yen and the Chinese renminbi. During the Pandemic the share of dollar denominated foreign reserves declined to 58.9% remaining at that level in 2023. By comparison the shares of foreign exchange reserve denominated in euro, British pound, Japanese yen, and Chinese renminbi amount to 20.6%, 5.9%, 4.7% and 2.4% of the total.[12]

The data also shows that the United States dollar has strengthened its role as a unit of account. Between 1998 and 2022, the share of dollar denominated transactions increased from around 81% to 88.5% of the total. According to Shin[13] 88% of all foreign exchange transactions have the dollar on one side of them (figure 4); whereas 31%, 17%, 13% and 7% have the euro, the yen, the pound sterling and the renminbi on one side respectively.[14] The dollar's share in SWIFT payments reaches 43% of the total while those of the euro and renminbi make up 32% and 3.2% of the total respectively. Estimates based on international trade invoicing data, show that between 1999 and 2019 the dollar accounted for 96% of international trade invoicing in Latin America and the Caribbean, 74% in the Asia-Pacific region and 79% in the rest of the world.[15]

The hegemony of the United States dollar does not keep any relationship with the importance of the United States economy. The United States economy represents of world GDP 21.7% and 11.5% of total international trade (figure 2).

An important implication of the predominance of the dollar is that by far the majority of external debt at the global level is issued in United States dollars.

As shown in table 1 for the period 2005–2022 the share of debt issued in dollars increased from 53.9% to 69.7% of the total. By contrast the debt issued in the rest of reserve currencies including the Euro, the British Pund, the Japanese Yen and the Chinese Renminbi are much smaller. In addition, these currencies lost part of their share in the same period (table 1).

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9 There have also been initiatives to increase the share of local currency funding. The BRICS (Brazil, Russia, India, and China) announced in 2023 that their multilateral lender, the New Development Bank, would increase its funding from less than 20% to 30% of the total. See, Rangongo (2023).

10 See Blackmon (2023).

11 According to the World Economic Forum, oil accounts for 3% of world GDP. See Kolaczkowski, M & White A. (2022).

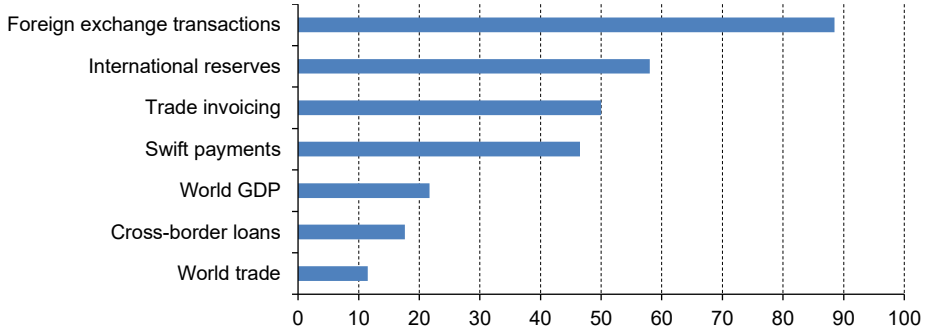
12 The data refer to the year 2021. See Bertaut et.al (2023).

13 In Alloway and Weisenthal (2022).

14 See also Hofmann et al., (2022).

15 In fact, perfect mobility of financial flows does not imply perfect substitution of financial assets. As Smithin (2003, p. 166) explains: "In practice, even in conditions in which financial capital is completely mobile in a technical sense, this condition can only hold up to the inclusion of what is usually called a 'currency risk premium' (Frankel, 1992), which is required by foreign investors if they are to hold assets denominated in the domestic currency. Even if financial capital can cross borders electronically 'at the push of a button', it must still be the case that assets denominated in different currencies, and whose exchange rates are liable to change, are still not perfect substitutes. Even given 'perfect capital mobility' there need not be 'perfect asset substitutability'. It continues to matter, in other words, precisely whose promises to pay the investor holds at any given moment (US dollars, Canadian dollars, Mexican pesos, Euros or yen)."

Figure 2
Indicators of the importance of the United States dollar across the global economy, 2023[a]
(In percentages of the total for the world for each category)



Source: Duffie (2023) & Li (2024).
[a] Latest available data.

Other computations based on BIS (2019) show that, in 2018, in emerging markets and developing economies, dollar-denominated debt accounted for 80% of total issuance in emerging markets and developing economies: 76% in developing countries in Europe; 78% in developing countries in Asia and the Pacific; 84% in developing countries in Africa and the Middle East; and 90% in developing countries in Latin America and the Caribbean.

Table 1
Share of foreign currency debt issuance, 2005–2022
(In percentages)

Year	U.S. dollar	Euro	British pound	Japanese yen	Chinese renminbi	Other
2005	53.9	27.6	9.3	2.6	0	6.5
2006	54.7	27.2	11.4	1.4	0.1	5.3
2007	59.1	23	10.7	2.6	0.1	4.5
2008	63.3	22.8	6.9	3.4	0.2	3.3
2009	62.9	26.3	4.8	1.9	0.3	3.7
2010	71.7	19.5	2.2	2	0.3	4.3
2011	69.7	19.3	3.1	2.5	0.9	4.5
2012	72.4	15.1	4.4	2.4	1	4.7
2013	74.2	17	2.6	1.7	1.1	3.4
2014	68.6	21.6	3.6	1.4	1.5	3.2
2015	72.2	18.8	4.5	1.4	1	2.1
2016	72	20.1	3.7	1.3	1	1.9
2017	71.2	21.2	2.8	1.7	0.6	2.5
2018	70.8	18.9	5.6	1.4	1	2.2
2019	72	20.4	3	1.5	0.7	2.4
2020	71.7	20.5	3.3	1.4	0.8	2.3
2021	72.5	19.5	3.4	1	0.9	2.8
2022	69.7	20.7	3.2	1.7	2.2	2.6

Source: Carol Bertaut, Bastian von Beschwitz and Stephanie Curcuru (2023).

II. The international capital market as a source of funding and the primacy of the United States dollar

From the 1990s until the global financial crisis, the dynamics of financial globalization depended fundamentally on the behavior of global banks, mostly located in the United States and the countries of the Eurozone. It operated through the interrelationship between the leverage of the financial system, its interconnectivity, and the concentration of financial institutions.

In the aftermath of the Global Financial Crisis (2008–2009), the banking system lost relative importance as a generator and transmitter of global liquidity. The capital market, and more precisely, the bond market, compensated for the loss of dynamism of global banking, assuming a greater relative role in the provision of global liquidity.

Between the fourth quarter of 2000 and 2023, non-bank sector debt securities issuances increased from $1.5 trillion to $12.9 trillion. This accounted for 47% and 59% of total liquidity globally. Developed economies are the main providers and beneficiaries of debt flows. Still, developing and emerging market economies that borrow through the international bond market account for about 30 per cent of the total, and 50 per cent of global liquidity is channeled to this group of economies (table 2).

Prior to the Global Financial Crisis, governments of emerging markets and developing economies were the main issuers of bonds in the international capital market. Following the Global Financial Crisis the government continued to issue bonds in the international capital market and maintained its leadership as the main bond issuer. However, other sectors, particularly the non-financial corporate sector, lured by record low external long-term interest rates and, in some cases currency appreciation, have become important bond issuers so that external indebtedness has spread to other sectors of the economies. As things stand the non-financial corporate sector has become the most dynamic bond issuer.

Table 2
Total credit to non-bank borrowers, bank loans and issuances of debt securities by non-bank borrowers, amounts outstanding
(Trillions of dollars, 2000–2023)

	2000	2007	2010	2023
		World		
International debt securities (bonds)	1.5	3.9	4.6	5.8
Cross-border lending	1.6	4.3	4.9	7.1
Bonds/Liquidity *(Percentages)*	47	48%	48	59
		Developing and Emerging Market Economies		
International debt securities (bonds)	0.4	0.7	0.8	2.5
Cross-border lending	0.6	1.2	1.6	2.5
Bonds/Liquidity *(Percentages)*	42	36	34	50

Source: Authors' own elaboration based on the Bank for International Settlements (BIS), 2024.
Note: Data includes cross-border bond issuances and loans in U.S. dollars, euros, and yen. All figures were converted into United States dollars, using the exchange rate of the relevant quarter, weighted by the volume of debt and loans denominated in dollars, euros and yen. Liquidity refers to the sum of cross-border bonds and loans. Each year's data refers to the fourth quarter except for 2023, which is for the third quarter.

Between March 1990 and September 2023, these represented on average 58% and 29% of the total amounts outstanding of debt securities. Over the same period the rate of growth on non-financial corporate sector debt largely exceeded that of the government. By comparison the financial sector represents a smaller share of the total outstanding debt (13%, 6% and 5% of the total for financial corporations, private banks and other private financial institutions).

Table 3
Comparative view of amounts outstanding of debt securities issued in international markets by residents of Developing Latin America and the Caribbean, 1990–2023
(US$ millions of dollars)

	March 1990	December 1995	December 2000	December 2005	December 2010	December 2020	September 2023
All issuers	43 614	199 883	315 780	307 407	424 686	968 332	978 188
General government	38 224	146 783	230 077	234 113	241 000	477 573	518 524
Non-financial corporations	2 192	26 765	54 565	48 534	106 343	355 255	334 962
Financial corporations	2 911	26 334	31 138	24 759	77 342	135 504	124 702
Private banks	1 979	17 722	15 835	10 820	39 684	62 450	55 336
Private other financial institutions	190	1 991	6 158	8 351	30 283	50 262	49 268
Public other financial institutions	293	1 809	1 150	932	723	14 497	14 664
Public banks	436	2 901	6 570	4 638	6 652	8 295	5 433

Source: Bank for International Settlements (2024a).

The rise in foreign currency debt has been accompanied by widening currency mismatches since the late 2000s. Increased liabilities in foreign denominated currency debt has not been matched by increasing foreign exchange assets/revenues.[16] The non-financial corporate sector accounts for the bulk of the currency mismatches.[17]

Record low international interest rates and quantitative easing (QE) policies during and after the Global Financial Crisis (2008–2009) contributed largely to boost the rise in external debt and debt service payments affecting all developing regions, reaching record levels in some cases, and leading to an unprecedented rise in their external financing needs (US$ 2 to 5 trillion dollars between 2010 and 2020).

Developing countries took advantage of the cheaper cost of issuing external (for the most part dollar denominated debt) relative to domestic debt notwithstanding the fact that an increased demand for dollars propped up its value thus increasing the dominance and power of the Federal Reserve as the global central bank. This process was facilitated by the increasing importance of the international bond market as a major source of finance for emerging and developing economies (35% and 50% of global liquidity in 2007 and 2022) for most economic sectors outpacing bank-intermediated cross-border finance. For their part, foreign investors were willing to take on more risk by investing in emerging market economies in exchange for higher returns. The international bond market was also used in some cases to pay for existing debt obligations denominated in local currency indicating the build-up of a Ponzi financing structure.

During the Pandemic the increase in the availability of speculative finance in the form of short-term capital gave a false sense of security to peripheral countries. Some mainstream economists mistakenly celebrated the positive response of private financial markets to the Pandemic in light, of the weak actions undertaken by international financial institutions to counteract its social and economic impact.

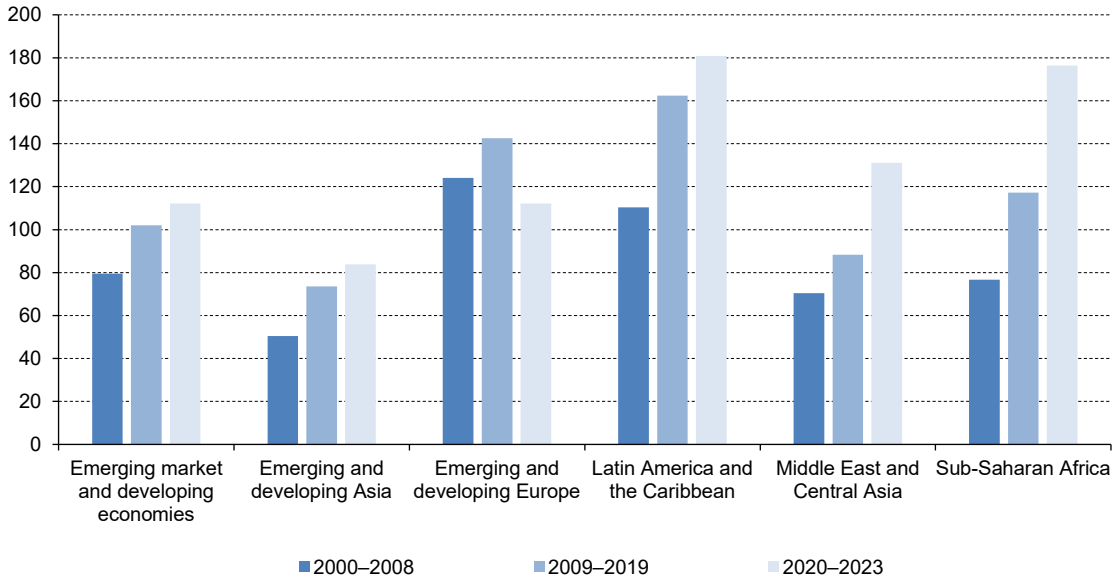
Debt flows became a major source of finance during COVID-19 for developing economies largely surpassing the flows of international financial institutions. Curiously during this time short-term flows did not exhibit pro-cyclical behavior as expected. Short-term inflows increased, although activity contracted and other financial flows such as foreign direct investment declined. This marked a significant difference with the behavior of short-term financial flows during the Global Financial Crisis which was clearly pro-cyclical.

While portfolio flows provided financial relief and greater policy space, especially for countries that were cash strapped, they increased the level of external indebtedness for all developing regions which had trended upwards since the Global Financial Crisis (2008–2009) (figure 3).

[16] See Chui et al (2016, 2018); Borio, (2019); Carstens (2019). Note that this is not only characteristic of Latin American countries, but it is also found in most developing economies.

[17] Chui at al (2018).

Figure 3
Total external debt as a percentage of exports of goods and services, 2000–2023



Source: World Economic Outlook. IMF (2023).

This process of indebtedness jointly with the rise in importance of the bond market as a source of external finance increased the degree of exposure of peripheral countries to changes in international interest rates. In general terms, the value of any asset (P_A) is equal to the expected net return flow (NR^e) capitalized by the discount rate (i = rate of interest and c = carrying costs),

$$P_A = \frac{NR^e}{i + c} \qquad (1)$$

For any given set of expectations, the price of the asset (P_A) varies inversely with the discount rate ($i + c$). The key to understanding Eq. (1) is that the price of an asset (P_A) adapts to changes in the discount rate ($i + c$). Changes in asset prices align the net revenue streams with one another and with interest rates. This can be seen by re-arranging Eq. (1) as,

$$i = \left(\frac{NR^e}{P_A}\right) - c \qquad (2)$$

In a context composed of sophisticated and well-established institutional investors rather than individual consumers or a representative agent, adjustments are made by varying the notional demand/supply of assets in the face of expected changes in the current rate of interest i relative to its 'normal level.' The normal level of the rate of interest is 'a subjective assessment' by investors of the level that should prevail in the longer run. If at time t the actual market rate of interest (i_t) is higher or lower than its normal level (i_n), investors will expect the former to converge towards the latter in the near future, say at time $t + 1$. Formally,

$$(r^e_{t+1} - r_t) = f(r_n - r_t) \text{ and } f > 0 \qquad (3)$$

Where r^e_{t+1}, r_t are the expected rate of interest at time $t + 1$ and the normal rate of interest.

When $r^e_{t+1} - r_t > 0$, investors expect a capital loss on bonds and when $r^e_{t+1} - r_t > 0$, they expect a capital gain. It is important to bear in mind that small increases in interest rates can easily wipe off any

gains resulting from interest income. Indeed, the rate of interest need to increase only by the square of itself to nearly erase interest earnings so that capital losses tend to prevail.

A second source of vulnerability for developing countries are variations in exchange rates which have mainly financial impacts. In the short-run exports and imports are invoiced in foreign currency, and mostly in United States dollars. This implies that exports may be unresponsive to exchange rate variations. At the same time, imports invoiced in dollar terms will vary with exchange rate variations when expressed in domestic currency. In this sense a depreciation in nominal and in the real exchange rate will not alter exports but will constrain aggregate through reductions in consumption (as prices of imported goods and services expressed in domestic currency will increase) and, most important as we show below, in investment. As explained by (BIS, 2019, p. 36) the impact of an exchange rate depreciation does not work along established lines of thought:

"The conventional trade channel rests on the assumption that export prices adjust in response to a change in the country's exchange rate. Over short horizons, however, this may not be the case. This is particularly so in EMEs (Emerging Market Economies) because their trade is almost entirely invoiced in foreign currency, primarily in US dollars. If the invoice price is sticky in US dollar terms, swings in a country's exchange rate against the US dollar would impact imports but would in the short term have little effect on export competitiveness. Instead, export volumes would be affected by changes in import demand from other countries. Thus, a broad-based depreciation of currencies against the US dollar could even reduce EME export volumes, as demand would contract."[18]

From a longer-term perspective there is no consensus view on the elasticity effect of changes in the real exchange rate on imports and exports (expressed in real terms) with respect to the real exchange. An important part of the literature (the balance-of-payments-constrained growth approach) shows for a variety of countries and different time periods that, changes in imports and exports (expressed in real terms) are inelastic with respect to variations in the real exchange. Variations in imports and exports respond to income rather than substitution effects.[19]

As explained by Minsky (1986b, p. 10) the exchange rate can act as a transmiter of financial fragility: "The same consideration (that applies to the domestic economy)[20] that cash flows must support asset values holds for international indebtedness. The only special difference is that the supporting cash flows may be derived from income denominated in one currency while payments are denominated in another. The peso denominated income of a Mexican entity may need to be exchanged into dollars for a commitment to be validated. The terms upon which dollars are available for pesos then determines whether commitments can be fulfilled." The Federal Reserve sets these terms at the global level: As explained by Minsky (1983, p.2.)"...the Federal Reserve is the essential operator in a system characterized by a vast structure of indebtedness denominated in dollars..."

Exchange rate variations are accompanied by changes in risk indices, so that an exchange rate depreciation (appreciation) translates into an increase (a decline) in developing country risk perceptions. The available evidence for the period running from January 2001 to October 2023 show that the correlation coefficient between the rates of variation of the EMBI and those of the nominal

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[18] Borio (2019), p. 36; See also, Alloway and Wiesenthal (2022).

[19] This is one of the main empirical findings of the balance-of-payments constraint approach to economic growth validating a key theoretical principle of Post Keynesian economics. Variations in income provide the mechanism that brings about the adjustment between internal and external economic conditions. For a given ratio of income elasticities, an increase in the rate of growth of the rest of the world translates into a rise in exports over imports and thus generates the space for the expansion of aggregate demand. The consequent increase in income and thus imports restore the balance of payments equilibrium. See Thirlwall (1979, 2013); McCombie and Thirlwall (1994).

[20] The parenthesis were inserted by the author of this blog.

exchange rate are statistically significant at the 1% level of significance in the cases of Argentina, Brazil, Chile, Colombia, Mexico, and Peru (0.74, 0.59, 0.58, 0.39, 0.52 and 0.50).

The evidence also shows that the correlation coefficients remain significant when the period is subdivided into 2001–2009 and 2010–2023. And that moreover, in all cases, except for Argentina, the statistical relationship between both variables is stronger in the subperiod 2010–2023 relative to the period 2001–2009 which may indicate that the Global Financial Crisis and the policies implemented to counteract its effects have reinforced this relationship (table 4).[21]

Table 4
Simple correlation coefficients between rate of change of Emerging Market Bond Index (EMBI) and the nominal exchange rate

Time period	Brazil	Colombia	Mexico	Peru	Chile	Argentina
2001–2023	0.74**	0.59**	0.58**	0.39*	0.52**	0.50**
2001–2009	0.71**	0.43**	0.51**	0.35*	0.55**	0.56**
2010–2023	0.79**	0.77**	0.75**	0.56**	0.67**	0.38*

Source: Pérez Caldentey (2024).
Note: The right scale in figure 3 measures basis points. The statistical significance of the correlation coefficient was determined on the basis of the formula: $\rho = \frac{r(\sqrt{n-2})}{\sqrt{1-r^2}}$ where r is the simple correlation coefficient and n the number of observations. ρ follows a student-t distribution with n-2 degrees of freedom. ** denotes significant at the 1% level of significance.

In combination with the increase in the stock of external debt and its servicing, this placed limits for the management of fiscal policy while increasing the cost of external borrowing.

These perceptions of risk are transferred to the production sphere since the sovereign risk index tends to determine the evolution of the corporate risk index. To this transmission channel must be added the impact that exchange rate variations have on the balance sheets of the non-financial corporate sector and the financial sector as their financial position is characterized by the fact that foreign currency liabilities are often not fully hedged by foreign currency assets. An exchange rate depreciation worsens the balance sheet of those firms that are externally indebted. If companies in a mismatch decide to purchase foreign currency to meet their foreign exchange obligations, the increased demand for foreign exchange may aggravate exchange rate depreciation. This in turn may intensify capital outflows while increasing the debt burden underscoring the transition toward financial fragility.

These vulnerabilities were exposed with the tightening of international financial conditions as a response to the increase in inflation in 2021 following the Pandemic.

The contractionary stance of monetary policy affected not only international financing conditions in emerging markets but also domestic financing conditions. Empirical evidence for emerging and developing economies shows that the dollar index is not only associated with a higher spread of foreign currency yields but also with that of local currency yields.

This stylized fact is explained by the important role that foreign investors have acquired in local debt markets.[22] Global liquidity conditions reflected in nominal exchange rate changes affect the profitability of foreign investors holding securities in local currency. A depreciation, current or expected, of the local currency relative to the dollar implies current and expected capital losses, which

[21] See Pérez Caldentey and Vernengo (2024).
[22] See De Paula, Fritz & Prates (2024).

increases risk of foreign investors exposed to holdings of securities in local currency. In this way a depreciation of the nominal exchange rate has amplifying effect on the risk conditions of the securities markets in local currency. Most central banks of the periphery have limited firing power and are market followers. The extent to which they can intervene in the domestic bond market is limited by the degree to which the local currency is expected to depreciate and by the floor set by the international interest rate. The extent to which they can intervene in the foreign exchange market is limited by the stock of international reserves.

III. The hegemony of the dollar and its consequences for the external balance sheet of the United States

The hegemony of the dollar as the main international medium of exchange, store of value and unit of account confers important advantages to the United States. One main advantage is that the United States can issue and provide safe and liquid liabilities to the rest of the world that provide a form of insurance against financial volatility and exchange rate risk.

Foreign governments own $7.4 trillion dollars in United States treasury bills representing 24% of the total. The foreign ownership of United States debt is highly concentrated (table 5). Half of the debt is owned by six countries Japan, China, the United Kingdom, Belgium, Luxembourg and Switzerland (15.3%, 11.9%, 9.3%, 4.6%, 4.4% and 4.0% of the total respectively).

Table 5
Major holders of United States foreign owned debt in billions of dollars and as percentage of the total, january 2023

Country	US foreign-owned debt (January 2023)	Percentages of the total
Japan	1 104	15.3
China	859	11.9
United Kingdom	668	9.3
Belgium	331	4.6
Luxembourg	318	4.4
Switzerland	291	4.0
The Cayman Islands	285	4.0
Canada	254	3.5
Ireland	253	3.5
Taiwan	235	3.3
Total	4 599	63.7

Source: USA Facts (2023).

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Also, the evidence indicates that the foreign demand for treasury bills tends to decrease their yield. According to Beltram et al. (2013, p. 1138): "a $100 billion increase in foreign official inflows into U.S. Treasury notes and bonds lowers the 5-year yield by roughly 40 to 60 basis points in the short run. However, our cointegration analysis shows that in the long-run, when we allow foreign private investors to react to the effects induced by a shock to foreign official holdings, the estimated effect is roughly 20 basis points per $100 billion." Other studies also arrive at the conclusion that the price elasticity of demand for treasury is around -2.[24]

Table 6
Risky net positions and valuation effects for developed and developing countries and for the United States, 1980–2021

Country/country grouping	1980–1990	1990–2000	2000–2010	2010–2021
Risky net positions *(In percentages)*[a]				
Developed countries	1.4	1.0	1.5	2.7
Developing countries	-3.9	-8.0	-26.9	-28.1
United States	6.8	14.8	16.7	16.0
Valuation effects *(In percentages of GDP)*[b]				
Developed countries	0.44	-0.21	0.77	-1.88
Developing countries	-0.41	0.21	-2.02	-0.55
United States	1.30	0.20	3.47	2.59
Net foreign asset position *(In US$ billion dollars)*[c]				
Developed countries	-6 187	-21 358	-75 376	-147 158
Developing countries	-394	-907	-169	722
United States	1 400	4 334	13 180	24 703
International reserves *(In US$ billion dollars)*				
Developing countries	870	1 923	7 146	19 686

Source: Author's own on the basis of Milesi-Ferretti (2022); Gourinchas & Rey (2014).

[a] The net risky position is defined as the difference between equity and direct investment assets over total assets minus equity and investment liabilities income over total liabilities.

[b] Valuation effects are calculated using the formula $VE = \frac{NA_t - NA_{t-1} - CA_t}{GDP_t}$ where VE= valuation effects; NA_t= net assets at time t; CA_t= current account at time t; GDP_t= Gross domestic product at time t.

[c] The net foreign asset position is equal to the sum of external assets and liabilities. In the case of developing countries it is negative from 1970 to 2077 becoming positive thereafter (with the exception of the year 2010).

At the same time the United States can hold risky foreign assets. This 'exorbitant privilege' allows the United States to issue debt internationally at lower costs and earn excess returns on its external balance sheet. table 6 shows the average net risky position of developing and developed countries and of that of the United States.

[23] The data are for January 2023.

[24] See also Gräb et al (2019).

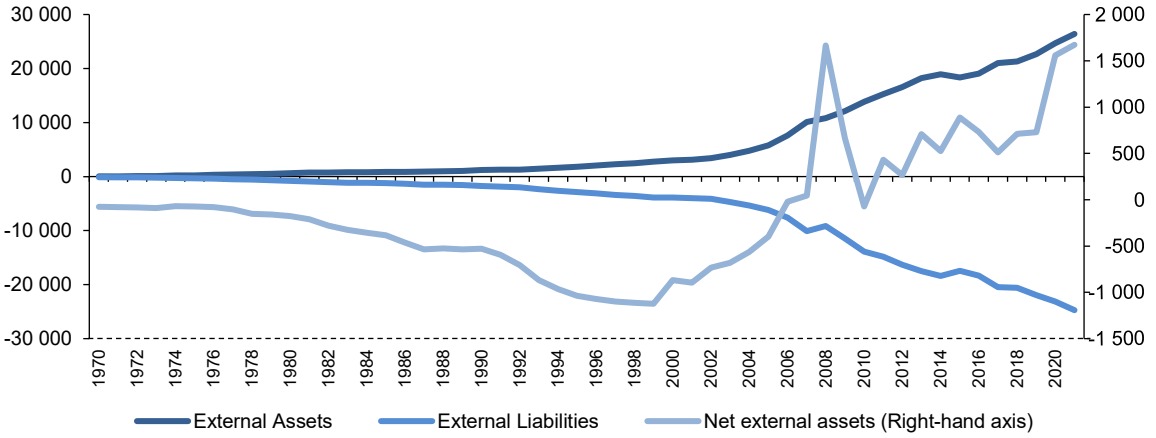
The average net risky position (for developed economies and for the United States increased from 1.4% and 6.8% in the period 1980-1990 to 2.7% and 16.0% during 2010–2021. Contrarily the risky net position for developing counties declined from -3.9% to -28.1% for the same period.

From the point of view of the United States the holding of risky assets and the provision of safe assets to the rest of the world generates the possibility of excess returns in normal times and of suffering losses during a time of crisis. Overall, the evidence for the period 1980–2021 points to positive valuation effects for the United States (table 6).

IV. An analysis of the external balance sheets of developing countries

The case of developing countries is different. The analysis of the external financial accounts of this group of countries shows that developing countries have significantly expanded their external assets and liability positions since the beginning of the 2000s (figure 4). Available data for the period 1970–2021, shows that the total financial claims on non-residents (external assets) averaged US$ 267 billion dollars in 1970–1980; US$ 870 billion dollars in 1980–1990; US$ 1,933 billion dollars in 1990–2000, US$ 7,146 billion dollars in 2000–2010; and US$19,686 billion dollars in 2010–2020.

Figure 4
External assets and liabilities and net external assets for developing economies, 1970–2021
(US$ billion dollars)



Source: Author's own on the basis of Milesi-Ferretti (2022).
Note: Net external assets equal the sum of external assets and external liabilities.

During the period 1970–2006 the net external asset position for developing countries was negative. It became positive starting in 2007 and has remained positive throughout 2021, excepting for the year 2010, At first glance this stylized fact can be viewed as a positive development. However, the decomposition of the components of assets and liabilities shows that a positive net external position hides important vulnerabilities for developing countries (table 7). Also the aggregate picture for all developing coun tries hide important disparities among the regions of the developing world (table 8). This also is the case for the composition of external net assets (table 9).

The expansion of external assets was mainly driven by international reserve accumulation and to a lesser extent by debt assets. During the Global Financial Crisis (2008–2009) and during the Pandemic developing countries increased their international reserve accumulation (tables 7 and 8). Holding international reserves can be costly.

Table 7
Composition of net external assets by category, 1970–2021
(Percentage of the total)

Categories	1970–1980	1980–1990	1990–2000	2000–2010	2010–2021
Portfolio	1.4	39.9	34.9	-393.9	-378.9
FDI	-62.2	-67.5	-73.0	-78.3	-83.8
Debt	-114.3	-133.5	-157.3	-185.1	-214.3
International Reserves	179.3	205.2	226.0	245.8	265.2

Source: Author's own on the basis of Milesi–Ferretti (2022).

Table 8
Net external assets by developing region, 1970–2021
(US$ billion dollars)

Region	1970–1980	1980–1990	1990–2000	2000–2010	2010–2021
East Asia & Pacific	-32	49	578	2,840	6,688
Europe & Central Asia	41	-28	-362	-1 815	-877
Latin America & Caribbean	-78	-278	-580	-1 146	-2 967
Middle East & North Africa	67	304	377	1 088	3 111
North America	4	-145	-841	-2 464	-8 351
South Asia	-20	-64	-132	-250	-800
Sub-Saharan Africa	-39	-136	-211	-182	-459

Source: Author's own on the basis of Milesi-Ferretti (2022).

One way to calculate the cost of accumulating reserves is by obtaining the spread between the privately incurred costs of short-term borrowing in the domestic economy and the yield on publicly held reserve assets (Khalek & Riszk, 2023). Following this line of thinking the annual cost of precautionary international reserves for emerging market and developing countries as a percentage of GDP can range from 0.54% of GDP for a 3% spread, 0.89% of GDP for a 5% spread, and 1.25% of GDP for a 7% spread.[25]

[25] See Khalek & Riszk (2023), p. 11, table 2. The methodology used is as follows. The authors obtained an estimate of excess reserves as all international reserves exceeding three months of imports for the period (1990-2015) for emerging markets and developing economies. and then use three spreads, 3%, 5% and 7%. The authors also used other methods to obtain the level of excess reserves for emerging market economies.

Table 9
Composition of net external assets by category, 1970–2021
(In billions of US$ dollars)

	1970–1980	1980–1990	1990–2000	2000–2010	2010–2021
Region					
			Portfolio		
East Asia & Pacific	-8.1	-52.4	-211.1	592.7	-207.6
Europe & Central Asia	5.6	0.4	-610.2	641.1	-2 673.2
Latin America & Caribbean	-0.7	-0.7	-60.4	727.9	-1 585.4
Middle East & North Africa	4.6	54.6	170.7	773.6	1 282.9
South Asia	-0.1	-0.4	-9.2	793.0	-409.9
Sub-Saharan Africa	-2.0	-1.5	1.0	835.1	93.3
			FDI		
East Asia & Pacific	13.5	118.7	629.8	872.1	6 903.1
Europe & Central Asia	126.7	452.1	2 003.1	814.4	26 159.0
Latin America & Caribbean	3.0	14.1	87.1	265.0	2 862.1
Middle East & North Africa	0.4	4.9	16.4	246.6	592.4
South Asia	0.1	0.3	1.2	-26.4	150.1
Sub-Saharan Africa	2.9	11.5	23.7	-30.4	468.6
			Debt		
East Asia & Pacific	-44.2	-52.9	-61.8	-69.3	-73.3
Europe & Central Asia	-79.6	-99.4	-122.7	-147.7	-170.0
Latin America & Caribbean	-61.3	-73.7	-88.6	-109.2	-129.9
Middle East & North Africa	38.9	55.6	75.5	95.8	117.3
South Asia	-21.1	-23.5	-26.2	-29.3	-32.4
Sub-Saharan Africa	-28.5	-35.6	-43.6	-52.4	-61.5
			International Reserves		
East Asia & Pacific	36.3	41.9	46.8	52.0	58.7
Europe & Central Asia	96.4	109.1	118.6	127.8	136.1
Latin America & Caribbean	20.9	23.9	25.9	27.7	30.1
Middle East & North Africa	36.4	42.0	47.5	51.8	54.8
South Asia	3.9	4.4	4.8	5.4	6.0
Sub-Saharan Africa	6.6	7.1	7.3	7.5	7.6

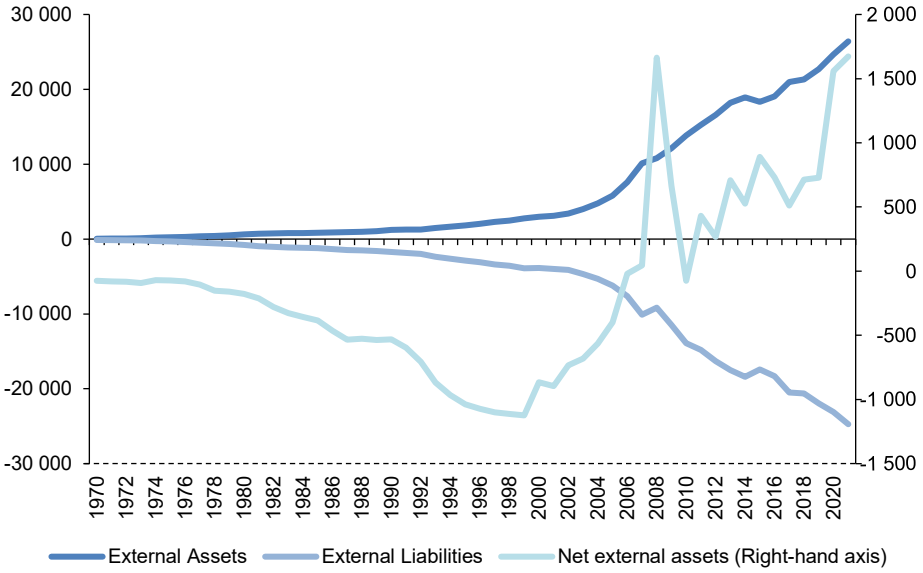
Source: Author's own on the basis of Milesi-Ferretti (2022).

The evolution of external liabilities are driven by the stock of foreign direct investment in the reporting economy (FDI liabilities) and debt liabilities. These account for 43% and 42% on average of total external liabilities for the period 2002–2021.

Both FDI and debt liabilities generate income flows from developing economies to the developed world. FDI income outflows affect the current account of the balance of payments and debt outflows the financial account of the balance of payments. For developing economies primary income payments, which includes payments on direct investment, portfolio investment and other investments represent roughly 5% of their combined GDP.

Foreign direct investment liabilities is generally considered a low-risk liability. However, this view tends to forget that according to the Balance of Payments accounting statistics foreign investment includes not only equity but also intercompany loans.[26] Intercompany loans have increased in US$ dollar value, and, also as a share of foreign direct investment.

Figure 5
Evolution of foreign direct investment and debt liabilities, 1970–2021
(In US$ billions of dollars)



Source: Author's own on the basis of Milesi-Ferretti (2022).

Even though intercompany loans are considered a long-term financial flow, the evidence shows that its dynamics resemble that of short-term portfolio flows. Available evidence for the case of Latin America and the Caribbean show that intercompany loans represented roughly 18% between 2005–2008, rising to 22% between 2010–2014 and to 24% between 2015 and 2019. Also there is evidence of the existence of a statistically significant positive association in most cases between FDI-debt flows and portfolio flows and a negative association between FDI-debt flows and FDI-equity and between portfolio flows and FDI-equity.[27] The growing dependency on short-term flows can lead to situations of financial fragility and instability as these are driven by short-term gains rather than long-term economic development concerns.

In addition, the increase in the importance in inter-company lending coincides with a significant increase in offshore issuance of international bonds by company affiliates of emerging market and

[26] An investment in foreign firm's equity is considered *direct investment (DI)* when it gives the investor control or a significant degree of influence on the management of such firm. DI is normally founded upon a strategic long-lasting interest between a firm residing in a host country and a direct investor residing outside the firm's host country. By convention, the criterion to establish a long-lasting interest is provided by a benchmark of an ownership by the direct investor of at least 10% of the voting power of the firm. This benchmark provides the direct investor with a significant degree of influence in the management of the firm (Wacker, 2013). "Enterprises in a direct investment relationship with each other are called affiliates or affiliated enterprises. In addition, all enterprises that are under the control or influence of the same direct investor are considered to be in a direct investment relationship with each other" IMF (2007, p. 101).

[27] This is for the period 2000-2019. See De Camino, Pérez Caldentey, and Vera (2022).

developing economy enterprises.[28] This can suggest that the latter perform the role of financial surrogates. They issue bonds in the international capital market repatriate the proceeds to their parent company located in their home country.[29] This can explain the reason why the evolution of foreign direct investment liabilities co-move with debt liabilities (figure 5).

Debt liabilities comprise the stock of financial liabilities to non-resident in portfolio debt securities (and the stock of other investment liabilities (including among other loans, deposits, and trade credit). Portfolio debt liabilities have witnessed a significant increase between the 1994 and 2006 (5.2% to 22.6% of total debt liabilities respectively) and then in the aftermath of the Global Financial Crisis (22.1% and 33.3% of total debt liabilities respectively).

The shift towards portfolio debt liabilities makes developing economies more vulnerable to changes in international financial conditions. Global econometric information for a set of 49 countries for the period 1995–2018 shows that, the federal funds rate has an inverse relationship with credit flows and debt securities. However, the impact tends to be greater when considering only debt securities. Available evidence shows that a 25-basis-point rise in the rate results in an 80-basis-point reduction in credit flows to banking institutions. But the impact is more significant for debt securities, which fall by 100 and 66 basis points in case of financial and non-financial corporations respectively.

[28] See, Avdjiev et al (2014).
[29] See also Shin and Zhao (2013).

V. Conclusions

The Unites States dollar has no rivalry as a medium of exchange, store of value and unit of account. The strongest property of the dollar is as a unit of account. The initiatives to start replacing the dollar are very timid with insignificant effects.

The historically unique role of the dollar and the accompanying *de facto* dollarization are explained in part by the change in the structure of the financial system following the Global Financial Crisis.

The exorbitant privilege of the dollar is wider than the excess net returns that it obtains on its net investment position. The United States can substantially lower borrowing costs in times of crises, can improve its net external position through a dollar depreciation and can increase its sovereign indebtedness to reach levels that no other country could support.

The dominance of the dollar and the changes in the global financial system make developing countries more financially vulnerable on both the asset and liability sides of their balance sheet. International reserves are costly to hold. Yet developing countries have not been able to devise alternative buffer stock mechanisms.

Foreign investment liabilities do not necessarily carry low risk. The importance of inter-company loans makes foreign direct investment liable to short-term fluctuations. Inter-company loans are linked to the growth of the international capital market as a source of funding and to the increased share of portfolio debt liabilities, which are highly sensitive to changes in the external financing conditions.

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