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CENTRAL BANK DIGITAL CURRENCIES AND THE EMERGING MARKETS:
THE CURRENCY SUBSTITUTION CHALLENGE

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Central Bank Digital Currencies and The Emerging Markets: The Currency Substitution Challenge
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ABSTRACT

In this paper, I discuss the implications for emerging countries of the adoption of central bank digital currencies (CBDCs) in advanced jurisdictions, such as the United States, the United Kingdom, and the Euro Zone. The analysis identifies benefits as well as costs. Among the former, one of the most important is lower costs for migrants' remittances. Some of the costs of global CBDCs are associated with currency substitution, sudden currency depreciations, and lower seigniorage. At the global level, a smooth rollout of CBDCs in center countries requires international coordination. In addition, emerging countries will benefit from the implementation of stronger macroprudential regulations

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1. Introduction

During the last few years, there has been intensive discussion on the possibilities of central banks issuing digital currencies (CBDCs).¹ At this time, the question is not whether CBDCs will be issued, but rather when will this happen, what will be the architecture of this digitally-based system, and what will be the consequences of this innovation for the global economy.² A recent Bank of International Settlement (BIS) survey shows that the number of central banks actively working on some aspects of CBDCs has more than doubled between 2018 and 2021, with most of the effort focused on developing CBDCs for “general purpose,” or for retail use (Boar and Wehrli, 2021). One of the most important conclusions of this study is:

“[C]entral banks collectively representing a fifth of the world’s population are likely to issue a general purpose CBDC in the *next three years* [before 2025]. However, the majority of central banks remains unlikely to issue CBDC in the foreseeable future.”

According to the literature, the main goals of CBDCs are:

- (a) Improve the efficiency (and reduce the cost) of the payment system.
- (b) Encourage financial inclusion, especially among the poor.
- (c) Facilitate and reduce the costs of cross-border transactions.

To these generally accepted objectives, the European Central Bank has added that the implementation of CBDCs would provide a new and more efficient policy transmission channel for monetary policy, while supporting “improvements in the overall cost and ecological footprint of the monetary and payment system” (ECB, 2020, p. 9).

A number of decisions have to be taken when defining the specific architecture of CBDCs. Some of the most important choices are related to how massive the use of CBDCs will be, whether they would go through the banking system or directly through the central bank, and the extent to which privacy will be protected. The following list summarizes the most salient decisions that the authorities have to make before launching a CBDC:³

¹ See BIS (2016, 2020); IMF (2020); Barrdear and Kumhof (2016); Boar and Wehrli (2021); ECB (2020).

² The literature on digital currencies has grown very rapidly. For a comprehensive analysis, see Prasad (2021). An analysis from a historical perspective may be found in Bordo (2021). For an early discussion on CBDCs, see Bordo and Levin (2017).

³ BIS (2020) provides an analysis along these lines; interestingly, there is not much emphasis on currency substitution in this analysis. The European Central Bank has also discussed in depth these issues.

- Direct or indirect claims on the central bank's balance sheet? If they are indirect, the claims go through the banking system, and the current structure where loans are funded from deposits will be maintained.
- Based on a distributed ledger technology (DLT) or conventional central bank architecture? This decision affects the traceability of transactions and may affect the use of digital currency for money laundering or other illegal purposes. Many experts argue that DLT (blockchain) is the technology of the future.
- Access based on identity accounts or tokens technology? This decision affects the degree of privacy of the system. Skeptics have argued that while old-fashioned cash protects anonymity, a digital system is always open to some type of surveillance by the State.
- Possible limits to individuals' holdings of CBDCs. The question is whether the emphasis should be on the medium of exchange or the store of value (investment) aspect of CBDCs. In a recent speech, Fabio Panetta, a member of the Executive Board of the ECB, argued that for the system to work properly, the use of CBDCs as an "investment" has to be discouraged (Panetta, 2021). He suggested – as a working hypothesis – setting a limit for individuals' holdings at three thousand euros. Amounts in excess of €3,000 would be taxed or simply forbidden.
- Extent to which foreigners are allowed to hold/use the CBDCs issued by specific central banks. Allowing foreigners to hold advanced economies (AEs) CBDCs, could facilitate currency substitution. By reducing the cost of moving funds across countries, a CBDC-based system would greatly benefit migrants who send remittances to their families in the home country. On the negative side, increasing currency substitution is likely to increase financial instability in some emerging markets, while reducing seigniorage collection.

In Figure 1, I present the BIS's "CBDC Pyramid," a useful graph that maps people's needs, on its left-hand side, into the design options faced by the central bank, including decisions regarding technology, privacy, and infrastructure, on the right-hand side of the pyramid. This diagram provides, in a succinct way, a list of the decisions that need to be made by the authorities before issuing a CBDC.

Although much of the CBDC research has been done in advanced countries, some central banks in emerging markets (EMs) have worked on CBDCs. A recent "bridge" project undertaken jointly by China, Thailand, and the United Arab Emirates, to create a cross-border payment system is particularly promising. According to a BIS press release, the purpose of the plan is (BIS, 2021):

“...to further explore the capabilities of distributed ledger technologies (DLT) by developing a proof-of-concept (PoC) prototype to support real-time cross-border foreign exchange payment-versus-payment transactions in multiple jurisdictions, operating 24/7. It will analyze business use cases in a cross-border context with both domestic and foreign currencies...The *m-CBDC Bridge* project will foster a conducive environment for more central banks in Asia as well as other regions to jointly study the potential of DLT in enhancing the financial infrastructure for cross-border payments.”

The recent decision by El Salvador to give Bitcoin legal tender status and to require stores, firms, and individuals to accept payment in Bitcoin has added new questions to the digital currencies’ debate. A key issue is what will be the level of acceptance of this new form of private “money” among the general public. Two aspects of El Salvador’s experience make this question particularly interesting. First, El Salvador is a fully dollarized country, a nation that doesn’t have a currency of its own. Since there already is full currency substitution, the public is not looking for a more stable type of money as a store of value, means of exchange, or unit of account. This sets El Salvador apart from many other Latin American countries, including Argentina, where the dollar circulates, in cash, side by side with the local currency. Second, Bitcoin is not a foreign central bank currency. It is a privately issued digital asset with highly fluctuating value and a high bid-ask spread. This has led many analysts to question whether Salvadorians will consider Bitcoin as a form of money.

For the EMs, there are three central angles of interest related to CBDCs:

- (1) What are the likely consequences, in terms of the ability to conduct monetary policy and the functioning of the financial market, if the EM in question decides to adopt a CBDC;
- (2) What are the implications of the issuance of CBDCs for regulatory policies in general, and for macroprudential policies in particular, in the country of issuance;
- (3) What are the possible effects on the domestic economy if a major AE or AE’s bloc – the U.S., the Eurozone, the U.K., Canada – adopts a CBDC and allows cross-border transactions.

In all three cases, some of the key questions include the effect of these innovations on prices, the exchange rate, and seigniorage. In the rest of this short paper, I discuss a number of issues related to the third of the points raised above: the likely consequences in EMs of the issuance of CBDCs

in advanced countries that allow foreigners to hold them. The discussion, thus, centers around the question of currency substitution.

2. Digital currencies and currency substitution

Currency substitution is at the intersection of CBDCs and macroprudential policies. If convertible currencies – say, the USD or the Euro -- are accessible digitally in an emerging country, transaction costs for using a foreign currency as a medium of exchange and/or store of value will greatly decline.⁴ This represents a challenge for regulators and central banks in countries with a tradition of foreign currencies circulating side-by-side with the domestic currency.⁵ This is particularly the case for countries with a history of (and a proclivity towards) high inflation. As Milton Friedman posited many years ago, the existence of a stable demand for (domestic) money is fundamentally important for monetary policy to be effective.

Going forward, risks would be greater in an EM if the approach taken to CBDCs in the center jurisdiction relies on an architecture based on direct claims of the central bank, DLT technologies, token-based, and cross-border transactions.

Digital currencies would have an important impact in countries that receive large amounts of remittances. An accessible and global CBDC would substantially reduce the cost of sending money by migrant workers to family members in the home country. A The World Bank (2016) study found that the *average* cost of sending remittances internationally was 8 percent of the amount sent. Costs varied from region to region, with the highest -- a whopping 18%-19% of the amount transferred -- in the East Pacific. In Table 1, I present data on the countries with the largest remittances as a percentage of GDP. These are the countries that, in principle, would be greatly benefitted by global CBDCs.⁶ As may be seen, seven out of the seventeen countries in the Table are in Latin America and the Caribbean.

This is what the IMF had to say about CBDCs, currency substitution, and potential macroeconomic instability in EMs, in a recent report (IMF, 2020, p. 2, emphasis added)

“Digital money adoption across borders also entails *risks and policy challenges*. Foreign CBDCs and GSCs [Global Stable Currencies] could raise pressures for

⁴ In many EMs, especially in Latin America, the USD is used as a unit of account, even if actual transactions are carried out in local currency.

⁵ Interestingly, some of the most comprehensive works on digital official (central bank) currency have ignored the challenge that currency substitution will pose to countries with a history of high inflation and macroeconomic instability.

⁶ In order to be included in the data set, remittances had to exceed 10% of GDP in 2020, and had to be in excess of one billion dollars; this criterion means that very few countries are not included.

currency substitution and worsen vulnerabilities from currency mismatches. They could reduce the ability of local authorities to run monetary policy. Without appropriate safeguards, they could facilitate illicit flows and make it harder for regulatory authorities to enforce exchange restrictions and capital flow management measures. In the case of GSCs, there are additional challenges relating to their governance.”

3. Currency substitution: Historical background

There is vast literature on currency substitution. Some of the classical pieces include Miles (1978), Bordo and Choudri (1982), Cuddington (1983), Giovannini and Turtleboom (1992), and Savastano (1996). More recent works are referenced in Levy-Yeyati (2021). Historically, currency substitution has been of greater significance in Latin American and East Europe regions than in East Asia. Catão and Terrones (2016) found that, on average, almost 40% of bank deposits were denominated in foreign currency in Latin America and Eastern Europe; in Asia, in contrast, that average was less than 5%.

In a recent study, Levy-Yeyati (2021) showed that in spite of a reduction in the ratio of foreign currency deposits to total deposits during the last 20 years, the degree of deposit dollarization continues to be (very) high among many emerging countries; see Table 2 for a summary of these data. Levy-Yeyati’s shows that in the year 2000, 76 countries, out of a sample of 105, had more than 10% of their deposit base denominated in foreign currency. By the year 2020, that number had declined to 53 countries, still a very high number. Even in those countries that experienced a decline in foreign currency denominated deposits, the reduction was moderate. The only exceptions were Bolivia and Argentina, with large drops in foreign currency deposits.

Foreign currency-denominated deposits are not the only form of currency substitution. In many countries, foreign cash is used for all sorts of transactions, including purchases of big-ticket items, such as motorcycles, automobiles, and even real estate. The following quote from Judson (2017, p. 1), an economist who has worked extensively on the international demand for USD cash, is highly relevant to this discussion:

“[O]nce a country or region begins using dollars [in cash], subsequent crises result in additional inflows: the dominant sources of international demand over the past two decades are the countries and regions that were known to be heavy dollar users in the early to mid-1990s. While international demand for U.S. currency eased during the early 2000s as financial conditions improved, the abrupt return to strong international demand that began nearly a decade ago with the collapse of Lehman Brothers in 2008 has shown only limited signs of slowing.

In contrast, the growth rate of demand for smaller denominations is slowing, perhaps indicating the first signs of declining domestic cash demand.”

In Latin America, two cases, among many, are particularly important: Argentina and Peru.⁷

Argentina has a long history of currency crises and high inflation; for decades, the US dollar – mostly in the form of cash – has been used for transactions, both large and small.⁸ According to Greeley (2013), in 2006 the amount of dollars, in cash, that circulated in Argentina exceeded \$50 billion, representing the astonishing 22% of Argentina’s GDP. Luzzi and Wilkis (2019) have studied, from a sociological perspective, the historical process through which dollar bills became Argentina’s favorite medium of exchange. The title of their book is telling: “*The dollar: The history of an Argentine Currency.*” During the last few years (2019-2021), Argentina has continued to face a high level of instability, with inflation in 2021 surpassing 50% per year. Dollar bills – and especially \$100 bills – continue to be used in all sorts of transactions.

Peru, in contrast, has had, since the late 1990s, a highly stable macroeconomy with low inflation and a steady exchange rate. This is in spite of the fact that in Peru there is full legal currency substitution, to the extent that ATMs offer withdrawals either in dollars or *nuevos soles*. However, in contrast to Argentina, at the current time, there appears to be no danger of a massive move out of domestic money and into foreign currency, even if transaction costs are greatly reduced. In fact, as Catão and Terrones (2016) and Levy-Yeyati (2021) have shown, during the last 15 years, Peru has gone through a successful and very deep process of de-dollarization. Interestingly, macroeconomic stability in Peru is solid, even in light of political volatility.

4. A minimalist illustrative exercise

The Argentine currency crisis of 2001 provides a useful illustration of the challenges of currency substitution in a macroeconomically unstable country. These challenges represent a significant test for the design of macroprudential policies in the presence of global digital currencies.

In the spirit of the traditional literature on currency substitution, consider the following demand for domestic money relative to foreign money:⁹

⁷ The history of currency substitution in Latin America is long. It was so pervasive in El Salvador and Ecuador that the authorities decided to fully dollarize those economies some years ago. It is also generalized in Venezuela, a country crippled by hyperinflation.

⁸ In 2007 a Venezuelan citizen was detained with a briefcase containing USD 800,000 in cash, allegedly to be used to support political campaigns in Argentina.

⁹ Traditional analysis of the demand for money under currency substitution considers the ratio of domestic to foreign currency demanded by national citizens. However, presenting it in this way makes no substantial difference from those analyses.

$$(1) \quad m^d = A e^{-\beta \pi^e} y^\alpha.$$

Where $m^d = \frac{M}{EM^*}$ is the desired ratio of domestic to foreign money in the country in question, M is the desired level of domestic money in local currency, M^* is the desired level of foreign money in foreign currency in the country analyzed, and E is the nominal exchange rate, for instance, Argentine Peso per USD. $-\beta$ is the semi elasticity of demand with respect to the cost of holding domestic money, y is real income, and α is the demand elasticity of money with respect to income. In equation (1), the cost of holding domestic currency is denoted by π^e . From a conceptual point of view, this cost is broader than the expected inflation rate; it should be interpreted as including other components, such as the probability of a deposits' freezes similar to Argentina's "*corralito*" of 2002.¹⁰ In this setting, first developed by Cagan (1956), the elasticity of the demand for money is proportional to the perceived cost of holding domestic money π^e , and is equal to $-\beta \pi^e$.¹¹ This means that under the standard assumption that $\pi^e = \pi + h$, where h is an i.i.d. error term, the actual elasticity of demand for money in a country with a rate of inflation close to 40% (say, Argentina), is 16 times higher than the elasticity in a country with a rate of inflation of 2.4% (say Peru). The previous statement assumes that "everything else" is constant.

The rollout of CBDCs in the advanced countries, and in particular in the United States and the euro zone, will reduce the transaction costs of using foreign currency as a medium of exchange in EMs. That is, it is likely to result in increases in the semi elasticity $-\beta$ in high inflation countries (i.e., Argentina).

Assume, for the sake of argument, that as a result of the availability of a global CBDC, the value of beta doubles (in absolute terms) in Argentina, while it remains stable in Peru. This means that, after advanced countries' introduce the central bank digital currency and allow its use for cross-border payments, the demand for domestic money will be 30 times more sensitive to changes in expected inflation in Argentina than in Peru.¹²

¹⁰ Early work on currency substitution applied to the case of Canada included the interest rate differential as the opportunity cost of holding domestic money. In the cases of highly inflationary countries, the return on foreign currency is very small relative to domestic inflation and may be ignored. See, for example, Cagan (1956).

¹¹ Cagan (1956).

¹² Notice that the effect of creating an international CBDC on demand for a local currency can also be incorporated in the analysis via changes in parameter A in equation (1).

Consider the case where in the high inflation country (i.e., Argentina) there is an acceleration of inflation from 10% to 25%, a jump similar to the one experienced by Argentina between 2014 and 2017 (subsequently inflation increased above 50%). Assume two cases for the semi elasticity of the demand for money with respect to expected inflation ($-\beta$): -1 , and -5 . The higher values (in absolute terms) correspond to a scenario where transaction costs for using a foreign currency are much lower due to the existence of global CBDCs; the low values of the semi elasticity are consistent with countries that in the (recent) past have not faced major macro disequilibria and high inflation (i.e., Peru).¹³

Under these alternative semi elasticity assumptions, and with other things given, the required jumps in the exchange rate E (i.e., price of the USD) to reestablish equilibrium after the increase in expected inflation are as follows:

- If $-\beta = -1$, then $\Delta E\% = 16.2\%$.
- If $-\beta = -5$, then $\Delta E\% = 117.1\%$.

These computations illustrate the potential effects of the rollout of global CBDCs on unstable countries with a “skittish” demand for money. As a note of interest, the actual change in the Argentine Peso/USD exchange rate between 2014 and 2017 was 108%, not very different from the upper limit of our (simple) calculation. In this setup, after the jump in E , the domestic currency would continue to depreciate every period at the (new and higher) rate of domestic inflation.

Under most circumstances, this type of jumps in currency values would increase the vulnerability of the domestic financial system, requiring greater vigilance by regulators and more efficient macroprudential policies (MaPs). More specifically, jumps in the exchange rate are likely to affect the ability of firms that borrowed in foreign currency to serve their debts to the banking system and other financial intermediaries. This, indeed, appears to be one of the most formidable policy challenges of the future for the emerging nations. What exact type of MaPs should be deployed to deal with these challenges is, at the current time, unresolved.¹⁴ However, what is clear is that this is a serious matter that deserves the attention of regulators and policymakers. The analysis in this Section has dealt with official central bank digital currencies. However, it is also possible that private monies, either cryptocurrencies or GSCs will tend to affect domestic currency holdings in a number of historically unstable emerging markets.

¹³ Edwards (2002) discusses these issues in the context of the 2001-02 Argentine peso crisis.

¹⁴ For a detailed discussion within the context of the Covid Pandemic, see Edwards (2021).

5. Global CBDCs and seigniorage in the emerging markets

An increase in the degree of currency substitution generated by the rollout of global CBDCs would also have a negative effect on seigniorage by reducing its base. Historically, seigniorage has been an important source of government revenue in many developing countries. For example, according to Morisset (1994), in 1970-1991, seigniorage corresponded to more than 50% of Argentina's public sector revenues; 22% for Bolivia and Brazil; 26% for Peru; and 13% for Colombia and Ecuador. In Eastern Europe, seigniorage has been as high as 2% of GDP (Korosteleva, 2007).

The amount of seigniorage collected depends on a number of factors, including the elasticity of the demand for domestic money relative to nominal GDP, the ratio of base money to broader money holdings, and the perceived cost of holding local money relative to alternatives, including, in particular, foreign currencies. The base for seigniorage paid is the stock of domestic money relative to GDP. If due to a reduction of the costs of using foreign currencies, this ratio goes down, the amount of seigniorage collected will decline. With other things given, the ratio of money to GDP will be lower in countries with a history of instability, high inflation, and recurrent currency crises.

In order to illustrate the seigniorage challenge, in Figure 2, I present the broad money as a percentage of GDP in three Latin American nations: Argentina, Chile, and Mexico.¹⁵ For comparison purposes, I also included data for the United States. Not surprisingly, among the Latin American nations, the country with the lowest level of broad money as a percentage of GDP is Argentina, with a mere 28% in 2017 (and no data for the more recent period). Also, it is not surprising that the highest percentage of broad money corresponds to Chile, with approximately 85% of GDP, a figure in the same neighborhood as the United States. Mexico, with a relatively stable macroeconomy and a modest rate of inflation, is between Chile and Argentina with money as percentage of GDP of 45%.

For illustrative purposes, assume that due to the rollout of a CBDC by the Federal Reserve, the pesos (M/GDP) ratio in percentage terms in Mexico declined to the Argentine level: from 45% to 28%. Assuming the same rate of expansion of nominal GDP before and after the availability of the global CBDC, this would represent a reduction in the amount of seigniorage collected of approximately one-third (37.8%). This is, of course, a nontrivial amount that in some countries could be as high as 1% of GDP.

¹⁵ The data in Figure 2 are for broad money as a percentage of GDP. This is the base of the seigniorage collected by the monetary system. The seigniorage collected by the central bank is proportional to the ratio of base money to GDP.

The issue of loss of seigniorage in countries that don't have a currency of their own is not new. This problem has been addressed in many different ways. For example, the European Central Bank distributes seigniorage in proportion to each member country in the capital of the ECB. Schuler and Stein (2000) report that South Africa uses a formula that considers a number of factors to pay seigniorage to Namibia and Lesotho, two countries that allow a foreign currency (the South African rand) to circulate freely.

In 2000, Argentina flirted, briefly, with the idea of fully dollarizing its economy. The plan was to eliminate the peso and adopt the USD as legal tender. Senator Connie Mack (R-Florida) introduced legislation that would have allowed the Federal Reserve to pay Argentina some of the lost seigniorages. The "International Monetary Stability Act" contemplated the issuance of consols (perpetual bonds) by the U.S. Treasury to finance dollarized countries' loss of seigniorage (see Schuler and Stein, 2000, for details). This act never made it out of the subcommittee, but the fact that the idea of sharing seigniorage was discussed at that level is, on its own, interesting.

International cooperation would be essential to deal effectively with the seigniorage issue related to the adoption of global CBDCs. What type of arrangement is possible, is a political issue, beyond the scope of this paper.

6. Concluding remarks

The adoption of CBDCs in advanced countries is likely to have important effects in emerging markets. In this paper, I argue that currency substitution is the most important channel through which these effects will be propagated. My analysis identifies benefits as well as costs. Among the former, one of the most important is lower costs for migrants' remittances. Some of the costs of global CBDCs are associated with currency substitution, sudden currency depreciations, and lower seigniorage. At the global level, a smooth rollout of CBDCs in center countries requires international coordination. In addition, emerging countries will benefit from the implementation of stronger macroprudential regulations.

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Figure 1: Bank of International Settlements, The CBDC Pyramid.

Note: The CBDC pyramid maps consumer needs (left-hand side) onto the associated design choices for the central bank (right-hand side). The four layers of the right-hand side form a hierarchy in which the layers represent design choices that feed into subsequent, higher-level decisions (Auer and Bohme, 2020).

Source: Auer and Bohme (2020), Graph 1.

Source: World Bank.

Table 1: Countries with migrant remittances in excess of one billion USD and 10% of GDP in 2020.**(2010-2020 in millions of USD)**

<u>Migrant remittance inflows (US\$ million)</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>Remittances as % of GDP in 2020e (%)</u>
Haiti	2,196	2,359	2,722	3,142	3,274	3,111	38.2%
Lebanon	7,481	7,606	7,062	6,978	7,410	6,918	36.2%
South Sudan	1,139	1,083	634	1,267	1,267	1,189	35.5%
Tajikistan	2,259	1,867	2,237	2,183	2,322	2,066	26.2%
Kyrgyz Republic	1,688	1,995	2,486	2,689	2,411	1,875	25.1%
Nepal	6,730	6,612	6,928	8,294	8,250	7,392	22.6%
El Salvador	4,275	4,562	4,996	5,388	5,656	5,486	22.6%
Honduras	3,666	3,864	4,323	4,777	5,401	5,185	21.5%
Yemen, Rep.	3,351	3,771	3,771	3,771	3,771	3,771	19.1%
Jamaica	2,361	2,433	2,463	2,502	2,574	2,703	16.6%
Kosovo	971	986	1,112	1,236	1,249	1,212	16.3%
Moldova	1,540	1,467	1,638	1,838	1,910	1,699	15.1%
West Bank and Gaza	1,817	2,087	2,379	2,834	2,861	2,289	15.0%
Guatemala	6,482	7,363	8,394	9,438	10,656	10,762	14.4%
Nicaragua	1,198	1,268	1,395	1,505	1,686	1,619	13.6%
Georgia	1,459	1,521	1,794	2,034	2,258	1,926	11.8%
Dominican Republic	5,196	5,508	6,178	6,814	7,421	7,940	10.2%

Note: It includes countries with remittances higher than 10% of GDP in 2020 and remittances greater than one billion dollars.

Source: World Bank.

Table 2. Deposits Dollarization in selected emerging markets, 2000-2019

	2000	2010	2015	2018/2019
<u>East Asia</u>				
China	6.76	2.07	2.92	2.66
Malaysia	3.09	4.71	8.57	7.78
Philippines	32.30	22.59	17.17	15.54
Singapore	0.64	0.91	1.88	1.39
Thailand	1.14	1.53	2.39	2.40
Mean	8.78	6.36	6.59	5.95
Median	3.09	2.07	2.92	2.66
<u>East Europe</u>				
Croatia	70.67	71.46	66.66	54.11
Hungary	21.80	26.87	19.84	20.74
Poland	15.80	8.79	9.61	11.35
Romania	46.99	36.04	32.39	34.27
Russia	37.32	20.29	36.74	23.71
Turkey	46.67	28.72	42.53	47.69
Mean	39.87	32.03	34.63	31.98
Median	41.99	27.80	34.56	28.99
<u>Latin America</u>				
Argentina	57.26	16.27	11.17	18.83
Bolivia	93.50	44.43	16.75	13.78
Chile	9.00	14.31	15.44	14.59
Honduras	28.55	27.18	28.62	26.67
Mexico	7.37	7.24	11.19	11.86
Peru	68.30	41.45	45.47	32.93
Mean	44.00	25.15	21.44	19.78
Median	42.91	21.72	16.10	16.71

Note: It corresponds to deposits in foreign currency as a percentage of total deposits.

Source: Author's calculation based on Levy-Yeyati (2021).