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A policy-oriented study on capital flow regulations

ECLAC

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About the COVID-19 Response and Recovery project

This paper is an output from the project "Response and Recovery: Mobilising financial resources for development in the time of COVID-19", which is co-ordinated by the Debt and Development Finance Branch of UNCTAD and jointly implemented with ECA, ECLAC and ESCAP. This project is one of the five UN Development Account short-term projects launched in May 2020 in response to the COVID-19 crisis.

The project aims to enable low-income and middle-income developing countries (LICs and MICs) from Africa, Asia-Pacific, and Latin America and the Caribbean to diagnose their macro-financial, fiscal, external financial and debt fragilities in the global context, and design appropriate and innovative policy responses to the COVID-19 pandemic leading toward recoveries aligned with the achievement of the Sustainable Development Goals (SDGs).

Abstract

Countries need to expand their policy space to adequately respond to short and long-term socio-economic challenges posed by COVID-19. They must expand aggregate demand to spur growth and, at the same time, reduce the debt levels of the public and private sectors. To this end, countries must have at their disposal, the required macroeconomic tool kit to monitor and control the vulnerabilities in the external sector. Capital controls are a key component of this tool kit. Capital controls refer to different types of government intervention in the capital/financial account of a country's balance of payments with the objective of restricting either financial outflows and/or inflows. This paper analyzes capital controls for the case of nineteen countries in the Asia-Pacific, Africa and Latin America and the Caribbean regions on the basis of a taxonomy that covers the different dimensions of capital controls. These representative case studies serve to illustrate the objectives and modalities guiding capital flow regulation since the middle of the 1990s to the present COVID-19 circumstances, and impact, where data availability so permits. The analysis provides a basis on which to draw important policy lessons and guidelines regarding the feasibility and effectiveness of capital controls for the current circumstances of the pandemic.

Policy-oriented study on capital flow regulation in the context of the COVID-19 pandemic with empirical assessment of selected experiences in developing countries from Latin America, Africa and Asia-Pacific and analysis of the type of capital controls needed to confront the disruptive effects of the COVID-19

This paper is one of the outputs corresponding to the first phase of the Development Account Project Response and Recovery: Mobilising financial resources for development in the time of Covid-19. The paper was elaborated on the basis of individual regional studies on capital controls for Africa, Asia, and Latin America. The contents of the paper benefitted from detailed comments and suggestions provided by UNCTAD to all the regional studies and also from the discussion and valuable comments received during the UNCTAD/CEPAL Virtual Experts Workshop on "Financial Stability, Macroprudential Regulation and International Capital Flows" (15th and 16th of April, 2021).

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I. INTRODUCTION

The rationale for capital controls in a COVID-19 affected world

COVID-19 is the worst global crisis since WWII. It has had devastating economic and social effects across the globe with particular intensity in developing countries. The increased expenditure of governments to respond to the urgent needs caused by the pandemic on health facilities, cash transfers and income support to firms and individuals, especially informal workers, in combination with the drastic fall in tax revenues has increased their fiscal deficits and debt levels.

The generalized increase in fiscal imbalances and indebtedness has given rise to greater liquidity needs across developing countries, in spite of their considerable heterogeneity in the fiscal situation and debt vulnerability. Moreover, COVID-19 has impacted some of these economies at a time of record debt levels. The widening financing gap of the public sector is compounded by the need for balance-of-payments support required by some economies as a result of the decline in exports —specifically in export services (tourism)— and supply chain interruptions. Increasing debt levels have also affected the productive sector at a time of declining profitability and weak balance sheet positions in the non-financial corporate sector.

The weak response of the international financial organizations has forced developing countries to rely on private capital markets to address their liquidity needs.

This has been underpinned by the increasing role of the bond market as a source of cross border liquidity, and a context of low rates of interest resulting from the expansion of major central banks' balance sheets due the adoption of quantitative easing monetary policies. The main positive effect of monetary easing and liquidity expansion measures has been recorded in the non-bank financial sector. In particular, the decline in long-term interest rates has resulted in an increase in the present value of financial assets and bonds.

At the same time bond issuers (sellers) face lower borrowing costs. The cost of foreign currency borrowing (reflected in the interest rate differential for government debt issued in dollars) for emerging market economies has fallen since the beginning of the pandemic. While the decrease in borrowing costs has encouraged the issuance of debt in international bond markets, the increase in the present value of bonds generates a capital gain and therefore an increase in the wealth of bondholders. As a result, supply and demand factors have thus boosted momentum in the international bond market which, unlike in other crises such as the 2008–2009 global financial crisis, has not been affected by the COVID-19 pandemic.

The increased access to private capital does not ensure that it this will be matched by increased and/or improved living standards. In fact, the increased role of private capital market in global liquidity carries significant financial vulnerabilities and fragilities that could jeopardize developing countries' social and economic development.

For one thing, not all countries have had access to capital markets and under the same conditions. The economies that most frequently use the capital market for sovereign bond issuance are the largest economies. Several of the smaller economies, in particular, have made little use of the private capital market. Credit rating agencies tend to penalize the countries that are not frequent users of

international capital markets. In addition, the cost of issuing sovereign debt is generally higher for smaller economies. Also, despite the low rates of interest at which countries have been able to issue debt, they tend to remain above the historical trend growth rates which will pose a debt sustainability problem.

Finally, capital markets are highly sensitive to international financial conditions and the risk perceptions of issuing countries that make them highly volatile and expose them to sudden reversals. In the current context, expansionary monetary policy by the central banks of developed economies and, in particular, by the United States Federal Reserve has encouraged the pursuit of returns by private investors in emerging economies. However, the upward trend in long-term interest rates seen since the beginning of 2021, coupled with the rising specter of an inflation comeback, could reduce the incentive to invest in emerging economies.

In the initial stages of the pandemic, developing countries registered a record outflow of capital roughly equal to US$ 100 billion dollars in emerging market debt and equity in March 2020, which was reversed and practically offset by September of the same year. However, since September 2020 there has been a scaling back of inflows to emerging market economies to the levels registered before the pandemic. In May 2021, total net flows to emerging market economies stood at US$ 20 billion (US$ 10.1, 3.9 and 6.2 billion in portfolio flows, equity and debt inflows) (IIF, June 2021).

Rising debt levels and increasing reliance on short-term flows are a potential source of increasing vulnerability and financial fragility for developing countries, especially in the current COVID-19 context.[1] Countries need to expand their policy space to adequately respond to economic and social short and long-term challenges of the pandemic. Countries must be able to expand aggregate demand to spur growth and reduce the debt levels of the public and private sector. To this end, countries must have the required tool kit at their disposal to monitor and control the vulnerabilities in the external sector. Capital controls are a key component of this tool kit.

Capital controls refer to different types of government intervention in the financial account of a country's balance of payments with the objective of restricting either financial outflows and/or

[1] Financial fragility refers to a situation where growing indebtedness generates increasing debt payments commitments that will eventually exceed income cash flows. Financial fragility is the result of the workings of an economy in which lending and borrowing take place based on a decrease in the size of the margins of safety. As the margins of safety decrease economic agents become more dependent on income flows for debt payments and the 'normal functioning of financial markets to refinance positions in long-term assets.' As a result, any disruptions in income or in financial markets, can lead economic agents to experience difficulties in paying their debt (debt service and or principal) leading to liquidity constraints and outright insolvency. The size and strength of margins of safety of the different sectors in an economy, as well as the likelihood that an initial disturbance is amplified, determines the robustness or fragility of an economy (Minsky, 1986, p. 209). The size and strength of the margins of safety are 'safest' when economic agents can repay their debt (interest and principal) commitments with future cash flows. The size and strength of the margins of safety are the least safe when economic agents rely on the expectation of an appreciation of the underlying asset(s) which sustains their debt or of a favourable change in the underlying economic conditions (say an appreciation of the exchange rate when debt in denominated in foreign currency) to cover their liabilities (interest and principal). In between both extremes, is the case where economic agents expect future cash flows to cover interest payments but not the principal.

inflows. [2] Capital controls can take a wide variety of forms and can cover different dimensions. The taxonomy of capital controls adopted in this paper distinguishes between the following dimensions: (i) type of measures and objectives; (ii) whether capital controls are applied to inflows and/or outflows; (iii) the perimeter covered by capital controls in terms of type of flows and agents; (iv) whether capital flows distinguish between local and foreign currency; (v) whether capital controls are imposed through quantity or price based measures; and (vi) the complementary measures that often accompany capital controls.

The empirical evidence provided based on the regional analysis of Africa, Asia-Pacific and Latin America shows that capital controls can reduce financial volatility, and financial fragility. Capital controls can also change the composition of capital flows in favor of long-term flows. Capital controls also increase monetary policy autonomy.

Capital controls have a long history dating back at least to John Maynard Keynes' Currency Union proposal (1942) and the Bretton Woods agreement (1944). [3] From the 1940 until the early 1970s the use of capital controls was extensive. Thereafter the generalized thrust towards trade and financial liberalization, that was reflected in the adoption of Washington Consensus policies by developing countries in the late 1970s and throughout the 1980s argued for the redundancy and inefficiency of capital controls. Capital controls were revived during the Asian Financial Crisis (1996-1997).

More recently, the attitudes towards capital controls have shifted quite substantially in the past decade, in the wake of the Global Financial Crisis of 2008-09. One major indication of shifting stances came with research from the IMF (Ostry et al 2010, 2012; Pradhan et al 2011). Even before that, many developing countries that had been persuaded to open up capital accounts and deregulate domestic financial markets quite substantially were discovering that this exposed them to global volatility and to surges and then exits of capital that often had little relation to domestic "fundamentals" but were the outcome of macroeconomic policies and processes in advanced economies, most of all the US and the EU. While many countries sought refuge dominantly in the form of "self-insurance" through the costly practice of holding ever-larger volumes of foreign exchange reserves to guard against capital flight, others experimented with different measures, typically more market-based rather than dominantly administrative as they had been before the 1980s and 1990s.

COVID-19 and its associated economic and financial effects on developing economies has renewed the interest in capital controls as a way to tame financial volatility and expand their policy space.

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[2] In the current IMF methodology of the Balance of Payment (BPM6), the financial account records capital inflows and outflows, i.e., refers to the previous capital account. The terms "financial account" and "capital account" will be used as synonymous.

[3] Keynes initially argued in favor of capital controls, as a way to deter speculative flows but then went on to argue that capital controls had a more fundamental objective, namely the freedom to pursue full employment policies through variations in the domestic policy interest rates. Around the same time in his Federal Reserve Mission to Cuba, Harry Dexter White, the other architect of the post-WWII financial order also defended capital controls as a means for developing countries to deal with negative shocks to their balance of payments although he toned down his early views on capital controls by the time he negotiated the Bretton Woods agreement on behalf of the United States in 1944. See Federal R Board Bulletin, 1945.

This paper is a policy-oriented study on capital flow regulation in the context of the COVID-19 pandemic with empirical assessment of selected experiences in developing countries from Latin America, Africa and Asia-Pacific and analysis of the type of capital controls needed to confront the disruptive effects of the COVID-19.[4] The sample of countries for Asia-Pacific include India, Indonesia, Malaysia, Pakistan, Philippines, Thailand, Taiwan Province of China – henceforth Taiwan and Vietnam. The sample of African countries comprise Ethiopia, Ghana, Morocco, Nigeria, and Zambia. Finally, the sample of countries included for Latin America and the Caribbean are Argentina, Brazil, Chile, Colombia, Mexico and Peru.

On the basis of the above taxonomy the analyses of specific country cases for the Asia-Pacific, African and Latin American and Caribbean regions serve to illustrate the type of objectives and modalities guiding capital flow regulation since the middle of the 1990s to the present COVID-19 circumstances. Also, whenever possible and available an assessment of the impact of capital flow regulation is provided. The experience of capital flow regulations in three developing regions comprising nineteen countries overall provides a representative sample and basis from which to draw important policy lessons regarding the applicability and effectiveness of capital controls to the current COVID-19 circumstances.

The paper is divided into five sections. Following the introduction which explains the rationale for capital controls within a COVID-19 context, the second describes a taxonomy of capital flows along six different dimensions including: (i) the type of measure and objectives; (ii) type of flows subject to capital controls; (iii) controls on inflows and/or outflows; (iv) whether controls apply to local or foreign currency; (v) whether controls are implemented through quantity or price based measures; and (vi) whether controls are applied on a short or long-run basis. The taxonomy also includes other measures that accompany capital controls. This section also critically discusses the attempts to measure the extent, coverage, and intensity of interventions in capital account matters highlighting their weaknesses and limitations.

The third section analyzes the relationship between COVID-19 and financial fragility in developing countries. This section explains how COVID-19 has reinforced the reliance of developing economies on private capital markets for the government and the non-financial corporate sector. Also, the section identifies the transmission mechanisms that render developing economies vulnerable to changes in external financial conditions. This section links the previous discussion of capital accounts with the fourth section which is devoted to policy lessons: 'without identifying the vulnerabilities we cannot discuss policies.'[5]

Section four centers on capital control experiences in the cases of Asia-Pacific, Africa and Latin America. For each of these regions the section highlights specific instances of capital controls with the aim of extracting lessons that can be useful for the present day COVID-19 circumstances. For each of the regions the section describes the background and context and goes on to identify policy lessons and guidelines. Section five concludes with the main take-aways regarding how capital controls can

[4] Capital flow regulation is used in the same sense of capital account management, encompassing capital controls and macroprudential measures

[5] See Akyuz, 2021

be a useful policy tool to combat the short-run effects of the pandemic and also as a more permanent instrument to expand the degree of policy autonomy of developing countries to build forward better.

II A TAXONOMY AND MEASUREMENT OF CAPITAL CONTROLS

2.1 A taxonomy of capital controls

Capital controls refer to different types of government intervention in the financial account of a country's balance of payments with the objective of restricting either financial outflows or inflows (Erten et al., 2019).[6]

The evidence provided by the cases studies of countries in Africa, Asia-Pacific and Latin America shows that capital controls can take a wide variety of forms and can cover different dimensions. The purpose of controls and other measures obviously varies across country, context, and specific time-period. Although these different dimensions can be treated separately for analytical purposes, they are nonetheless interrelated as will be made clear in the different regional-based case analyses.

A first dimension refers to the type of measures and their objectives. The experience of Africa, Asia-Pacific and Latin America shows that the capital control measures do not always have the same objectives. For the most part, capital controls are aimed at offsetting the inherent pro-cyclicality of financial flows helping to prevent to occurrence of boom-and-bust financial cycles. Capital controls not only target the volume but also their composition. In some instances, capital controls not only have the objective of taming financial volatility but also of protecting or fostering real activity in specific sector of economic activity. Two other aims of capital controls include exchange rate management and increasing economic policy autonomy (or policy space).

A second related dimension concerns whether capital controls are applied on outflows and/or inflows (that is on non-residents or residents). Measures related to capital inflows typically are designed to deal with one or several of the following: (i) to prevent/deal with surges of both equity and debt flows; (ii) to prevent/reduce domestic asset bubbles; (iii) to manage the exchange rate; (iv) to change the composition of financial flows and provide a disincentive to short-term flows; (v) to direct investible resources to particular sectors; (vi) to reduce financial fragility by preventing or reducing liquidity and maturity mismatches; (vii) for national/strategic interests (e.g. with respect to real estate, defense or other strategic sectors); (viii) to provide greater autonomy for domestic economic policies, without concern for reactions of global markets.

Controls on outflows typically have one or more of the following aims: (i) to prevent or reduce capital flight; (ii) to prevent or reduce domestic asset price collapses; (iii) to prevent and reduce domestic banking and other financial crises; (iv) to manage the exchange rate; (v) to avoid excessive losses of

[6] See Annex 1 for a critical analysis of the arguments underpinning capital account liberalization and capital controls.

foreign exchange through invisible outflows related to prior capital inflows (interest or profit repatriation).[7]

The third dimension concerns the perimeter covered by capital controls. The experiences of the country cases analyzed show that capital controls can apply to both short (portfolio) and long term (foreign direct investment) flows. In general, capital controls tend to prioritize short-term flows as these are associated with speculative behavior, which can lead to increased volatility and be a source of financial fragility and crises. Besides reducing their volume, controls on short-term flows can, in some instances, also have the objective of changing the composition of financial flows towards long-term flows. Controls on long-term flows are imposed to boost growth by directing foreign direct investment towards key sectors of economic activity.

The perimeter covered by capital controls also refers to the agents comprised in capital controls, including central government, non-financial corporations, financial corporations, and households[8]. Controls to manage capital flows can be divided according to the type of asset they seek to cover[9]. The following asset movements can be covered, and once again to varying degrees: money market funds; bonds; commercial borrowing or financial credits; equity in the form of FDI; equity in the form of portfolio holdings. These asset movements vary in importance for particular countries and over different periods in terms of the potential fragility they generate, depending on the composition of capital flows. So not all asset movements matter equally to all countries.[10]

The perimeter covered by capital controls in terms of flows and agents is related to a fourth dimension which refers to whether capital controls distinguish between local or foreign currency. This dimension is particularly applicable to bonds and loans to the government, the financial sector, and the non-financial corporate sector.

The fifth dimension of capital controls deals with quantity versus price controls. The first category refers to outright prohibitions, explicit quantitative limits, administrative restrictions which can

[7] Ghosh (2021) notes that profit repatriations are registered in the current account of balance-of-payments. In this sense the definition of capital controls should be perhaps broadened to include the capital and financial account and the income account of the balance-of-payments. The income account in some countries is an important source of financial volatility.

[8] Note that consumer household debt is generally not considered under the category of financial fragility. However, depending on its characteristics, household mortgage debt can be a source of financial fragility. Also, consumer and household debt can amplify business cycle fluctuations (See Minsky, 1982, p. 30) An extra complication is that household surveys do not capture the debt information (especially pertaining to assets) and may understate the extent to which households are in a fragile financial position.

[9] This also applies to other measures, including prudential measures that have become increasingly relevant and more widely used.

[10] Another dimension, suggested by UNCTAD, that can be included (see Prates and Hawkins, 2020) is the incidence on the spot and derivatives FX markets, which have a much smaller impact on capital flows, but could have a much greater impact on the exchange rate due to the degree of leverage of FX derivatives instruments. Some of the FX derivatives regulations cover non-resident positions on organized markets and could not have impact on the financial account, especially if they are non-deliverable. In this case, a third type of regulation (FX derivatives regulation) is needed.

include some type of approval procedures for outflows. Price controls seek to discourage capital movements by making them more costly to undertake. Price controls include taxation and/or subsidies of cross-border flows and other price measures. Taxes imposed on capital flows can be explicit such as taxes or levies on external financial transactions or income holding by residents of foreign financial assets, or the holding by nonresidents. Price controls can also be indirect, as is the case with unremunerated reserve requirements.[11]

The final dimension addresses the issue, exemplified by some of the country case studies analyzed, that capital control measures are seldom stand-alone measures. They are generally accompanied by a broader regulatory package. The other measures that accompany capital controls are here classified as complementary measures (See Table 1).

[11] See, IMF 2016.

Table 1: A taxonomy of capital control

Time-Period/ Context	**Measure and objective**	**Type of Flow**	**Resident(outflow)/non-resident (inflow)**	**Local currency/foreign exchange**	**Price Quantity**	**Short-term/long-term**	**Complementary measures**
Context and country-specific	Financial stability; reduction of financial fragility; avoid bust and boom cycles. Volume/composition of financial flows Develop and expand specific sectors of economic activity	Portfolio flows Foreign direct investment Other investment Money market funds; bonds; commercial borrowing or financial credits; equity in the form of FDI; equity in the form of portfolio holdings	Controls on inflows aim to (i) prevent/deal with surges of both equity and debt flows; (ii)prevent/reduce domestic asset bubbles; (iii) to manage the exchange rate; (iv) to change the composition of financial flows and provide a disincentive to short-term flows; (v) to direct investible resources to particular sectors; (vi) to reduce financial fragility by preventing or reducing liquidity and maturity mismatches; (vii) for national/strategic interests (e.g., concerning real estate, defense or other strategic sectors); (viii) to provide greater autonomy for domestic economic policies, without concern for reactions of global markets. Controls on outflows have one or more of the following aims:	Applicable to bonds and loans to the government, the financial sector, and the non-financial corporate sector	Quantity controls include outright prohibitions, explicit quantitative limits, administrative restrictions which can include some type of approval procedures for outflows. Price controls include taxation or subsidies of cross-border flows and other price measures. Taxes imposed on capital flows can be explicit such as taxes on external financial transactions or income holding by residents of foreign financial assets or the holding by nonresidents. Price controls can also be indirect, as unremunerated reserve requirements.	Temporary or longer-term measures	Other measures, including macroprudential measures, which are not capital control measures.

			(i) to prevent/reduce capital flight; (ii) to prevent/reduce domestic asset price collapses; (iii) to prevent/reduce domestic banking and other financial crises; (iv) to manage the exchange rate; (v) to avoid excessive losses of foreign exchange through invisible outflows related to prior capital inflows (interest, profit repatriation)				

Source: authors own elaboration based on comments provided by UNCTAD and region-specific studies.

2.2 Quantifying and measuring capital controls: a critical review of the literature

There have been several attempts to measure the extent, coverage, and intensity of interventions in the capital account of the balance-of-payments. The most well-known is the Chinn-Ito Index (Chinn and Ito 2014) which aggregates different instruments on an annual basis to come up with an average index based on the number of measures over the previous five years, without specifying whether they are administrative or market-based. This is certainly useful in terms of providing some indication of the sheer number of controls over time. However, it has been noted (Karcher and Steinberg 2013) that even when a country fully liberalises its capital account, the Chinn-Ito Index will not consider the country as completely open until five years later, thereby understating the effect of large one-off changes in policies. The index continues to increase in the years after liberalisation even when capital account policy remains the same. In addition, the inclusion of the moving average biases the standard errors downward, further increasing the chance of Type I errors (or false positives).

There are other concerns with the index. Because it essentially adds up the different measures (as described in the IMF AREAER database), it cannot provide much of an idea of either coverage or intensity of such measures. Also, it can exclude certain macroprudential measures that do in fact amount to regulation of capital flows because they are not included in the database, on the grounds that superficially they do not appear to be connected with cross-border flows.

Another approach has been to divide countries into categories of those with “Walls”, “Gates” and “Open” capital accounts (Klein 2012; Fernandez et al 2015). These are once again based on aggregating different measures, but this time further refined into the coverage of the measures in terms of the amount of flows that they affect. The distinctions between countries are based on the average coverage over a defined period, without specifying whether they are administrative, or market based. Countries with Walls are those with >70 per cent of the value of cross-border flows covered by measures or controls; Open are those with <10 per cent coverage, and Gates are those falling in between. Gates are seen as episodic and Walls and Open as mostly permanent.

Both these widely used measures, which are popular in multi-country studies, have their limitations. The Chinn-Ito Index does capture some dynamics over time but does not give any indication of their coverage relative to all forex transactions or the nature of the interventions. The Klein approach does a better job of indicating the extent of the coverage, but does not capture any changes over time, or the intensity of interventions. Both of these aggregate measures of intervention do not allow for any examination of the utility of particular instruments, which is probably the most important issue for policy makers.

With regard to the impact of intervention, most studies have used time series data for particular countries/sets of countries or panel data, using the measures described above to indicate the extent of openness or control. They come to varying conclusions regarding impact, with some (e.g. Epstein, Grabel and Jomo 2003; Erten and Ocampo 2016; Eguren-Martin et al 2020) suggesting that they are successful to varying degrees in meeting their goals, and others suggesting they have little or no impact (Klein 2012, Fernandez et al 2015, Forbes and Warnock 2011). However, with regard to the

studies arguing little or no impact, the degree to which the instruments are/have been successful is hard to gauge, because the counterfactual of what would have occurred in the absence of such intervention is not known. Before/after types of analysis as well as panel data studies both suffer from this problem. In general, all the empirical studies show either no impact or a positive relationship between capital controls, investment, and economic growth.

There can also be concerns that different measures could be easily thwarted if they are imposed within a broader context of more deregulated transactions that allow agents within and outside the country to work around them. For example, Spiegel (2012) has identified at least three possible modes for such circumvention: (i) over-and under-invoicing of current account transactions; (ii) disguising restricted flows (such as short-term flows) as unrestricted flows (such as purportedly long-term flows like FDI or as trade finance); and (iii) derivative products (such as non-deliverable forwards (NDFs), equity swaps, option strategies, etc. It is often difficult to identify whether such practices have occurred or how widespread and significant they are, because the resulting flows may be distributed across a range of transactions rather than concentrated in only one type where a spike would indicate something unusual.

Rebucci and Ma (2019) note the evidence of capital control policy spill overs not only across assets but also across countries, raising important coordination issues, for example through the portfolio rebalancing of global mutual funds. These may be particularly significant in the regional contexts analysed in this paper. Similarly, Pasricha et al. (2018) found that in the context of significant increases in global liquidity after the Global Financial Crisis in 2008, capital inflow restrictions generated significant cross-country spill overs. These inevitably further complicate issues of capital flow management for any one country. An additional aspect is uncovered by Avdjiev and Takats (2016) who found that the majority of the explained variation in cross-border bank flows of emerging market economies during the taper tantrum was due to interbank lending rather than lending to non-banks. This points to the possible need to regulate interbank cross-border flows in addition to other more “standard” form of capital flow.

The above analysis points to the need to analyse capital controls including their objectives, modalities, extension, and effectiveness through an inductive methodology based on specific country case studies rather than relying on a deductive one-size fits all approach. The variety of country experiences here considered in different regions are essential to draw lessons for the current COVID-19 circumstances. Also, the above discussion highlights the need to consider capital controls within a global or regional context.

III COVID-19 AND FINANCIAL FRAGILITY IN DEVELOPING COUNTRIES

3.1 The increase in the liquidity needs of developing countries

The effects of the COVID-19 pandemic and the policies implemented in response to it have increased the liquidity needs of countries to confront the emergency phase. At the same time, these factors have led to rising debt levels and increased external debt servicing costs, which may jeopardize the recovery and countries' capacity to build forward better (Table 2).[12]

Table 2: External debt indicators for emerging markets and developing economies

2019-2020

	External debt as percentage of exports of goods and services		External debt as percentage of GDP		External debt service as percentage of exports of goods and services	
Region	2019	2020	2019	2020	2019	2020
Emerging market and developing economies	116.6	136.4	…	….	42.1	48.2
Emerging and developing Asia	86.0	95.7	18.8	19.5	47.2	50.1
Emerging and developing Europe	120.9	141.9	46.8	51.7	42.5	49.8
Latin America and the Caribbean	192.6	226.7	47.9	56.3	50.9	59.0
Middle East and Central Asia	125.0	176.6	46.8	53.9	22.2	31.8
Sub-Saharan Africa	172.5	228.1	42.6	46.1	28.5	35.9

Source: *IMF (2021a)*

International financial institutions, including the International Monetary Fund (IMF) and multilateral development banks, have not been able to scale up the availability of liquidity commensurate with the financing needs of developing economies.

The overall financing needs of developing countries have been estimated at US$ 2.5 trillion which exceeds the US$ 1 trillion estimated lending capacity of the IMF. However, a more precise computation taking into account the Fund's lending commitments, as well as the unusable quota

[12] Other estimates that are available indicate that sovereign debt service for emerging and developing economies will increase from 7% of government revenue in 2019 to 10% in 2020 (IIF, 2020). This restricts the use of public spending to strengthen economic and social development.

resources and the prudential balances, puts its lending capacity at roughly US$ 800 billion. The US$ 2.5 trillion figure was estimated in March 2020, and it is likely to have increased since then (IMF 2021).

Table 3: IMF financial assistance to confront the effects of COVID-19 by region (with and without flexible credit lines) (2021)

Region	With flexible credit lines (US$ billion)	Share (%)	Without flexible credit lines (US$ billion)	Share (%)
Asia and Pacific	2.2	2.0	2.2	3.4
Europe	6.1	5.6	6.1	9.5
Middle East and Central Asia	14.3	13.0	14.3	22.3
Sub Saharan Africa	19	17.3	19	29.7
Latin America and the Caribbean	68	62.0	22.4	35.0
Total	109.6	100.0	64	100.0

Source: On the basis of IMF (2021b)

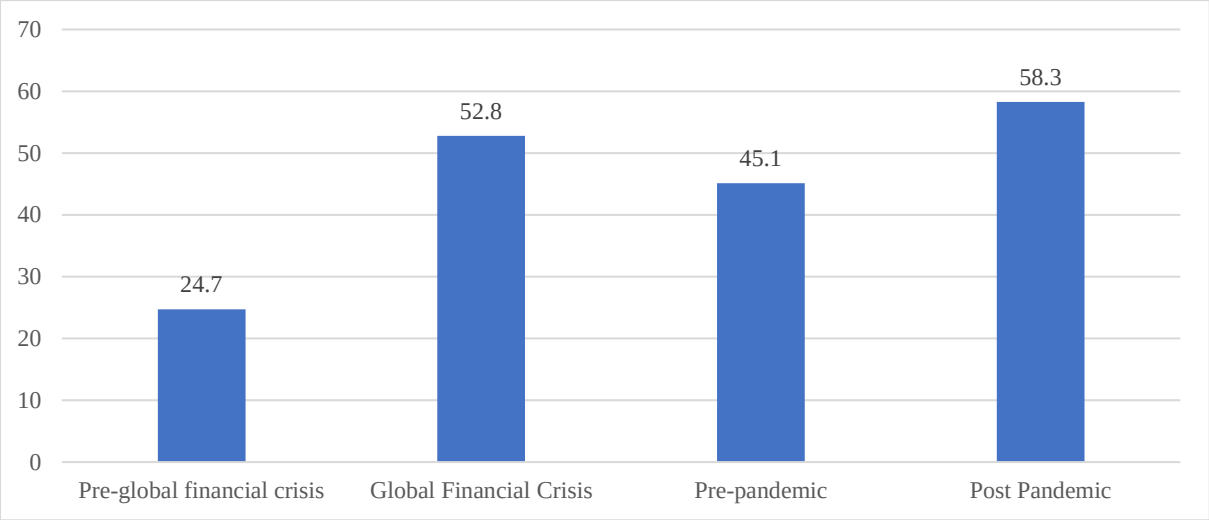
IMF has granted funding equivalent to US$110 billion to developing economies. If the amount for flexible credit lines (which are not activated) is excluded, total funding by the IMF reached only US$ 64 billion (Table 3). This amount is less than the IMF's funding commitments during the GFC, which reached US$75 billion between January and September 2009.

Available data for the case of Latin American and Caribbean countries show that the finance provided under the Rapid Financing Instrument (RFI) and Rapid Credit Facility (RCF) covered, on average, only between 23.1% and 32.3% of countries' financing needs for 2020. This volume is equivalent to 0.8% and 2.1% of their GDP and between 6.5% and 8.0% of their international reserves, respectively.

Besides IMF emergency lending facilities, countries have three other alternatives to access funding: apply for an IMF standard program with the associated conditionalities, request loans from multilateral development banks, or tap into the international bond market.

Similar to the IMF, the World Bank support to offset the effects of COVID-19 has also fallen below those granted during the GFC. In fact, the increase in funds committed by the World Bank to address the Pandemic in 2020 accounted for less than half of funds to confront the effects of the GFC (US$ 13 billion and US$ 28 billion, respectively) (Figure 1).

Figure 1: Financing committed by the World Bank during the Global Financial Crisis (2008-2009) and the Pandemic (2019-2020). US$ billions



Source: *Based on World Bank (2010, 2021)*

Overall, the estimated potential resources at the disposal of the IMF, multilateral development banks, and regional financial institutions amount to US$1.8 trillion, which falls below the estimated liquidity needs of developing economies (above US$2.5 trillion).

3.2 Private capital markets and the Pandemic

In view of the limited response by international financial institutions, developing countries, including those of Africa, Asia and Latin America and the Caribbean, have turned to private capital markets (bond markets).

The international bond market has become a major source of global liquidity and cross-border finance, outpacing bank-intermediated cross-border finance. Available evidence on outstanding debt security issued by non-bank borrowers expanded from US$ 1.5 to 8.6 trillion between the third quarter of 2000 and 2020. This amount represented 47% and 54% of total liquidity at the global level. Developed economies are the main providers and beneficiaries of debt flows. Still, emerging market economies borrowing through the international bond market account for roughly a quarter of the total and bonds to 47% of global liquidity channeled to this group of economies (Table 4).

Table 4: Total credit to non-bank borrowers amounts outstanding

2000-2020 (US$ trillion)

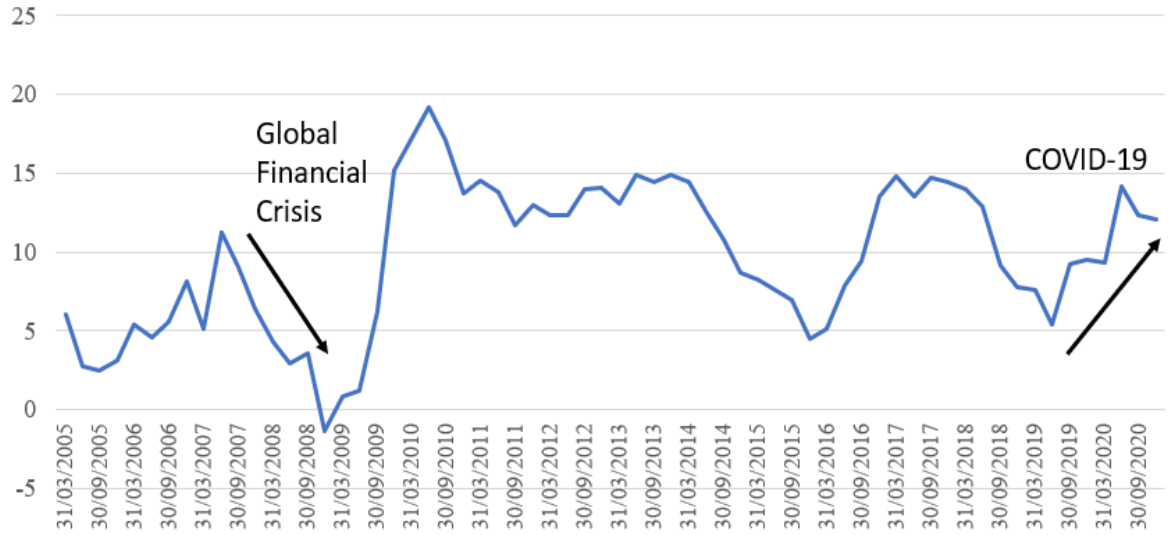
	2000	2007	2019	2020
World				
International debt securities (bonds)	1.5	3.9	4.6	8.6
Cross border loans	1.6	4.3	4.9	7.5
Bonds/Liquidity (Percentage)	47%	48%	48%	54%
Emerging markets				
International debt securities (bonds)	0.4	0.7	0.8	2.2
Cross border loans	0.6	1.2	1.6	2.5
Bonds/Liquidity (Percentage)	42%	36%	34%	47%

***Source**: Based on Bank for International Settlements (BIS), 2021.*

***Note:** The data includes bond issues and cross-border loans in US dollars, euros, and yen. All the figures were converted to United States dollars using the exchange rate for the relevant quarter, weighted by the size of debt and loans denominated in dollars, euros, and yen. Liquidity refers to the sum of bonds and cross-border loans. The data for 2000 and 2020 refer to the third quarter and for 2007 and 2019 refer to the fourth quarter.*

The pandemic has reinforced this trend. Between the end of 2019 and 2020, debt security issues by non-bank borrowers from emerging market economies increased from US$ 1.74 to 1.94 trillion. This contrasts markedly with the behavior of capital markets during the GFC when debt security issues registered a slowdown between the third quarter of 2008 and 2009 and witnessed a contraction in the fourth quarter of 2008 (-1.4%).

Figure 2: Rate of change of debt security issues for Emerging Market Economies Third-quarter 2005 to Fourth-quarter 2020. In percentages



Source: *Based on BIS (2021)*

During the pandemic, the behavior of private capital markets has strengthened the growing dependence of emerging market economies on short-term financing flows. The available evidence for Latin America and the Caribbean shows that portfolio gross inflows increased by 30% between 2019 and 2020 (from US$ 19.7 billion to US$ 27.2 billion). For their part, other investment gross inflows rose by roughly 50% for the same period (US$ 7.5 billion and US$13.9 billion for 2019 and 2020, respectively). At the same time, FDI inflows declined by 39% (US$156.3 billion and US$95.8 billion for the same period). As a result, short-term flows increased from 18% to 43% of total gross inflows (ECLAC 2021).

In addition, it must be considered that FDI inflows include equity capital, re-invested earnings, and intercompany loans, which can be regarded as a short-term flow.

FDI is founded upon a long-lasting strategic interest between a firm residing in a host country and a direct investor living outside the firm's host country. By convention, the criterion to establish a long-lasting interest is provided by a benchmark of ownership by the direct investor of at least 10% of the firm's voting power. This benchmark provides the direct investor with a significant degree of influence in the firm's management (OECD, 2008; IMF, 2009).

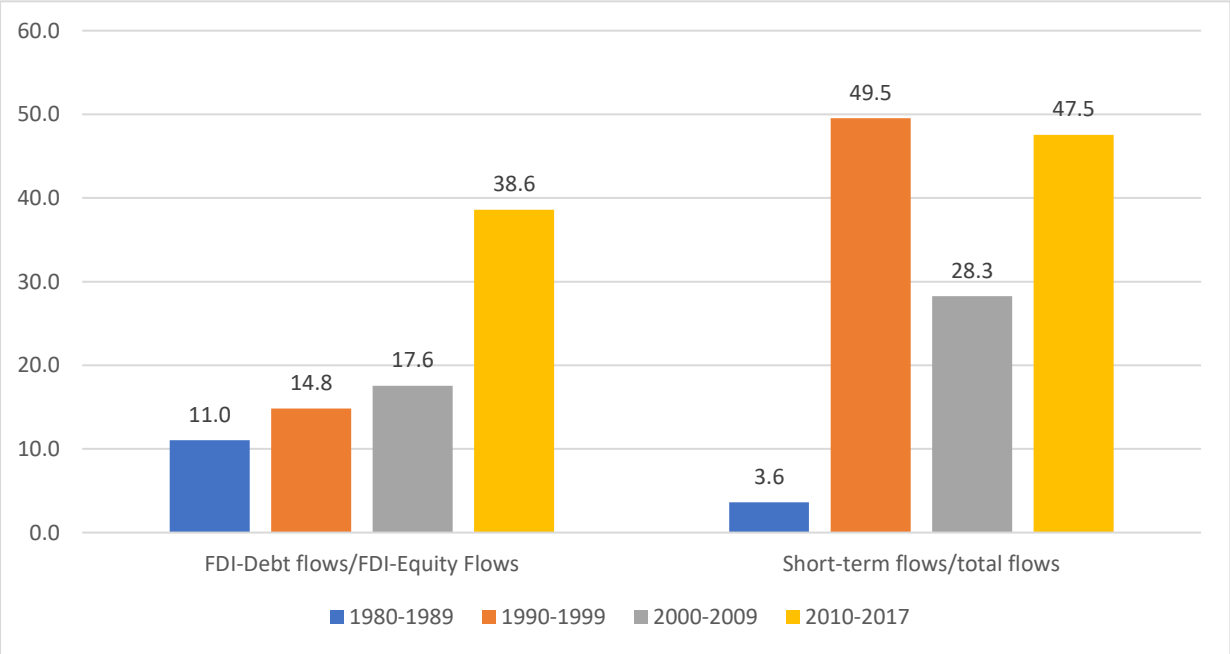
Any capital transaction falling within the 10% or more benchmark is thus considered an FDI transaction. On this basis, a difference can be drawn between equity, re-invested earnings, and inter-company loans: while equity capital can constitute an FDI relationship- in the sense that it can provide

10%, or more, of a firms' voting power- re-invested earnings and inter-company loans are characterized as FDI once an FDI relationship has been established (Wacker, 2013).

As a result, by virtue of the above definition, equity capital flows may not behave similarly to re-invested earnings or inter-company loans. They may not respond to the same motives and logic. Indeed, equity capital may tend to behave as a long-term flow and may thus be more stable than re-invested earnings and inter-company loans, which can respond to short-term considerations, similar to those driving portfolio flows. Indeed, Avdjiev et al. (2015, p. 5) argue that inter-company loans can be seen as: "portfolio flows masked as FDI."

Available data in the case of Latin America shows the rise in the importance of FDI-debt flows over time and, especially in the post-crisis period, relative to FDI-equity flows (17.6% and 38.6% in the periods 2000-2009 and 2010-2019) providing another reason for treating them as separate categories of analysis (Figure 3).[13]

Figure 3: Latin America
FDI-debt flows as percentage of FDI-equity flows and short-term flows as percentage of total flows. 1990q1-2017q4



***Note**: Short-term flows include portfolio and FDI-debt flows. Total flows include portfolio, FDI-debt and FDI-equity flows, as well as other investments.*

***Source:** Based on official data*

[13] Note that since FDI-debt flows behave like portfolio flows and have a higher periodicity than FDI-equity flows, we include both flows as part of a single FDI category, which would bias its measurement towards the short-term.

The rise in short-term flows recorded in the balance-of-payments has a counterpart in the increase in the external debt in all sectors in all emerging market economies between 2019 and 2020 (Table 4). In the cases of Africa, the Middle East, and Latin America and the Caribbean, the increase in external indebtedness concentrates on the government and non-financial corporate sector. In Asia and the Pacific, the increase in indebtedness is concentrated in the financial sector (41% of the total).

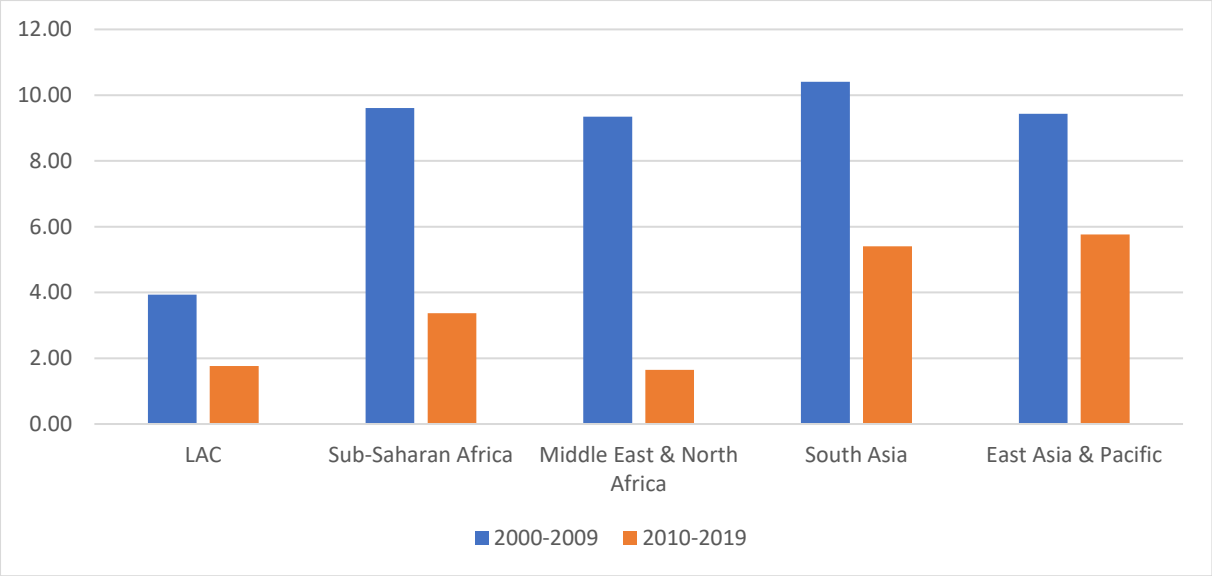
Table 5: Outstanding stock of debt security issues by emerging market economies and selected developing regions 2018.4-2021.1. Quarterly Data. US$ billions of dollars

Region/Sector		2018	2019	2020	2021
Emerging market economies	**Total**	**2,487**	**2,686**	**2,970**	**3,000**
	General Government	1,110	1,220	1,420	1,440
	Financial Sector	731	760	793	805
	Non-Financial Corporate Sector	646	706	756	755
Developing Africa and Middle East	**Total**	**448**	**536**	**647**	**678**
	General Government	257	332	418	443
	Financial Sector	107	113	118	124
	Non-Financial Corporate Sector	83	91	111	111
Developing Asia and Pacific	**Total**	**769**	**832**	**914**	**928**
	General Government	181	196	220	221
	Financial Sector	390	412	446	452
	Non-Financial Corporate Sector	198	224	248	255
Developing Latin America and the Caribbean	**Total**	**825**	**870**	**905**	**914**
	General Government	392	412	453	464
	Financial Sector	120	127	116	118
	Non-Financial Corporate Sector	313	330	336	332

Source: *BIS (2021)*

However, the extensive use of the international bond market by the non-financial corporate sector has not been accompanied by an increase in investment. The evidence points to the contrary: the coexistence between increasing debt and a decline in the rate of growth of the gross formation of fixed capital (see figure 4).

Figure 4: Rate of growth of gross fixed capital formation for developing regions 2000-2009 and 2010-2019



***Source**: Based on World Bank Development Indicators (2021)*

This finding may indicate that, in line with recent research for other emerging market economies, the non-financial corporate sector does not use the international bond market to expand productive capacity or for improvements in productivity, but rather for financial purposes. More precisely, non-financial corporates have acted as financial intermediaries by capturing international liquidity and investing a growing amount in financial assets abroad (see Advjiev 2014). The growing capital flows from non-financial corporates into emerging countries' financial assets have given rise to concerns regarding the potential macroeconomic implications of such trend regarding financial fragility and instability in countries receiving such types of investments.

3.3 The financial vulnerabilities posed by greater exposure to international capital markets: exchange rate-risk dynamics and countercyclical fiscal policy

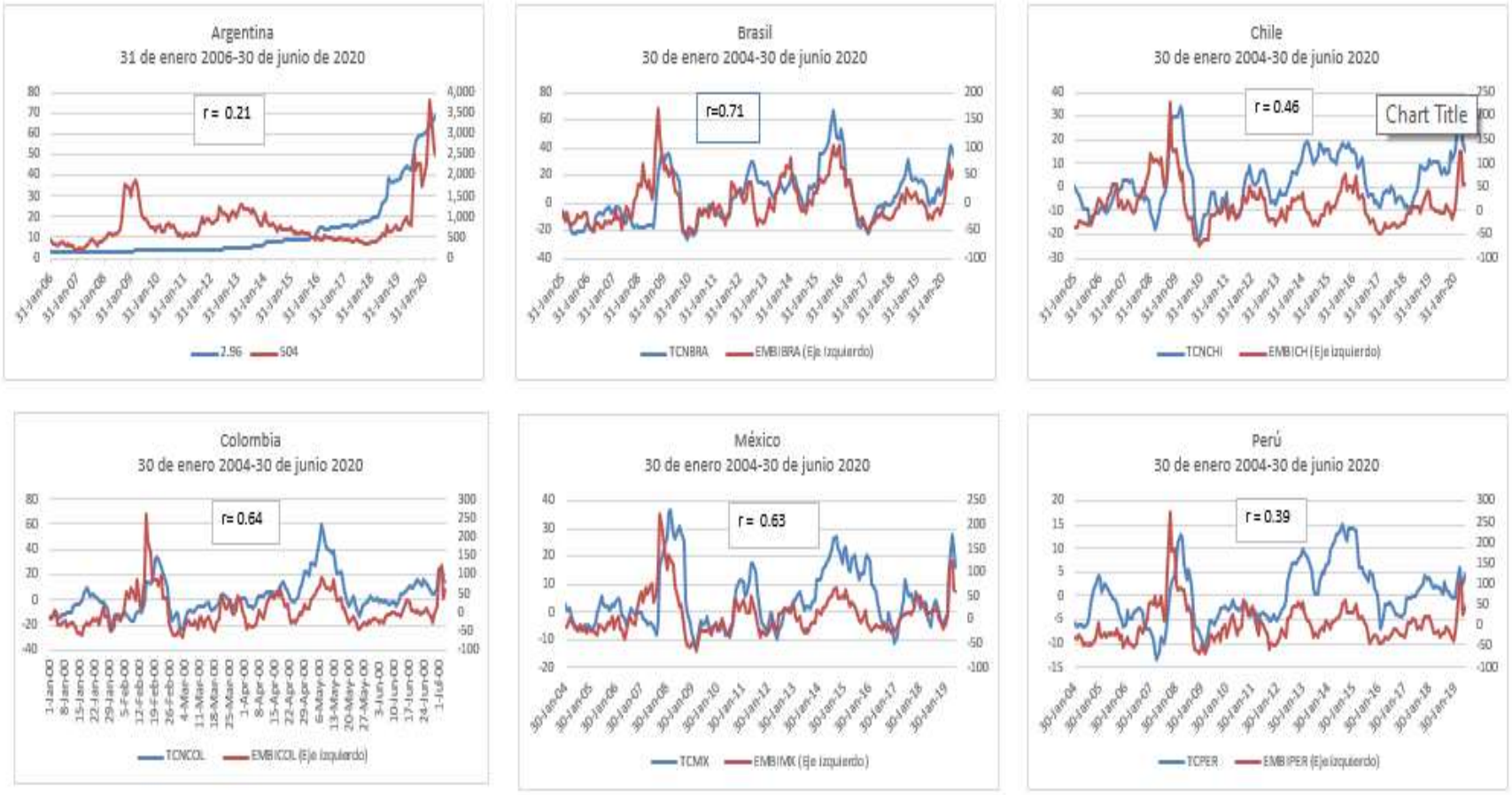
Greater exposure to the international private capital markets jointly with the increased importance of short-term flows under conditions of increased debt and financialized behavior can set the stage for greater volatility, financial fragility, pro-cyclicality of economic policy, and reduced policy space. A key transmission mechanism that can bring these factors to the forefront is the interplay between the nominal exchange rate and risk perceptions.

The available evidence provided for one of the regions under study, Latin America, shows a statistically significant positive association between the rate of change of the nominal exchange rate and risk perceptions. Depreciations (appreciations) in the nominal exchange rate are followed by a worsening (an improvement) of risk perceptions (Figure 5). The empirical evidence points towards a causality from the nominal exchange rate to the Emerging Markets Bond Index (EMBI) (BIS, 2009). However, there is no reason to believe that the causality could not also be in the opposite direction (see Annex).

The dynamics between nominal exchange rates and the EMBI have important implications for countercyclical fiscal policy. An increase in government expenditures and public deficit can, under given circumstances, lead to increased risk perceptions, leading to a rise in the EMBI. The rise in the EMBI not only increases the cost of borrowing in external financial markets but also results in depreciation of the exchange rate, pushing up the debt burden in foreign currency.

This transmission mechanism takes on particular relevance in the current pandemic context. As explained above, the international bond market momentum has opened up an important source of financing. At the same time, it has exacerbated financial vulnerability by increasing debt levels which were already historic prior to the outbreak of the pandemic.

Figure 5: Latin America (6 countries):
Rate of Change of Emerging Market Bond Index (EMBI) (RED) and nominal exchange rate (BLUE), 2000–2020



Source: *Abeles, Pérez Caldentey and Porcile (2021). Prepared by the authors, based on J.P. Morgan, "EMBI Spreads," 2020; and Economic Commission for Latin America and the Caribbean (ECLAC), Economic Survey of Latin America and the Caribbean, 2020 (LC/PUB/2020/12-P), Santiago, 2020. In the case of Argentina, the variables are expressed in terms of levels. The right scale measures basis points. r= simple correlation coefficient.*

The financial vulnerability of governments is complemented by an analysis of the sovereign ratings by the three major credit rating agencies (Moody's, Standard and Poor's and Fitch) which shows that more than half of the economies for which data is available are classified with the lower ratings (substantial risk and speculative grades).

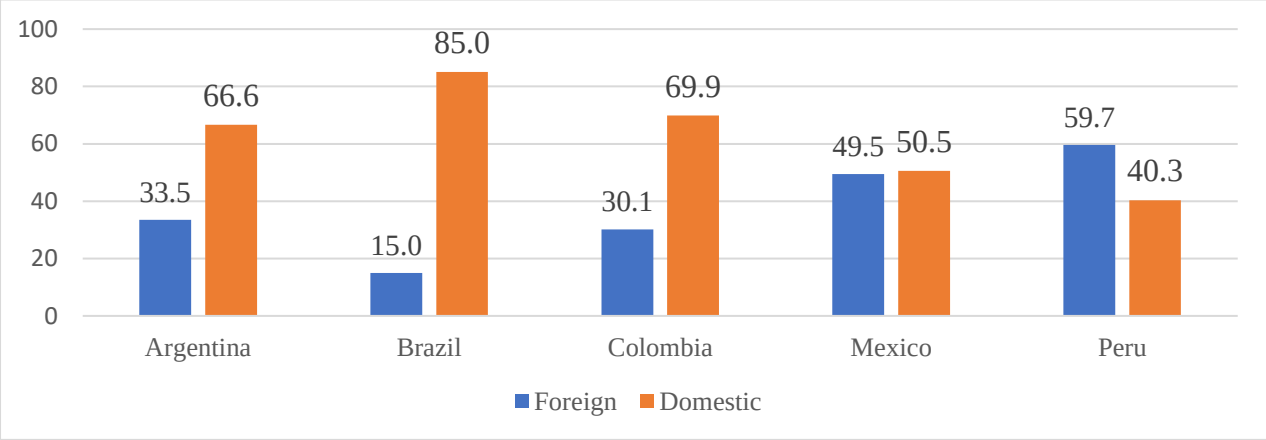
Table 6: Credit risk ratings for selected developing regions (2021)

	Africa		Asia		Middle East		Latin America and the Caribbean	
	Number of countries	Percentage of total	Number of countries	Percentage of total	Number of countries	Percentage of total	Number of countries	Percentage of total
Very low								
Low			10	23	4	21	1	21
Medium	3	6	13	30	5	26	5	26
High	24	48	15	34	7	37	17	37
Very high	23	46	6	14	3	16	4	16
Total	50	100	44	100	19	100	27	100

Source: Based on Country Risk (2021)

But even if the government is not indebted in foreign currency, the mechanism described above still holds. The issue does not revolve around the currency in which the debt is denominated *per se*. It is rather a question of who owns the debt. If the debt is issued in domestic currency, but it is owned by foreign investors, an effective or expected depreciation may have a similar effect on the economy as if the debt were issued in foreign currency. It can lead to expected capital losses of the foreign investors who own the debt denominated in domestic currency. This will result in capital outflows and increased risk perceptions (a rise in EMBI). If risk perceptions affect the exchange rate, this mechanism can provide the basis for a cumulative process. Available evidence suggests that, at least for some countries in Latin America, an important part of government debt is owned by foreign investors (Figure 6).

Figure 6: Foreign and domestic ownership of sovereign debt by issuer
Selected LAC countries 2013 (percentage of total)



Source: *World Bank (2018)*

3.4 The exchange rate-risk dynamics and the non-financial corporate sector

The dynamics between the exchange rate and risk perceptions are intertwined in the case of the non-financial corporate sector. The non-financial corporate sector in emerging and developing market economies tends to operate with currency mismatches. Moreover, the available evidence shows that over time currency mismatches have widened in many developing economies (Table 7).

This fact arises out of a simple but forgotten fact. As a result of the existing currency hierarchy, dominated by the reserve currency status of developed economies and in particular of the United States dollar, assets denominated in different currencies are imperfect substitutes. This idea is independent of the degree of capital mobility.[14] Imperfect asset substitutability means that agents cannot arbitrage financial operations with currencies denominated in different currencies and that therefore they cannot hedge their positions.

[14] As explained by Smithin (2012, p. 166): "Even given 'perfect capital mobility' there need not be 'perfect asset substitutability'. It continues to matter…whose promises to pay the investor holds, at any given moment."

Table 7: Net foreign currency assets of the non-government corporate sector as percentage of exports for selected emerging market economies 2007-2014 (in percentages)

Countries	2007	2008	2009	2010	2011	2012	2013	2014
Brazil	-43.3	-37	-45.6	-54.4	-60.2	-72.2	-64.1	-74.6
Chile	-20.6	-34.6	-51.8	-44.8	-43.8	-47.1	-48.5	-58.7
India	-10.3	-9.7	-15.1	-18	-18.9	-21.3	-27.4	-30.3
India	-15.3	-16.5	-18.4	-18.2	-16.1	-19.1	-19.5	-18.6
Indonesia	-12.6	-7.9	-4.9	-8.7	-14.5	-23.1	-31.3	-41.1
Malaysia	-8	-12.7	-14.5	-8	-7.9	-5.1	-10.8	-8.7
Philippines	-0.7	-2.9	-1.4	-11.5	-15.8	-23.5	-25.5	-16.3
Thailand	8.7	1.6	-1.6	-4.9	-1.7	-6.7	-7.9	-4.0
Hungary	-30.7	-40.1	-48.9	-34.4	-26.3	-26.3	-22.6	-16.9
Poland	-14.4	-27.6	-42	-38.5	-31.2	-30.6	-28.6	-22.7
Russia	-37.2	-16	-8.1	-5.5	-1.3	-2.1	-5.7	1.5
Turkey	-41.8	-37.7	-46.1	-64.4	-60.5	-67.9	-86.9	-91.4

Note: *The values of the net foreign currency assets of the non-government corporate sector are aggregate as "net foreign assets of depository corporations (excluding central bank) plus non-bank foreign currency cross-border assets with BIS reporting banks less non-bank foreign currency cross-border liabilities (excluding debt securities) to BIS reporting banks less international debt securities outstanding of non-bank and non-government sectors in foreign currency; outstanding position at year-end."*

Source: *Chui et. al (2016.Table A2)*

Currency mismatch makes the non-financial corporate sector vulnerable to changes in the nominal exchange rate and risk perceptions. The depreciation of local currencies can affect firms' financial situation. Depreciation not only raises debt service costs and then outgoings but also swells liabilities by increasing the local currency value of outstanding debt. If the collateral for the debt is likewise denominated in local currency, depreciation will also cause this asset to lose value. This situation can generate a mismatch such that the firm has to purchase currency to balance its accounts. Depending on its size and importance in the market and the number of firms behaving in this way, currency purchases can create further pressure for devaluation of the nominal exchange rate, ultimately increasing the external debt of the firms operating in the non-tradable goods sector.

This transmission mechanism is also affected by the degree of foreign-currency leverage in the non-financial corporate sector and how this affects the sector's investment decisions.

The evidence shows that when firms are over-leveraged, they restrict their investment and increase their cash holdings to protect against potential situations of illiquidity and insolvency. This result is particularly relevant for issuers on the international bond market since over 50% of these firms have leverage ratios of over 0.80 and represent a large proportion of total assets and investments.

Pérez Caldentey, Favreau-Negront and Méndez (2019) provide an econometric estimation that relates investment in tangible assets to cash flow by degree of leverage for 270 firms in six Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico and Peru) for the 2010–2016 period, shows that when leverage exceeds a 0.77 threshold, a 1% increase in cash flow-to-assets is associated with a reduction in investment of 0.25%–0.24%. In terms of the growth of tangible assets, the estimated equation shows that when leverage exceeds the 0.77 threshold a 1% increase in cash flow-to-assets is associated with a 0.75% reduction in the rate of growth of tangible assets (Pérez Caldentey, Favreau-Negront and Méndez, 2019).

Leverage thresholds above which firms choose not to invest are likely to remain constant over time and tend to decline in periods of uncertainty, lower expectations, and weak growth. This situation may lead to a cycle characterized by low levels of investment and growth, together with high levels of debt. These conditions may then impose a severe funding constraint if asset managers decide to reduce their positions in corporate non-financial sector bonds in international markets.

The conditions may be aggravated by the role played in financial intermediation by the non-financial corporate sector, through the corporate debt issued by subsidiaries resident abroad. If that role is important, the effective foreign currency debt may be greater than that declared according to residence criteria, which makes the firm more financially fragile.

IV CAPITAL CONTROLS IN THE DEVELOPING WORLD AND THE POLICY LESSONS FOR COVID-19

The previous sections described and analyzed the different dimensions of capital controls and identified the potential financial vulnerabilities posed by the greater reliance on the international private capital markets within the pandemic context. This section presents evidence on capital controls use for nineteen countries located in three developing regions: Africa, Asia-Pacific, and Latin America. Capital controls are classified using the taxonomy developed in section 2, which provides a uniform approach for the different country cases discussed (see Tables 8-12 below). The case studies provide the basis for extracting policy lessons regarding the feasibility and effectiveness of capital controls in the context of the COVID-19 pandemic.

For each region, the corresponding subsections address the context and policy lessons that can be derived for COVID-19. The evidence for most of the country case studies presented spans from the late 1990s, which coincides with a revival of capital controls due to increased financial instability and crises, (See Section 1), to the latest capital control measures available.

Countries in the sample have not adopted capital control measures during COVID-19 mainly because the massive capital outflow in the early stages of the pandemic was followed by a significant inflow (See Section 1). Nonetheless, the lessons derived from the different regional experiences in capital controls are essential since the financial vulnerabilities of developing economies aggravated by the COVID-19 pandemic may lead to increased volatility, liquidity restrictions and capital flow reversals, as explained in section three.

4.1 Asia-Pacific[15]

4.1.1 Background and context

The analysis considers seven cases studies in Asia, including more developed "emerging markets" (e.g. Malaysia and Taiwan), dynamic exporters (Thailand, Vietnam, and Indonesia), and low-income countries with traditionally more "closed" economies and less export success (India and Pakistan).[16] The analysis covers the period from the Asian financial crisis in 1997 to the present day.

The Asian financial crisis marked a watershed in macroeconomic terms, particularly for highly affected countries (Republic of Korea, Malaysia, Indonesia, Thailand, and the Philippines), which showed dramatic shifts in investment rates after the crisis, some of which have persisted to this day (Ghosh, 2009). Net inflows into the ASEAN-5 and New Industrialized Economies (NIEs) before 1997 amounted to as much as 10 per cent of GDP; the crisis marked such a reversal that it involved a net outflow of 8 per cent of GDP in 2008-09, and net inflows did not resume until 2003 (Grenville 2012).

Developing Asia is considered one of the most globally integrated regions, dominantly in trade terms, and now increasingly in finance. Since the early 1990s, when financial globalization first gathered pace, there have been broadly three phases of surging capital flows into developing Asia. To a certain extent, these phases mirrored the tendencies in the global economy that favoured "emerging markets" within the backdrop of widespread financial liberalization.

The first phase started in the early 1990s and was brought to a sharp halt by the Asian financial crisis. The second phase started in the early 2000s and was again abruptly terminated by the GFC. Finally, the third stage lasted from 2011 to 2018, with a blip in between caused by the 2013 "taper tantrum".

Not all Asian countries received foreign capital in similar proportion throughout these phases. Several economies were excluded from surges or experienced net outflows, but the region as a whole and some markets received large inflows. In the recent period, the region was already showing signs of reduced external investor interest, with some economies perceived as weaker, sometimes experiencing significant outflows. Immediately after the eruption of the COVID-19 pandemic, this trend was sharply intensified.

The very recent recovery in capital flows to developing Asia essentially reflects the short-term impact of further monetary loosening and interest rate declines in the advanced economies in response to the COVID-19 pandemic and the consequent search for global investment opportunities by liquid banks and non-bank investors (Chandrasekhar and Ghosh 2020). Once more, it is worth emphasizing that recently in many developing countries- particularly in Asia- non-financial corporations with little likelihood of generating dollar revenues, such as real estate and construction firms, have significantly

[15] This section is based on Ghosh (2021).

[16] For all countries (except Taiwan Province of China, which is not included in these data sources) data on various policies are taken from the IMF AREAER data base (https://www.elibrary-areaer.imf.org/Pages/Reports.aspx) with some additions from national and other sources. Data on all external flows are taken from the IMF BPM6 database. Some other data such as for savings and investment rates are taken from the World Bank WDI database. Data for Taiwan PoC are taken from reports of the Central Bank of Taiwan.

increased US dollar-denominated borrowing. This tendency adds a potential element of currency mismatch, namely foreign currency borrowing for domestic investment (Chiu, Kuric and Turner 2016).

The analysis of the Asian experience with capital controls covers particular economies, which have experienced very distinct trajectories regarding growth and development. Nevertheless, there are some significant similarities concerning trends in financial policies and the capital flow regulation from the 1990s onwards, most significantly the tendency for progressive liberalization of the capital account and rules governing foreign exchange transactions in general. In some countries like Malaysia, Indonesia and Thailand, the capital account was more open even earlier. However, the period after that witnessed further liberalization in permitting foreign ownership of domestic financial companies. In other economies that were relatively closed in earlier periods, such as India, Vietnam, and Taiwan, the past three decades have seen progressive liberalization of current and capital account transactions. This liberalization trajectory meant that eventually and increasingly, in all of these countries, flow regulation (for the reasons outlined in the Introduction) has relied on market-based capital controls and complementary measures (mainly, macroprudential measures) rather than administrative capital controls.

The analysis of the Asian case shows that capital controls were applied mainly in four of the eight studied countries, namely Malaysia, Indonesia, Thailand, and Taiwan. Differently, Vietnam, India and Pakistan adopted other measures to deal with financial flows. The different types of capital controls employed in Malaysia, Indonesia, Thailand, and Taiwan are found in Tables 8-11.

4.1.2 Policy lessons and guidelines

A first lesson that emerges from the Asian case is that capital controls/liberalization have the symmetric effects on volatility and financial fragility. Capital controls are successful in moderating the surge in short-term capital flows. In addition, to preventing destabilising currency movements, these are also shown to be effective in enabling a Keynesian revival strategy for the macroeconomy. This is especially exemplified with the case of Malaysia where the imposition of capital controls in the late 1990s led to increased investment and improved economic growth performance. These findings confirm other empirical studies on the impact of capital controls (See Erten et Al., 2019).

Contrarily the progressive reduction of various controls on capital movement was associated with higher volatility, financial instability (and now rising problems of external debt especially through private bonds markets) even as it did not result in better economic performance.

In addition, financial liberalization was not conducive to increased formation of gross fixed capital. Following the liberalization of the capital/financial account of the balance-of-payments, Asian countries exhibited lower rates of investment and at the same time did not witness a rise in the volume of long-term flows.

The Philippine experience in the early 1990s and the mid-2000s suggests that greater financial flows liberalisation poses several challenges for monetary and exchange rate management, including increased dollarization of the economy. Furthermore, this case also shows that the liberalization reinforces the boom-bust cycles in domestic asset markets and increases the tendency towards greater fragility and volatility in the balance of payments.

Also, the cases of the Philippines and Pakistan provide two examples of countries where capital account liberalisation since the 1990s (in both cases under instruction from the IMF, which has been running almost continuous programmes in both countries) did little to attract capital inflows even as it generated greater financial volatility. In both cases, the balance of payments 'accounting' equilibrium has been essentially achieved by inward remittances from migrant workers abroad.

A second lesson derived from the Asian experience is that financial liberalization produces a path dependent effect regarding the reduction of policy space. In a more liberalized context capital control measures are more difficult to implement leading countries to opt for other policies to manage the capital account, macroprudential policies and market-based policies, and measures aimed at domestic financial activity, which are not efficient in reducing financial fragility. Path dependency regarding liberalization is also characteristic of the African case studies.

A third lesson, that is exemplified by the case of Indonesia with the offshore rupiah trade and the case of Thailand during 2006-2008, is that the regulation on capital inflows and outflows should not be seen as independent of each other. Both are complementary in their aims, and effects and should be unified under a single framework. Also, capital account control and regulation, in general, should take into account the institutional changes of international financial markets and, in particular, the distinction between the concepts of residence and nationality.

The difference between residence and nationality has currently increased importance given the rise in debt of the non-financial corporate sector. Measuring debt exposure through residence can significantly under-report the degree of vulnerability. In the case of Latin America and the Caribbean, this is important only for Brazil. For 2019, the debt of the non-financial corporate sector measured in terms of residence is roughly 15% of GDP, but it increases to 25% of GDP when measured by nationality.

A fourth lesson that can be drawn from the country case studies (Malaysia, 2010-2012) is that net financial flows are not stationary over time. The belief that gross outflows will be balanced with gross inflows so that net flows fluctuate around zero, has been an important argument to oppose capital controls. This points to the fact that gross inflows and outflows may be driven by different motives and variables and may involve transactions by different agents. A clear understanding of the relationship between gross inflows, and outflows and economics agents is important for an effective implementation of capital controls.

A similar view was held by the government of the Philippines, who, that in the face of greater higher volatility due to the effects of the GFC Global Financial Crisis (2008-2009), opted to liberalize international transactions further. These measures aimed to promote greater integration with international capital markets, to diversify risk supportive of an expanding economy with global linkages, with the aim of promoting greater integration with international capital markets, diversifying risk supportive of an expanding economy with global linkages and to streamlining streamline the documentation and reporting requirements on the sale of foreign exchange by banks. The focus was apparently on moving away from administrative controls towards improving financial infrastructure, promotion of transparency and good corporate governance, in the hope expecting that these changes would strengthen the domestic financial sector's resilience to volatility in capital flows that continued through this period of liberalisation

A fifth lesson illustrated by the case of Taiwan (in the 1990s decade) is that capital controls can be used not only for financial stability purposes but also to direct inflows and, in particular, long-term flows to certain types of economic activities. In this sense, capital controls can also be implemented as an instrument of government planning.

Finally, the experience of Vietnam and Pakistan show that, although capital controls refer to the financial/capital account of the balance of payments, controls can also be imposed on the income account of the balance of payments. Vietnam imposed in 1999 a tax on the repatriation of profits and dividends was subjected to a tax of 5-10 per cent, but in 2000 this was reduced to a range of 3–7%, depending on the capital contribution of the foreign investor, and in 2004 it was abolished altogether.

In 2010, Pakistan implemented a withholding tax. A 10 per cent tax became applicable on payments of dividends by a company to its headquarters abroad. Dividends paid by a non-resident company were taxable at the corporate tax rate in the hands of resident company. In 2015 this tax was slightly adjusted with different rates for different sectors. Royalties and fees for technical service paid to non-residents (without permanent establishment in Pakistan) were subjected to withholding tax of 15 percent. In 2016, other payments to non-residents, for which a withholding tax rate was not specified were subjected to withholding tax of 20 percent. It was noted that these could be reduced under the terms of applicable tax treaties.

Finally, the reliance on market-based capital controls and macroprudential measures rather than administrative controls which have met with showed varying degrees of success. Indonesia's experience suggests that the use of macroprudential measures (which have dominated) has successfully changed the maturity structures and reduced potential currency mismatches in domestic borrowing from international sources in foreign currency-denominated international lending. In Thailand, exchange rate management appears to have been a major aim focus of the policies; and they appear to have succeeded in controlling depreciation and preventing excessive appreciation during two major episodes in 2009-11 and in 2014-15. Taiwan provides a very interesting example of what was effectively a quota system for capital inflows, which operated in the early 1990s, though it has since then been eliminated.

In India, progressive liberalization since the 1990s means that only market-based capital controls and macroprudential measures are available. These measures were used more after the GFC than during the Taper Tantrum. Meanwhile, the political nature of the regulation is evident in the fate of a specific measure designed to control and eliminate anonymous inflows coming as "Participatory Notes" in portfolio investment: they were not banned despite several attempts to do so. The significance of political interests and lobbying in determining regulatory activity is particularly evident in this case. However, it should be remembered that this is an important factor affecting policies concerning capital flows in all countries.

Table 8: A taxonomy of capital controls for selected Asian countries: Malaysia

Time-Period/ Context	**Measure and objective**	**Type of Flow**	**Resident(outflow)/non-resident (inflow)**	**Local currency/foreign exchange**	**Price/ Quantity**	**Short-term/long-term**	**Complementary measures**
1994-1995 The national currency (the Ringgit) came under strong buying pressure due to significant and rising inflows of short-term capitals, which by 1993 amounted to as much as 17 per cent of GDP.	Controls on portfolio inflows to avoid the consequence of currency appreciation	Short-term flows	Inflows	…	Quantity	Short-term	Ceilings on external liabilities of commercial banks. Bans on sales of short-term debt instruments to non-residents. Restriction on ringgit deposits of foreign institutions to non-interest-bearing accounts. Prohibition of non-trade-related currency swaps. Introduction of new maintenance charges on non-interest-bearing foreign deposits.
1998-1999 Asian Financial Crisis	Sales of assets denominated in ringgits, through authorized domestic intermediaries, to shut down ringgit's short-term speculation in offshore markets One-year waiting period imposed on the repatriation of Malaysian securities held in external	Short-term flows	Outflows	…	Quantity	Short-term	There was mandatory repatriation of all ringgit held abroad to protect the ringgit's value and raise the foreign exchange reserves that had fallen in 1997 due to capital flight. Limits were imposed on the transport of ringgit by travellers. There were restrictions on transfers of funds between external accounts, complete prohibition of resident/non-resident credit arrangements, and trade settlement in ringgit and resident/non-resident offer side swaps and similar hedge

	accounts and maintained by non-residents						transactions. CLOB share transactions were frozen
1998-1999 Asian Financial Crisis	Prohibition of transfer of ringgit funds into the country from externally held accounts, except for investment in Malaysia (excluding credit to residents) or for purchase of goods in Malaysia.	Short-term flows	Outflows	…	Quantity	Short-term	Holders of offshore deposits were given the month of September 1998 to repatriate their deposits to Malaysia, eliminating the primary source of speculative buying of US dollars in anticipation of a ringgit crash.
2000	Prior approval required for all investments abroad exceeding RM 10,000. The purchase of derivatives required prior permission for the spot or forward contracts or interest rate futures not transacted at a Malaysian futures exchange. Banking institutions were prohibited from extending loans in ringgit to any foreign bank or foreign stockbroking company.	Short-term and long term-flows	Outflows	…	Quantity	Medium-term	Trade credit could be extended to non-residents for export of goods from Malaysia up to a maximum period of six months from the date of export. The extension of commercial credit by authorised dealers to non-resident banks and stockbroking companies were allowed in amounts up to RM 200 million intraday and RM 5 million overnight in the case of technical or other inadvertent delays. The purchase of derivatives required prior permission for the spot or forward contracts or interest rate futures not transacted at a Malaysian futures exchange
2000	Prior approval required for securities issuance and for accessing credit of more	Short-term	Inflows	…	Quantity	Short-term	

	than RM 5 million from non-residents, with the condition that amounts should be used to finance productive activities in Malaysia that generate foreign exchange earnings or reduce future outflows. For non-residents, the earlier ban on repatriation on securities was replaced in 1999 by exit taxes. At first, both capital and capital gains were taxed at 30% if repatriated within 12 months and 10% after that; subsequently, from late 1999, only capital gains and profit repatriation were taxed at 10%. Prior approval was required to buy or sell forward ringgit in forex markets. Non-residents were not allowed to extend credit in ringgit, only in forex. FDI (involving the purchase of 15% or more of equity) required prior approval from the Foreign Investment Committee.						

Table 9: A taxonomy of capital controls for selected Asian countries: Indonesia

Time-Period/ Context	**Measure and objective**	**Type of Flow**	**Resident(outflow)/non-resident (inflow)**	**Local currency/foreign exchange**	**Price Quantity**	**Short-term/long-term**	**Complementary measures**
2001 Growth of offshore Rupiah trade	Banks were prohibited from transferring rupiah to non-residents, especially transfers that were not supported by underlying genuine transactions within the Indonesian economy. The emergence and growing importance of derivatives in financial markets in developing Asia has created a particular source of vulnerability and made it harder to ensure stability and reduced exposure to sudden changes and crises	Other investment	Inflows	Local currency	Quantity	Short-term	Restrictions imposed on derivatives transactions that were not supported by underlying real transactions. The maximum limit for derivatives transactions involving forex sales by domestic banks to non-residents was reduced from USD 5 million to USD 3 million, attempting to limit speculation in the rupiah through these routes.

Table 10: A taxonomy of capital controls for selected Asian countries: Thailand

Time-Period/ Context	**Measure and objective**	**Type of Flow**	**Resident(outflow)/non-resident (inflow)**	**Local currency/foreign exchange**	**Price Quantity**	**Short-term/long-term**	**Complementary measures**
2006-2008 Significant upward pressure on the baht, which affected export competitiveness.	Limits on the daily outstanding baht balances of non-residents, prohibiting transactions involving Thai baht lending or selling to non-residents without evidence of underlying trade or investment and imposing holding periods of at least three months. The Bank of Thailand (BOT) has introduced the unremunerated reserve requirement (URR) on short-term capital inflows to deter short-term capital inflows and one-way speculation on the Thai baht. Speculation activities led to excessive volatility of the Thai baht that might have caused wider economic instability, mainly when domestic demand was moderate and robust export growth was the main driver of the economy.	Sort-term	Inflows	Local currency	Quantity	Short-term	…..

Table 11: A taxonomy of capital controls for selected Asian countries: Taiwan

Time-Period/ Context	Measure and objective	Type of Flow	Resident(outflow)/ non-resident (inflow)	Local currency/foreign exchange	Price Quantity	Short-term/long-term	Complementary measures
1990-2003	Qualified Financial Institutional Investor (QFII) system (and later Generalised Financial Institutional Investor System). It was a quota system intended to control the volume of capital inflows in the Taiwanese economy. It was designed to allow foreign capital access to local securities markets while still retaining control on how much each QFII could invest. QFIIs also limit the amount of funds that could be remitted at a given time. This system was an unusual strategy for quantitative controls on capital flows, which would appear incompatible with a market economy but appeared to work rather well over a decade. Restriction on outward remittances of capital account-related funds: US$ 50 million per year for QFIIs, and US$ 5 million per year for natural persons (i.e. ROC citizens over 20 years old and foreign citizens with an alien residency certificate in Taiwan). Similar restrictions were applied for inward remittances.	Short-term flow	Inflows	….	Quantity	Long-term	

2001-2008	Controls on FDI	Long-term flows	Outflows	…	Quantity	Long-term	…
2010	In December 2010, another inflow surge prompted a measure similar to that observed in Thailand in 2008 concerning unremunerated reserve deposits. This policy set new reserve requirement ratios for NT dollar demand deposits held by non-residents. Such deposits were made subject to a 90 per cent reserve requirement on the amount exceeding the outstanding balance recorded on December 30, 2010, and a 25 per cent reserve requirement on the amount below the December 30 level.	Short-term	Inflows		Quantity	Short-term	…

4.2. Africa[17]

4.2.1 Background and context

The analysis of the African experience encompasses six case studies. Apart from a middle-income country in North Africa (Morocco), we focus on Sub-Saharan Africa. In Sub-Saharan Africa, we provide a detailed analysis of five countries: a low-income Sub-Saharan country (Ethiopia) and four middle-income Sub-Saharan economies (Ghana, Nigeria, South Africa, and Zambia)

As it is inevitable in a continent of large dimensions, the nations that constitute Africa's nations are extremely highly diverse. Per capita GDP (at constant price 2010) varies from between $480 and $600 in Sierra Leone, Niger, Mozambique, Malawi, Madagascar, and Liberia to between $7000 and $15000 in South Africa, Seychelles, Mauritius, Libya, Gabon, Equatorial Guinea, and Botswana. Despite this diversity in levels of development, there is one feature that is characteristic of most African countries: commodities are the main driver of growth, with inadequate diversification of the economic structure and of exports. This aspect makes most countries in the continent vulnerable to commodity price fluctuations, from the point of view of government revenues, export earnings and balance of payments stability, and overall economic performance.

Given external vulnerability and the possibility of adverse systemic shocks, most African countries have experimented with capital flow regulation. However, despite differences in levels of development and economic structure, many African countries had significantly opened their capital accounts by the early 2000s. There were indeed exceptions, such as Morocco and, to a lesser extent, Ethiopia. Many of these exceptions were countries that were too vulnerable to risk liberalisation aimed at attracting foreign capital. They were unlikely to be successful in that effort and yet may become victims of capital flight in particular periods. On the other hand, the bigger and more developed countries did attract significant inflows after liberalisation but faced new vulnerabilities.

This vulnerability was not revealed in the early years after liberalisation because of the commodity price boom stretching across the first 15 years of this century. That not only encouraged foreign financial investors to discover even lower-middle income and some low-income countries as potential investment destinations but provided many of these countries the wherewithal in foreign exchange to service the costs of the liabilities incurred as a result of foreign capital inflows. The difficulty was the vulnerability to sudden shifts in commodity prices and export volumes this resulted in. That vulnerability increased when countries accumulated liabilities in the period after the 2008 crisis when the injection of cheap liquidity by developed country central banks resulted in a surge in capital flows to emerging and frontier markets.

It was when such difficulties arose, countries that had opted for capital account liberalisation had to adopt policies to avoid crises and mitigate vulnerability. However, given the presence of legacy capital accumulated during the liberalisation years, governments in many of these countries analysed in this chapter did not see a return to 'structural regulation' and the adoption of administrative measures as feasible. The understanding seems to be that adoption of such policies will trigger capital flight and

[17] This section is based on Chandrasekhar (2021)

worsen the crisis. The preference, therefore, was for exchange control interventions and macroprudential measures rather than capital controls *per se*.

4.2.2 Policy lessons and guidelines

The analysis of the countries in Africa provides further evidence on some of the policy lessons underscored by the country cases in Asia.

First, the analysis shows that financial liberalization can increase volatility and set the stage for increased financial fragility. Ghana is a case in point: in the 2000s, this country accelerated capital flow liberalization, which began in the 1990s. In December 2006, the Exchange Control Act, 1961 was replaced by the Foreign Exchange Act (Act 723). Under the former exchange control regime, foreign transactions were limited, with restrictions on issuance and transfer of securities involving residents and non-residents, besides regulations on external borrowing, which required approval by the central bank, the Bank of Ghana. Under the new regime, rules governing the inflow of foreign exchange were liberalised to attract foreign investment. Moreover, the Bank of Ghana waived the requirement for approval on loans contracted by residents. The banks were only obliged to submit reports to the central bank on all foreign exchange transactions. Greater financial liberalization explains, in part, the reason why average annual net inflows, which had risen 2.1 times between 1990-92 and 1998-00, rose 7.1 times between 2001-03 and 2006-08.[18]

South Africa illustrates the persistence that an open capital account has made the country highly dependent on short-term flows. Short-term flows have represented roughly half of total flows, making South Africa vulnerable to capital reversions.

A specificity of the African case that has a bearing on capital controls is the strong relationship between capital flows and the productive structure. The experience shows that development levels, commodity export dependence and risk perceptions did limit the flow of capital to African countries, with the exception of a few, especially Nigeria and South Africa. This was in most cases not because of a reticence to liberalise the capital account, but because of investor reticence. In cases like Zambia, this also meant that openness per se did not set off large inflows, and when inflows did occur even on a limited scale, there were signs of vulnerability.

Second capital controls can affect not only the volume of capital flows but also change their composition. The consequence of a strong regulatory environment in Ethiopia has been that, besides limited inflows, FDI and government borrowing dominated gross inflows, with trade credit coming to account for a little more than a fifth after 2004. More volatile flows have been kept at bay in a country that is extremely vulnerable to balance of payments disruption.

In the case of Morocco, portfolio flows were near absent throughout this period, with flows being mainly in the form of FDI and credit flows through the “other investments” and channelled to the

[18] Some of this spike in inflows was on account of investments in oil exploration, discovery of new reserves (2007) and production.

government, banks, and the non-financial private sector. The absence of volatile flows meant that Morocco was relatively insulated from periodic crises that afflicted many emerging markets.

Third, the African case also shows that reversing capital account liberalization is difficult pointing to the existence of path dependence. It is only countries that do not opt for significant liberalisation in the first instance that retain relatively strict administrative measures in their basket of policies relating to cross-border capital movements. One implication is that the "capital control measures" experimented with in countries affected by capital flow volatility are more in the nature of exchange control and macroprudential measures rather than interventions that directly limit either capital inflows or outflows.

Faced with a credit downgrade and a low level of reserves, the Bank of Ghana chose in February 2014 to reverse liberalisation but was only able to implement it marginally. Foreign-exchange and foreign-currency account holders had to provide documentation for transfers outside Ghana. Offshore currency transactions by resident Ghanaian companies were also to be "strictly prohibited" and exporters had to collect and repatriate in full the proceeds of their exports to their local banks within 60 days of shipment (Chandrasekhar, 2021).

Similarly, while capital account liberalisation did exacerbate vulnerabilities in Nigeria, these tended to be recognised and addressed only in periods where the oil market was weak in terms of prices and demand. Even in those circumstances, measures aimed at limiting the exposure of domestic agents to foreign exchange payments commitments were relaxed soon. Nigeria appears to be a classic case of path dependence when moving down the road of capital account liberalisation. Even when vulnerability resulting from such liberalisation weakened the balance of payments and the currency, especially in periods of oil price decline, the government appealed only to weak control measures. The basic tendency toward foreign capital and debt exposure continued. That has had adverse implications for the country in recent times, given the global output contraction and falling oil prices.

Fourth, as with the case of Asia, the analysis of Africa shows that capital controls on inflows and outflows can be interrelated. The experience of Ghana shows that when countries tend to narrow or bring down the capital controls on inflows, financial stability can become dependent on managing capital outflows.

Fifth, the case of Ethiopia demonstrates that capital account controls can not only target mitigating volatility and financial fragility but can also target mitigating volatility and financial fragility and aim at developing real sector activity. Ethiopia's capital control regime was quite strict. While residents were not allowed to undertake direct investment abroad, inward FDI was also significantly controlled. Investment in telecommunications and defence industries was allowed permitted only in partnership with the government. And the government-maintained control over Investments in postal services (except courier service), the transmission and supply of electricity through the Integrated National Grid System, and air transport services using aircraft with a seating a capacity for more than 20 people passengers were reserved for the government. All investments (except for services and transport generation and supply of electricity) had to be approved and certified by the Ethiopian Investment Commission (EIC). But concessions aimed at boosting FDI for export were also in place. New projects in manufacturing or agro-industry in which at least 50 per cent of production was exported or at least 75 per cent of production used as an input for the production of export items were exempt from income taxes for up to six years. Investment activities that exported less than 50 per cent of their production were also granted up to three years of income tax exemption.

Table 12: A taxonomy of capital controls for selected African countries: Nigeria

Time-Period/ Context	Measure and objective	Type of Flow	Resident(outflow)/non-resident (inflow)	Local currency/foreign exchange	Price/ Quantity	Short-term/long-term	Complementary measures
2015	Ban on acquiring foreign exchange in the foreign exchange market for purchases of Eurobonds, foreign currency bonds, or foreign currency shares.	Short-term	Inflows/outflows	Foreign exchange	Quantity	Short-term	Purchases of such securities were not prohibited if the purchaser uses own funds without recourse to Nigerian foreign exchange markets.
2015-2016	Prohibition of cash deposits into foreign exchange accounts.	Short-term	Inflows	Foreign exchange	Quantity	Short-term	When borrowing in foreign currency, banks were required to borrow and lend in the same currency (natural hedging) to avoid currency mismatches, which elevates foreign currency risk. Further, to prevent mismatches between floating and fixed interest rates, the interest basis for borrowing and lending should be the same.
2017	The ceiling on aggregate foreign currency borrowing of banks was raised to 125 per cent of shareholders' funds, though deposit money banks' net open position of foreign assets and liabilities could not exceed 10 per cent (previously 20 per cent) of shareholder funds for both	Short-term	Inflows	Foreign exchange	Quantity	Short-term	…

	resident and non-resident assets and liabilities						
2020	Exchange control measures on portfolio assets.	Short-term	Outflows	Foreign exchange	Quantity	Short-term	Exchange controls on imports of food-related products, manufacturing inputs, textiles, and cement, which would now be ineligible for the purchase of foreign exchange on the interbank market. Those wanting to engage in such transactions will have to access foreign exchange from the more expensive parallel market.

Table 13: A taxonomy of capital controls for selected African countries: Ghana

Time-Period/ Context	Measure and objective	Type of Flow	Resident(outflow)/non-resident (inflow)	Local currency/foreign exchange	Price/Quantity	Short-term/long-term	Complementary measures
2014	Offshore currency transactions by resident companies were also to be "strictly prohibited", and exporters had "to collect and repatriate in full the proceeds of their exports to their local banks within 60 days of shipment."	Short-term	Outflows	Foreign currency	Quantity	Short-term	Foreign-exchange and foreign-currency account holders had to provide documentation for transfers outside Ghana

Table 14: A taxonomy of capital controls for selected African countries: Ethiopia

Time-Period/ Context	Measure and objective	Type of Flow	Resident(outflow)/non-resident (inflow)	Local currency/foreign exchange	Price Quantity	Short-term/long-term	Complementary measures
Ethiopia							
2004-2005	Residents were not allowed to undertake direct investment abroad, and inward FDI was also significantly controlled. foreign investors could transfer their capital without limits upon final departure from Ethiopia. There were maximum limits on investment by resident institutional investors in securities issued by non-residents and on the investment portfolio held abroad.	Long-term	Inflows/outflows	…	Quantity	Short-term	Investment in telecommunications and defence industries was allowed only in partnership with the government. The government maintained control over investments in postal services (except courier service), the transmission and supply of electricity through the Integrated National Grid System, and air transport services using aircraft with a capacity for more than 20 people. All investments (except for services and transport generation and supply of electricity) had to be approved and certified by the Ethiopian Investment Commission (EIC). EIC authorization was required for the repatriation of capital but subjected to appropriate documentation, and . Banks could not borrow from or enter into a guaranteed agreement with banks abroad unless authorized by the central bank, the National Bank of Ethiopia (NBE). Each bank's overall foreign currency position could not exceed 15 per cent of its capital at the close of the business day of each week. Effective June 1, 2004, commercial banks' holdings of foreign currency notes were limited to 5 per cent of paid-up capital. All ownership rights to land were vested in the

							state and private ownership was not allowed. Land user rights had to be acquired through certificates or lease arrangements. Foreign investors were also prohibited from owning land but could obtain access to land through lease arrangements with the government. Residents were not permitted to purchase personal property abroad.
2007-2012	Given the need to conserve foreign exchange, Ethiopia was forced to adopt measures of capital controls, including on FDI	Long-term	Inflows/outflows	…	Quantity	Short-term	….

Table 15: A taxonomy of capital controls for selected African countries: Morocco

Time-Period/ Context	Measure and objective	Type of Flow	Resident(outflow)/non-resident (inflow)	Local currency/foreign exchange	Price Quantity	Short-term/long-term	Complementary measures
Mid-2000s	Restrictions on (or prohibition) of outward investments by residents without FEO permission. Inward FDI were freely permitted. Non-resident portfolio investments in securities were subject to authorisation. Transfers abroad of receipts from sales to other non-residents was possible only if financed with foreign exchange inflows	Short/term Long-term	Inflows/outflows	…	Quantity	Short-term	Capital controls were combined with macroprudential policies. Derivatives investments were permitted strictly for hedging purposes. Authorised intermediary banks, if they cannot find the appropriate hedging instrument on the local market, could turn to the international market for foreign exchange hedging instruments. Hedging transactions had to be backed by the foreign exchange options taken by customers. Authorized banks could also offer resident operators who take out foreign loans to hedge against the risk of interest rate fluctuation. These instruments had to be backed by real trade or financial transactions and could not be purely speculative transactions.

4.3. Latin America[19]

4.3.1 Background and context

This survey reviews the experience of six Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico, and Peru) with capital controls during the period 2005-2019. Five out of these six countries experienced similar patterns in current account performance and capital flows, except Argentina. These same five countries (Brazil, Chile, Colombia, Mexico, and Peru) have inflation targeting monetary regimes. However, the policy response varied according to specific characteristics and circumstances of each country.

In general terms, one can group countries according to the implementation of CAM measures to regulate capital flows in the period under study. Chile and Mexico opted for resorting to monetary policy and discretionary intervention in foreign exchange markets to try to mitigate the impact of fluctuations in capital flows. However, they did expand their policy toolkit by intervening in derivatives markets, on top of spot foreign exchange markets. They also modified regulated pension funds investment alternatives as an instrument to influence resident external flows.

Colombia and Brazil, in turn, adopted price-based capital controls restrictions. They did so in times of surges in inflows, Brazil for a more prolonged period than Colombia. In both cases, the instruments were abolished after some years. Brazil innovated in terms of measures by implementing a novel tax on derivatives positions, but it was a short-lived experience because the currency depreciation trend that started just after associated to the reversal of capital flows.

Peru, instead, adopted a countercyclical approach to capital flow regulation, implementing an institutional framework in which penalty rates on inflows changed according to the developments in the financial account. These measures had a broader set of objectives, apart from avoiding exchange rate appreciatory pressures as in Colombia and Brazil.

Second, governments have also expanded their policy toolkit to implement CAM measures to regulate capital flows. In this regard, intervention in the FX derivatives market has become a standard tool for addressing exchange rate pressures and exposures, besides interventions in FX spot markets that has also become customary. Furthermore, some countries have innovated with new types of measures, such as the tax on derivatives position implemented in Brazil. That measure was effective in terms of discouraging carry-trade investment.

Capital flow regulation and CAM measures reviewed in this survey had different motivations, objectives, and effects. The literature provides evidence that they were successful in improving financial stability, both domestic and external. From reserve accumulation to differential reserve requirements to taxes, measures have shifted the composition of inflows towards longer-term assets and against portfolio inflows. In Peru, CAM measures adopted (along with other economic policies) have decreased the dollarization of its financial system and have also reduced the short-term external debt of its banking sector. Outflow measures have also been successful in reducing capital flight and improving financial stability, such as concerns for investment alternatives of pension, insurance successfully reduced capital flight and improved financial stability, such as concerns for investment

[19] This section is based on Bortz (2021) and Vernengo (2021).

alternatives of pension, insurance, and investment funds. The success was higher when they were implemented in a holistic approach, such as the case of Brazil, where taxes on different types of inflows accomplished their goal only when complemented with the mentioned tax on derivatives.

The second major challenge refers to agents' response to the measures and the degree of enforcement and compliance. The private sector has developed several innovative channels to bypass regulations, both for inflows (as in Brazil) and for outflows (as in Argentina). This is another reason for adopting and holistic approach to capital flow regulation measures and remaining careful about unintended feedback effects between sectors, instruments, and exposures.

4.3.2 Policy lessons and guidelines

As with the countries of Asia and Africa, the Latin American case illustrates the importance of path dependency. In the Latin American case, moving towards signing free trade and investment agreements has severely limited, if not banned, the institutional and legal capabilities of the State to implement capital controls. Some have been incorporated as members of the Organisation for Economic Co-operation and Development, such as Chile, Mexico, and Colombia. However, governments still have the institutional framework and legal capabilities to implement regulatory measures on capital flows (Marcel 2019). In some cases, such as in Brazil, these capabilities have remained in place since the times of the Great Depression.

A further limitation on Latin American countries to implement capital control measures is the establishment of inflation targeting monetary regimes since 2000. In Brazil, Chile, Colombia, Mexico, and Peru,[20] the inflation targeting framework includes the implicit assumption of free capital mobility and a floating exchange rate regime. The nominal exchange rate is the variable that adjusts to external shocks.[21] In the inflation-targeting framework, “liquidity issues are completely swept under the rug…..there are no major debt or financial problems that interfere with intertemporal trade…the role of liquidity in capital markets is completely obliterated” (Calvo, 2016, p. 56).

Another essential aspect of path dependence relates to the response of agents to the measures, the degree of enforcement and compliance. The private sector has developed several innovative channels to bypass regulations, both for inflows (as shown in Brazil) and for outflows (as in Argentina). This is another reason for adopting a holistic approach to capital flow regulation and remaining careful about unintended feedback effects between sectors, instruments, and exposures.

In a world that is relatively open to the movement of capital flows, greater financial integration brings to the forefront the need to think about capital controls at the regional level. There are no experiences of capital controls at the regional level, even though there are a few experiences associated with

[20] Latin America countries that adhere to inflation targeting regimes include Brazil (1999), Colombia (1999), Chile (1999), Guatemala (2005), Mexico (2001), Peru (2002), and more recently, Costa Rica, the Dominican Republic, and Paraguay.

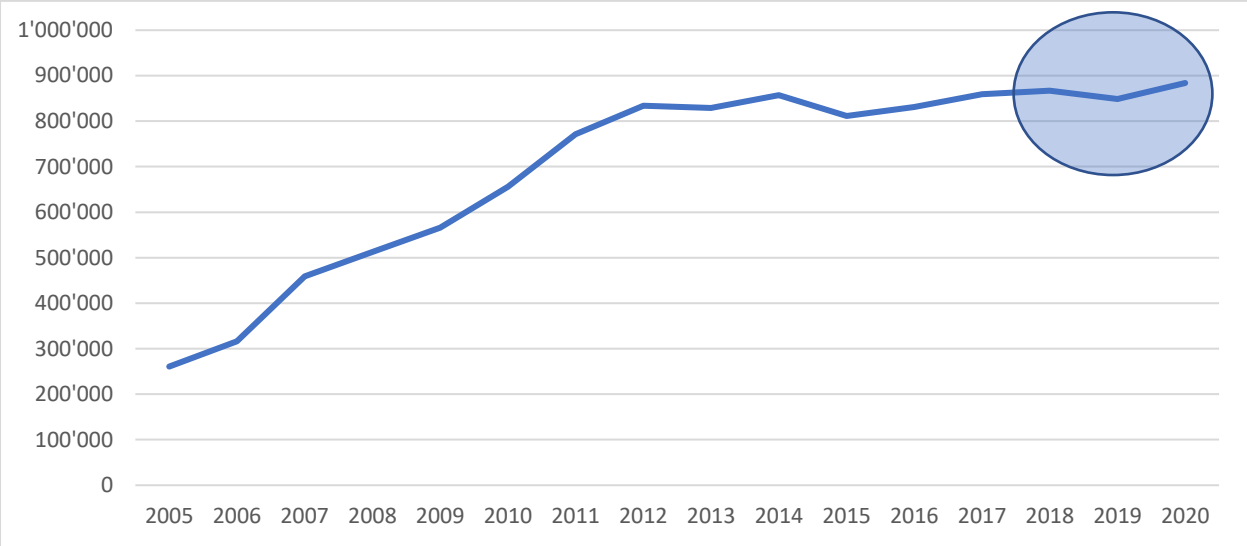
[21] Inflation targeting is a monetary policy framework consisting of the public announcement of numerical targets for the inflation rate, bearing in mind that the fundamental objective of monetary policy is low and stable inflation, while maintaining a firm commitment to transparency and accountability. The main instrument of monetary policy is the management of the short-term interest rate through a Taylor type policy rule. A fiscal rule is often invoked to ensure that fiscal policy is aligned with the objectives of monetary policy.

regional cooperation to reduce the use of foreign currencies as a mechanism to preserve foreign exchange reserves. Capital controls at the regional level would also require a certain degree of macroeconomic policy cooperation. Perhaps, for this reason, experiences with capital controls tend to be at the national level rather than at the regional level.

Also, within a context of financial fragility where short-term flows predominate, path dependence and the fact that countries face significant limitations to impose capital controls leads to important policy contradictions. As a result of path dependence, countries substitute capital controls with other measures such as reserve accumulation. Accumulating reserves, besides entailing costs- given domestic and foreign interest rates differentials-can have an upward effect on the policy interest rate, limiting the very counter-cyclicality which is at the basis of an inflation-targeting framework. During the COVID-19 Pandemic, most countries in Latin America intervened in foreign exchange markets to increase their levels of international reserves (Figure 11).

Figure 7: Latin America and the Caribbean. Evolution of international reserves. (US$ million)

2005-2020



Source: *Based on official data*

Countries have also intervened in derivatives trading, as in the case of Brazil. For instance, during the taper tantrum of 2013, the Brazilian Central Bank intervened through FX swaps instead of selling foreign currency. Its intervention positively affected the exchange rate, curbing speculation (Macalos 2017, 2018; Kohlscheen and Andrade 2014). Furthermore, they mitigated currency exposure of domestic banks that had borrowed abroad. According to Barbone González et al. (2019), the supply of currency swaps by the Brazilian Central Bank during the taper tantrum helped to halve the negative impact of the external shock on domestic credit supply. Macalos (2017) shows that this intervention managed to increase the supply of foreign currency during times of market stress by compensating the negative phases of the carry-trade investment.

Following the experience of Brazil, all the central banks of the Latin American countries included in the analysis intervened in the derivatives market as part of their policy toolkit for capital flow regulation. This instrument has shown to be particularly relevant with a large presence of foreign investors in domestic debt markets.

A third policy lesson is that within the COVID-19 context and the current structure of financial markets, complementary measures to regulate capital flows are not perfect substitutes for capital controls. In the current context the direction of flows is primarily determined by global conditions. The region experienced surges of inflows before the GFC and afterwards, as advanced economies implemented quantitative easing policies. Alternative measures to capital controls were effective in several dimensions but had difficulties preventing exchange rate appreciations and discouraging inflows. When the course of monetary policy was tightened in advanced economies, capital flows reverted independently of the policies implemented in Latin America. This capital flows pattern calls both for an institutional and policy framework that allows changes and eventual reversals in the measures

adopted and a dynamic approach to capital flow regulation, taking into account the evolution of external and domestic conditions.

A fourth policy lesson is that, in spite of the legal and institutional constraint that countries face, they did not fully renounce the use of measure that can fall within the broad spectrum of capital flow regulation. These include taxes, limits authorizations and prohibitions on financial flows, and minimum stays and unremunerated reserve requirements.

The countries under analysis implemented explicit tax measures to counteract inflows. Tax rates were modified according to the different stages of the "inflows cycle", The specific concepts covered by the taxes obeyed to the contemporaneous circumstances, to elusive efforts by investors, to concerns about exchange rate volatility, short-term fluctuations, and financial systemic risk in the aggregate and in specific markets, etcetera. The country that experimented the most with this type of measures was Brazil. Brazil implemented IOFs since the 1990s, but the tax rate was lowered to 0% after the Russian crisis in 1998, when the Real was also a target of speculative depreciatory pressures. Eventually, the exchange rate was devalued in 1999. The tax was reimposed in 2008.

Prohibitions were imposed on non-residents (and also non-banking residents) from participating in the FX spot market in Brazil. Another example is provided by Peru, where a part of the carry-trade driven investment was instrumented through investment in very short-term assets such as certificate deposits or sterilization securities issued by the Reserve Central Bank of Peru. This was particularly so during the first wave of inflows to Peru, in 2007-2008. This linked monetary policy instrumentation to the volatility of external financial inflows, irrespectively of domestic financial conditions. This procedure was prohibited in 2010, effectively shutting down that market for foreign investors. The result was a relative fall in portfolio inflows compared to the previous wave, a fall in the participation of short-term external investment and mitigation of subsequent outflows (Aguirre 2016: 252-253).

Regarding measures on outflows, there are restrictions on investment alternatives for pension funds and insurance firms. In the period under study, Chile and Mexico modified the limits and options for investments by pension funds and insurance firms, granting them a greater diversity of instruments, including external assets and derivatives instruments. Peru, instead, put a limit on exchange market turnover by pension funds. Other measures involve restrictions on participation in specific markets.

The country that adopted stricter controls on outflows was Argentina. Measures were motivated by sustained capital outflows by residents in the period 2008-2011 in the context of falling trade and current account balance, which put a pressured on the exchange rate and on reserves. There were also growing outflows through outward tourism and imports. Furthermore, because of a legal dispute with remaining hold-out bondholders from the 2001 default and 2005 debt restructuring, the country lacked access at the time to international financial markets. Measures restricted the access of residents to foreign exchange by requiring previous authorization by the tax-collection agency, via taxes on purchases with credit cards, via requirements of (informal) authorization for purchases of foreign currency for imports and profit remittances, among residents' access to foreign exchange by requiring previous authorization by the tax-collection agency, imposing taxes on purchases with credit cards, requiring (informal) authorization for purchases of foreign currency for imports and profit remittances, among other restrictions other channels. On the stated objective of the measures, it can be argued that they were effective (Rua and Zeolla 2017). Capital outflows, purchases of foreign

currency by residents and profit remittances all diminished substantially as a consequence of due to the measures implemented.

Unremunerated reserve requirements and minimum stays were commonly implemented during times of surges in inflows, particularly before the GFC and during the inflows associated with quantitative easing, from 2009 until 2013. These measures were implemented in Argentina from 2003 to 2005 and in Colombia, firstly in the 1990s and later in 2007 and 2008. Peru had a different approach to unremunerated reserve requirements. As mentioned, these measures had the objective of discouraging capital inflows. However, their effectiveness and impact depended on the characteristics and features of the specific economy.

All of the countries included in the analysis intervened in the foreign exchange market to reduce or mitigate volatility. In the case of Argentina, the Central Bank was a net purchaser of reserves until 2011 and from 2016 to 2017, particularly to build a stock of reserves (precautionary motive). Between 2011 and 2015, and from 2018 onwards, it was a net seller of reserves, intending to avoid or smooth (official) exchange rate depreciations.

Table 16: A taxonomy of capital controls for selected Latin American countries: Colombia

Time-Period/ Context	Measure and objective	Type of Flow	Resident(outflow)/non-resident (inflow)	Local currency/foreign exchange	Price Quantity	Short-term/long-term	Complementary measures
2007-2010	Foreign financial flows had to have a minimum stay of two years to be considered FDI. It also limited foreign investors' purchases of short-term (less than two years) fixed-income securities to 20% of total issuances. The government introduced a 40% Unremunerated Reserve Requirement ratio for a minimum of 6 months deposit in domestic currency, aiming particularly at portfolio debt inflows. The URR percentage increased to 50% in May 2008 but was subsequently abolished five months later, with the burst of the global financial crisis. In 2010, the government established that investments in foreign portfolios must be made through local administrators to channel most of the transactions through the official foreign exchange market (Ocampo and Malagon 2015: 472). That same year there were regulations and limits on investment abroad by pension and insurance funds	Long-term	Inflows	Foreign exchange	Quantity	Long-term	

Table 17: A taxonomy of capital controls for selected Latin American countries: Brazil

Time-Period/ Context	Measure and objective	Type of Flow	Resident(outflow)/non-resident (inflow)	Local currency/foreign exchange	Price Quantity	Short-term/long-term	Complementary measures
Brazil							
2008	Imposition of a tax on portfolio bond purchases by non-residents in March 2008 (Imposto de Operaçoes financeiras, IOF). The initial tax rate was 1.5% and it was lifted in September 2008 with the burst of the GFC. It was reinstated in 2009 with a 2% rate, including bond and equity flows. In 2010 it increased to 6%.	Short-term	Inflows	Local currency	Price	Short-term	…
2011	Short-term intercompany loans were likely to be used as a channel to conduct portfolio investments without paying IOFs. So, a 6% IOF tax was expanded to intercompany loans with a maturity lower than two years.	Short-term/Long-term flows	Inflows	Local currency	Price	Short-term	

Table 18: A taxonomy of capital controls for selected Latin American countries: Peru

Time-Period/ Context	**Measure and objective**	**Type of Flow**	**Resident (outflow)/non-resident (inflow)**	**Local currency/foreign exchange**	**Price Quantity**	**Short-term/long-term**	**Complementary measures**
Peru							
2000 decade Financial stability and balance-of-payments objectives	Differential and changing reserve requirements for deposits in foreign currency, and for deposits in domestic currency by non-residents. Differential reserve requirements for short-term banking external debt. Limits on short-term and long-term net foreign currency positions. Limits and differential reserve requirements on foreign exchange derivatives long and short positions. Limits on exchange market turnover by pension funds. Tax on non-resident income gains from short-term financial derivatives	Short-term flows	Inflows	Foreign currency	Quantity Price	Short-term	Differential reserve requirements according to credit growth in dollars for mortgages and car loans. Differential risk-weight capital requirements according to exchange risk.

Table 19: A taxonomy of capital controls for selected Latin American countries: Argentina

Time-Period/ Context	Measure and objective	Type of Flow	Resident(outflow)/non-resident (inflow)	Local currency/foreign exchange	Price Quantity	Short-term/long-term	Complementary measures
Argentina							
2002-2004	Limits on residents to transfer foreign exchange abroad. In 2002, the limit was initially set up to USD 100.000 monthly and was relaxed in 2004 to USD 2 million per month. Transfers over that limit required authorization by the central bank. Some FDI transactions were excluded from the limit. Before the repatriation, foreign investment should have a minimum of six months stay. In 2005 this period was extended to one year. Unremunerated Reserve Requirements of 30% with a minimum stay of one year for inflows corresponding to external indebtedness. Some FDI transactions were excluded from this requirement	Short-term/long-term	Inflows/outflows		Quantity	Short-term	

V CONCLUSIONS

The COVID-19 pandemic has significantly increased the debt levels, liquidity needs, and constraints of developing countries. The limited response of international financial organizations and the favorable global borrowing conditions- resulting from the expansion of central bank balance sheets in advanced economies - has led developing countries' governments to rely mainly on the private capital markets to cover their financing needs. The reliance on private capital markets raises important financial stability concerns.

Private capital markets are highly sensitive and susceptible to international financial conditions and the risk perceptions of issuing countries that make them highly volatile and expose them to sudden reversals. Historically low interest rates in developed economies have encouraged investors searching for higher yields to purchase developing market debt in search for higher profits. This circumstance could easily change. The upward trend in long-term interest rates seen since the beginning of 2021 could reduce the incentive to invest in emerging economies. An aggravating factor is the fact that most developing countries are classified as being high risk by private investors and therefore subject to potential credit rating downgrades in the credit rating. Also, the sovereign bond yields are still higher than the rate of GDP growth for many developing economies, putting in doubt the sustainability of current and future debt levels. This defeats the purpose of issuing debt at very long maturities to avoid potential debt restructuring situations.

High debt and liquidity constraints also affect the non-financial corporate sector, including both publicly owned and private firms. As explained in this paper, such circumstance this is not only a source of financial fragility, given the structural conditions of developing countries but also a source of financial fragility- given the structural conditions of developing countries- and, given the existing mechanisms linking the between financial and real sectors, negatively impacts the capacity of countries to increase investment and sustain growth rates commensurate with current and future debt levels.

Capital controls are a key crucial component of the tool kit that countries require to deal with the challenges and dangers posed by the current financial context. The existing literature on capital controls shows they are effective in mitigating financial volatility and instability. Capital controls can also serve to promote long-term growth objectives. This paper presents evidence on capital controls for nineteen countries in three different developing regions, Africa, Asia-Pacific and Latin America and the Caribbean. The analyses of these country cases provide important policy lessons for the current COVID-19 crisis.

First, the country studies corroborate the usefulness of capital controls under different circumstances. Capital controls widens domestic policy space. Second, the exclusion of capital controls from the policy tool kit and increased liberalization does not lead to greater enhanced stability, does not attract long-term capital flows, or and does not lead to higher levels of investment or growth.

Third, financial liberalization creates important significant path dependency effects which limit the capacity of countries limiting countries' capacity to implement capital control measures. Similarly, financial liberalization and integration make it more difficult for the establishment of capital controls

at national level. So regional capital controls are worth exploring, even though they require a high degree of economic and financial cooperation, which is not present in developing economies.

Fourth, prudential and market measures are not necessarily adequate substitutes for capital controls. Fifth, in spite of greater financial liberalization in all the regions included in the study, some countries maintain the use of instruments that can broadly be considered capital controls.

Sixth, an effective management of capital requires that countries have the freedom to impose controls on both capital outflows and inflows with different degrees of flexibility.

Seventh, capital controls can target both financial stability and real sector development.

Finally, capital control measures tend to be accompanied by other complementary measures (macroprudential regulations), which makes a case for including capital controls as part of a broader set of instruments at the disposal of governments.

Annex 1: Capital account liberalization and capital controls

The theoretical foundations of capital account liberalization are well-established and not difficult to understand. According to Eichengreen (2001: 341), "[t]he case for free capital mobility is thus the same case for free trade but for the subscripts of the model. To put the point another way, the case for international financial liberalization is the same as the case for domestic financial liberalization." In this view, financial markets intermediate provide intermediation for intertemporal decisions onto consuming, and guarantee that investments adjust to the full use employment of savings. The free mobility of capital equalizes leads to the adjustment of the domestic and international interest rates to the international rate, as much as free entry in any industry at home would equalize the domestic profit rates. Based on the process of competition, a long tradition in economics emphasizes the role of real-economy forces-, ultimately driven by productivity- in determining the rate at which the financial remuneration of all other assets, adjusted by risk, would converge. Usually, based on the process of competition. This convergence irate is often referred to as the natural rate of interest. For simplification, the natural- or neutral-rate of interest rate calculations are based on US interest rates since the country is the provider of risk-free assets, and very often for simplicity calculations of the natural or neutral rate of interest in the United States, considered as the provider of the risk-free asset, are seen as the rate that rules the roost.

The fundamental role of capital mobility would be is to allow for intertemporal smoothing of savings and investment decisions, and allowing for international lending to reduce the frictions in the functioning of the system and allow for international lending to reduce the frictions in the functioning of the system. In addition, the existence of international financial mobility would allow for risk sharing, in particular if countries with different patterns of productive and trade specializations are hit by idiosyncratic shocks (Obstfeld and Rogoff, 1996; Gourinchas and Rey, 2014).

In part as a result of the critiques about the conventional views on about the implications of free capital mobility, alternative views perspectives on the role of capital flow regulation (also called Cam account management techniques or measures) started to be discussed. During the Bretton Woods era, capital flows were severely restricted. During the 1970s, the credit boom related to the recycling of the petrodollars ended up in the external debt crisis, leading to and significant outflows from peripheral countries. The return of capital flows to the periphery in the 1990s-s, documented in the work by Calvo et al. (1993)- and the subsequent period of financial instability starting with the Tequila crisis but, particularly, after the Asian financial crisis, led to a reconsideration of the role capital controls. The basic approach was to introduce imperfections in the basic model. Imperfections would imply that the functioning of the international financial system is in reality, in reality, more volatile and prone to crises than what the simple model suggests. In particular, distortions in less developed economies (often related in the conventional literature on to government interventions), the existence of increasing returns of to scale, and the resulting of less competitive market structures, or lack of perfect information, would lead to capital flowing to activities in which the marginal efficiency exceeds the opportunity costs, and to inefficiency.

In this view, capital controls could be seen as temporary instruments to correct for market failures resulting from protectionism, monopolistic market structures, and imperfect information. Gallagher (2012) and Grabel (2014) note that there is a rebranding of capital controls, promoting which promotes 'New Welfare Economics' of capital controls. In particular, the approach instrumentalized by Korinek (2011), which emphasizes financial costs associated with the instability generated by free capital mobility as an externality, implies that capital controls can be seen as an optimal Pigouvian taxes. Some models emphasize not only externalities associated with financial instability, but also externalities associated with financial instability and the ones associated with fluctuations of demand and unemployment (Erten et al., 2019). Taxes, more often levied on outflows than not on inflows, reduces the destabilizing effects of capital flows associated with deleveraging cycles and sudden stops. Deleveraging cycles are seen as particularly problematic when there are currency mismatches between obligations and revenue flows (Krugman, 1999); when since asset price collapses, and currency depreciation would increase the value of liabilities, and create a perverse feedback mechanism leading to currency depreciation would increase the value of liabilities, and create a perverse feedback mechanism, leading to a financial crash. In that context, taxes on inflows are seen as a relevant instrument to prevent the vicious spiral of asset deflation and currency depreciation, and forcinge agents to take into consideration consider currency mismatch risk.

This is not to say that the new literature only presents cases with arguments for CAM capital account management. In fact, some arguments for maintaining capital account openness can be associated related to the modern approach to political economy (like North 1981), which that emphasizes, following the work of North (1981), the importance of property rights and the rule of law for investment, capital accumulation and economic development (Acemoglu and Robinson, 2012). For example, Gourinchas and Jeanne (2006) consider a situation in which the government of a developing country can either commit to not to expropriate capital, but. However, given political instability and the possibility of changes in the structure of power, the commitment is too short to provide guarantees for investment to take place power structure, the commitment is too short of providing guarantees for investment to occur. As a result, there is underinvestment or investment goes to the unproductive activities, which are shorter shorter-term and can be protected from changing political regimes. Yet, the authors suggest that in the same time horizon, the politically unstable developing country can commit to maintaining an open capital account, that since an open capital account would signal to markets an intent to maintain an investor-friendly environment, to preclude capital outflows.

Annex 2: The dynamics between the nominal exchange rate and risk perceptions: Granger causality tests.

Methodology for Granger causality

- Granger causality was estimated for the period 2000-2020 using VAR or VECM, according to the order of integration of the variables.
- Using the canonical Dickey-Fuller and Phillips-Perron tests, we find that the following variables are I(0): variation of EMBI (yearly, percentage), variation of CEMBI (yearly, percentage), variation of NER (yearly, percentage), variation of RER (yearly, percentage). Causality among these variables has been estimated with VARs
- For the variation of FGCF (yearly, percentage) and variation of R (yearly, percentage), variable are I(0) when Unit Root is tested with structural breaks
- Causality between NER and RER has been tested with VECM as both variables are I(1) in level.
- Causality between RER and FGCF has been tested with VECM and VAR to validate results further
- For each model, lags have been chosen according to the AIC criterion
- Selected models pass the canonical tests for correct specification (normality and lack of autocorrelation in the errors and absence of heteroscedasticity).

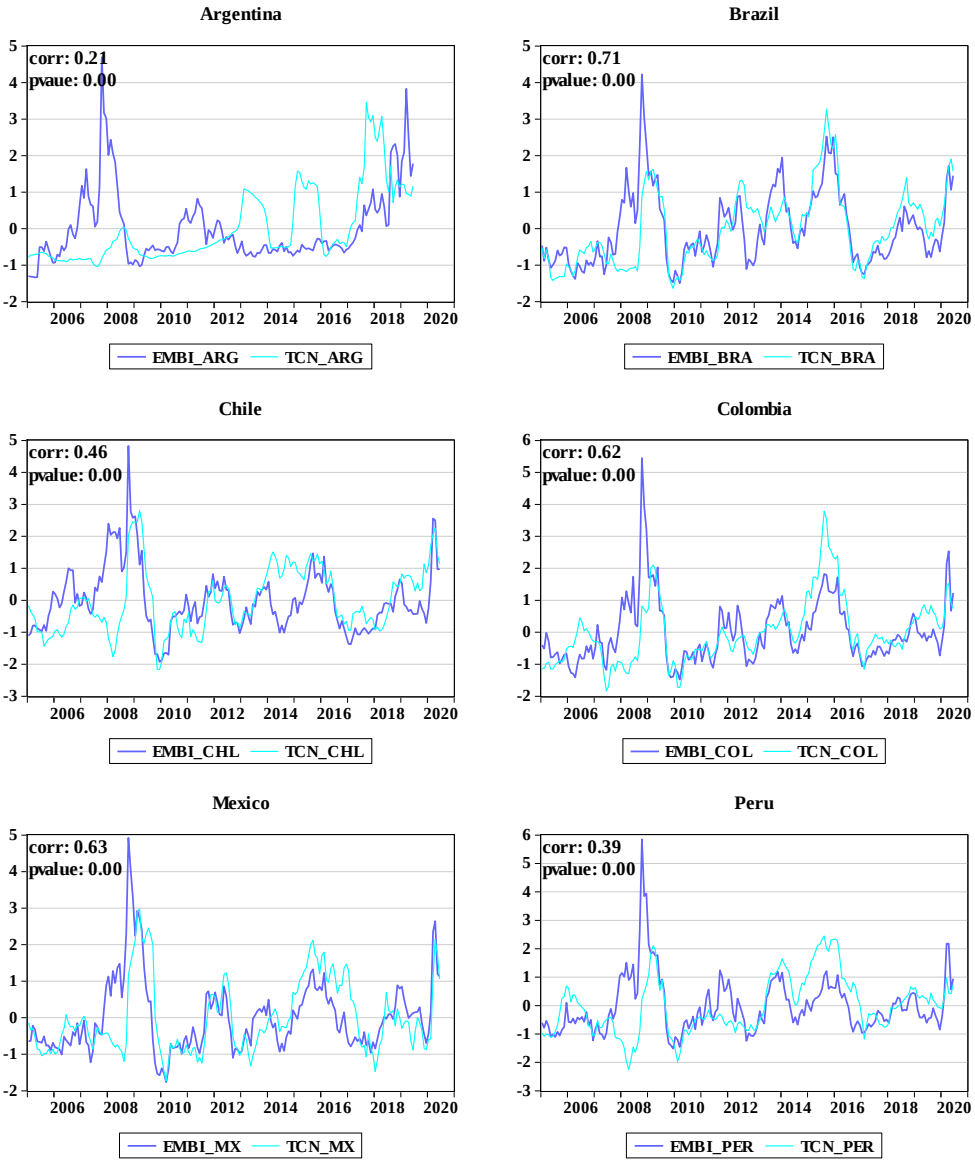
Summary of the results

We can conclude that there is evidence of statistical Granger causality among the following variables:

- From nominal exchange rate (NER) to EMBI, and vice versa.
- From EMBI to CEMBI
- From NER to the real exchange rate (RER), and vice versa.
- From the real interest rate (R) to fixed gross capital formation (FGCF), and vice versa.
- From the real exchange rate to (GFCF); however, the causality does not apply in all countries and diminishes when using Johansen's cointegration methodology instead of unrestricted Auto-Regressive Vectors. Perhaps this suggests that the effect is not direct but goes through transmission channels that are not captured by modelling the two variables alone.
- No Granger causality between CEMBI and FXCF.

EMBI vs NER

(Yr % change, Normalized Data)



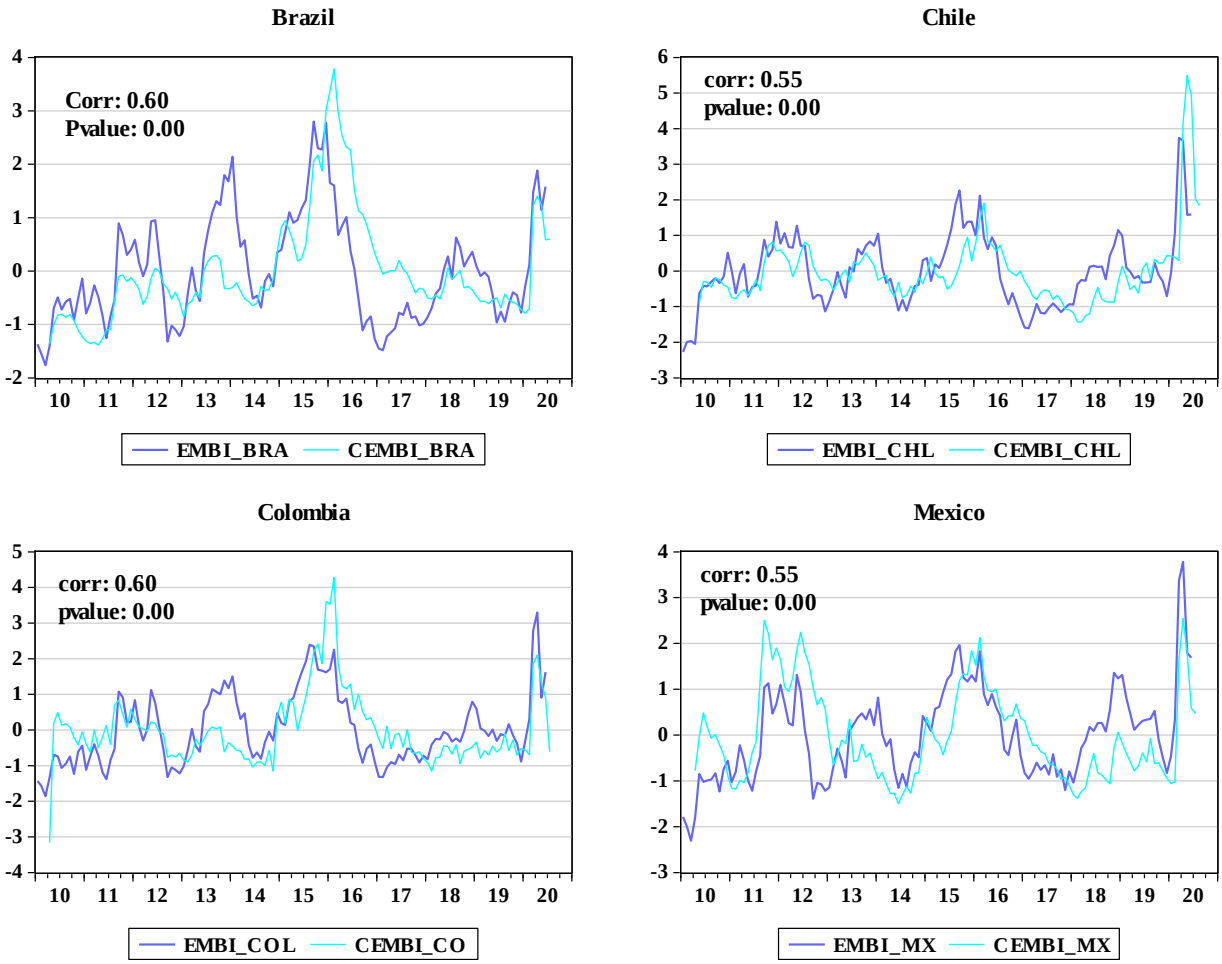
Granger Causality: EMBI vs NER

	Brazil	Chile	Colombia	Mexico	Peru
Model	VAR (2)	VAR (2)	VAR (2)	VAR (2)	VAR (1)
Dummy Correct Specification	Yes	Yes	Yes	Yes	Yes
Jarque-Bera	2.80 (0.59)	4.60 (0.32)	3.02 (0.55)	7.02 (0.13)	5.07 (0.27)
LM Test (8)	1.94 (0.74)	2.74 (0.60)	5.12 (0.28)	1.56 (0.81)	3.49 (0.48)
White Test (C.T.)	63.57 (0.07)	104.95 (0.32)	94.28 (0.82)	113.18 (0.50)	70.23 (0.11)
NER Granger causes EMBI	1.10 (0.58)	28.40 (0.00)	7.95 (0.02)	12.61 (0.00)	21.78 (0.00)
EMBI Granger causes NER	34.41 (0.00)	3.94 (0.14)	20.80 (0.00)	9.66 (0.00)	0.43 (0.51)

Note: P-values in parenthesis; LM Test= residuals autocorrelation test; White Test (C.T.)= Residuals Heteroskedasticity Test; Jarque Bera= residuals normality test

EMBI vs CEMBI

(Yr % change, Normalized Data)

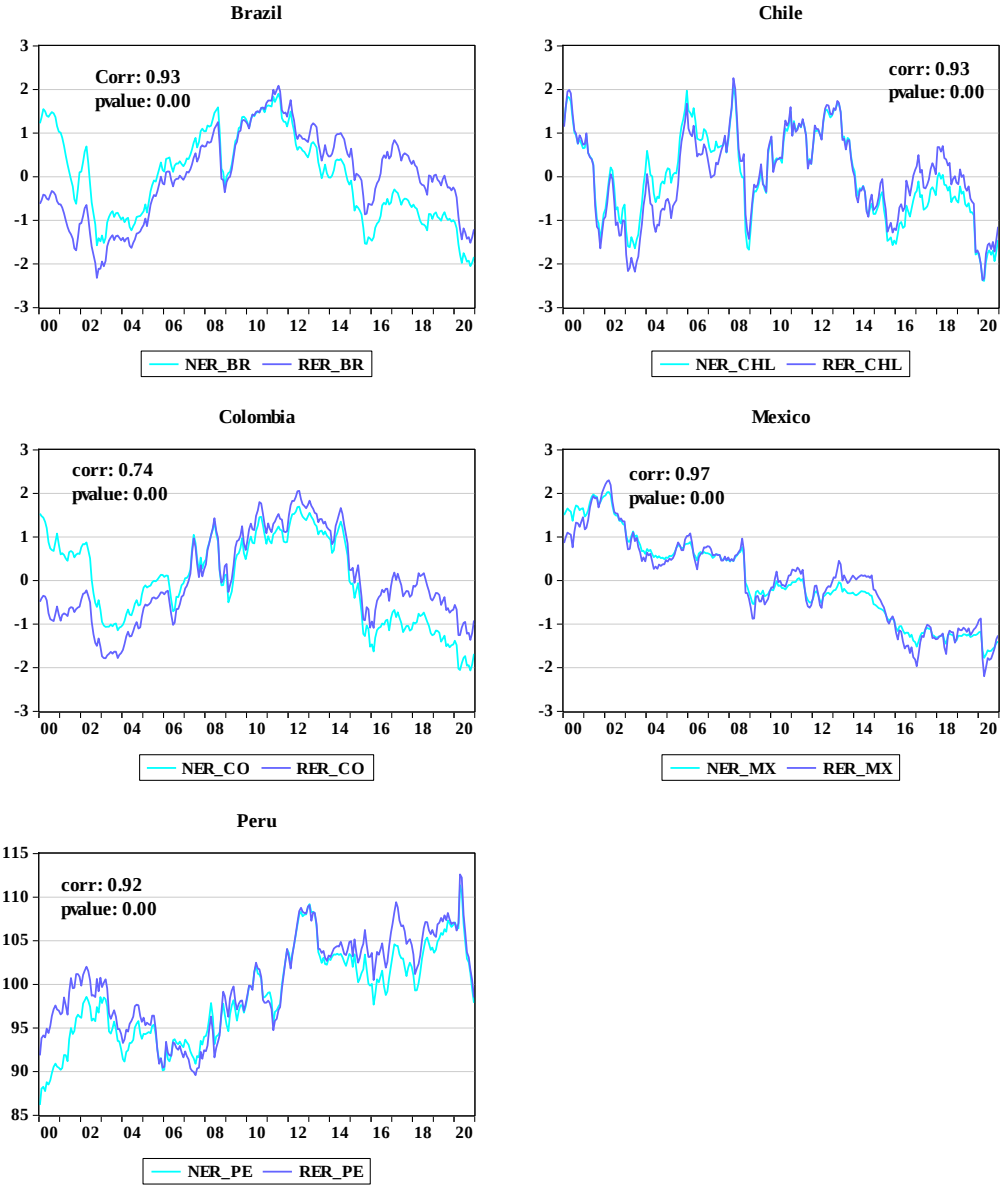


Granger Causality: EMBI vs CEMBI

	Brazil	**Chile**	**Colombia**	**Mexico**	**Peru**
Model	VAR (2)	VAR (5)	VAR (2)	VAR (2)	VAR (1)
Dummy Correct Specification	Yes	Yes	Yes	Yes	Yes
Jarque-Bera	3.79 (0.43)	2.22 (0.70)	3.66 (0.45)	1.45 (0.83)	
LM Test (8)	0.68 (0.95)	2.30 (0.68)	4.66 (0.32)	0.96 (0.91)	
White Test (C.T.)	96.80 (0.22)	247.08 (0.18)	82.98 (0.83)	84.65 (0.06)	
H0 : CEMBI Granger causes EMBI	1.80 (0.40)	11.46 (0.04)	0.62 (0.73)	2.62 (0.27)	
H0 : EMBI Granger causes CEMBI	13.46 (0.00)	88.00 (0.00)	50.02 (0.00)	12.59 (0.00)	

Note: P-values in parenthesis; LM Test= residuals autocorrelation test; White Test (C.T.)= Residuals Heteroskedasticity Test; Jarque Bera= residuals normality test.

RER vs NER, (Index, Data Normalized)

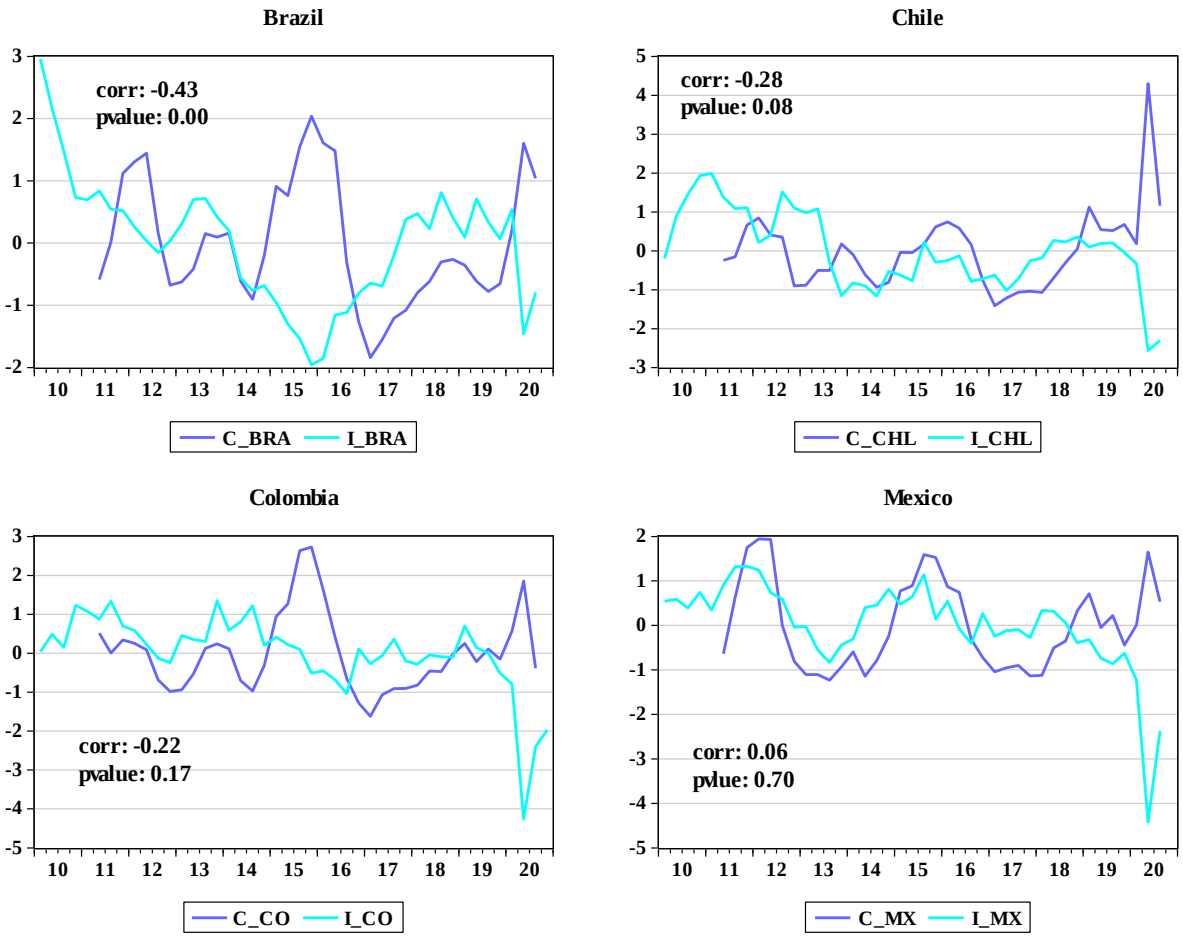


Real and Nominal Exchange Rate, Johansen Cointegration Analysis

	Brazil	**Chile**	**Colombia**	**Mexico**	**Peru**
Model	VECM(6)	VECM (10)	VECM(7)	VECM(6)	VECM (8)
Dummy Correct Specification	Yes	Yes	Yes	Yes	Yes
Exogenous variables	C, Trend	C, Trend	C	C, Trend	Const.
Rank test	1 vec (0.00)	1 vec (0.00)	1 vec (0.00	1 vec (0.00)	1 vec (0.00)
Error Correction Term	-0.20(0.00)	-0.14 (0.00)	-0.03 (0.00)	-0.17 (0.00)	-0.21 (0.00)
Residual Normality (Urzua)	5.20 (0.81)	10.06 (0.35)	10.47 (0.31)	5.73 (0.76)	4.05 (0.91)
LM Test (8)	0.77 (0.94)	7.70 (0.10)	5.74 (0.22)	3.71 (0.45)	5.16 (0.27)
White Test	84.62 (0.72)	113.90 (0.83)	563.39 (0.12)	426.38 (0.33)	109.16 (0.45)
H0 : NER Granger causes RER	3.05 (0.80)	13.92 (0.18)	20.40 (0.00)	34.82 (0.00)	
H0 : RER Granger causes NER			25.86 (0.00)	50.64 (0.00)	

CEMBI vs Fixed Gross Capital Formation

(Yr % change, Normalized Data)



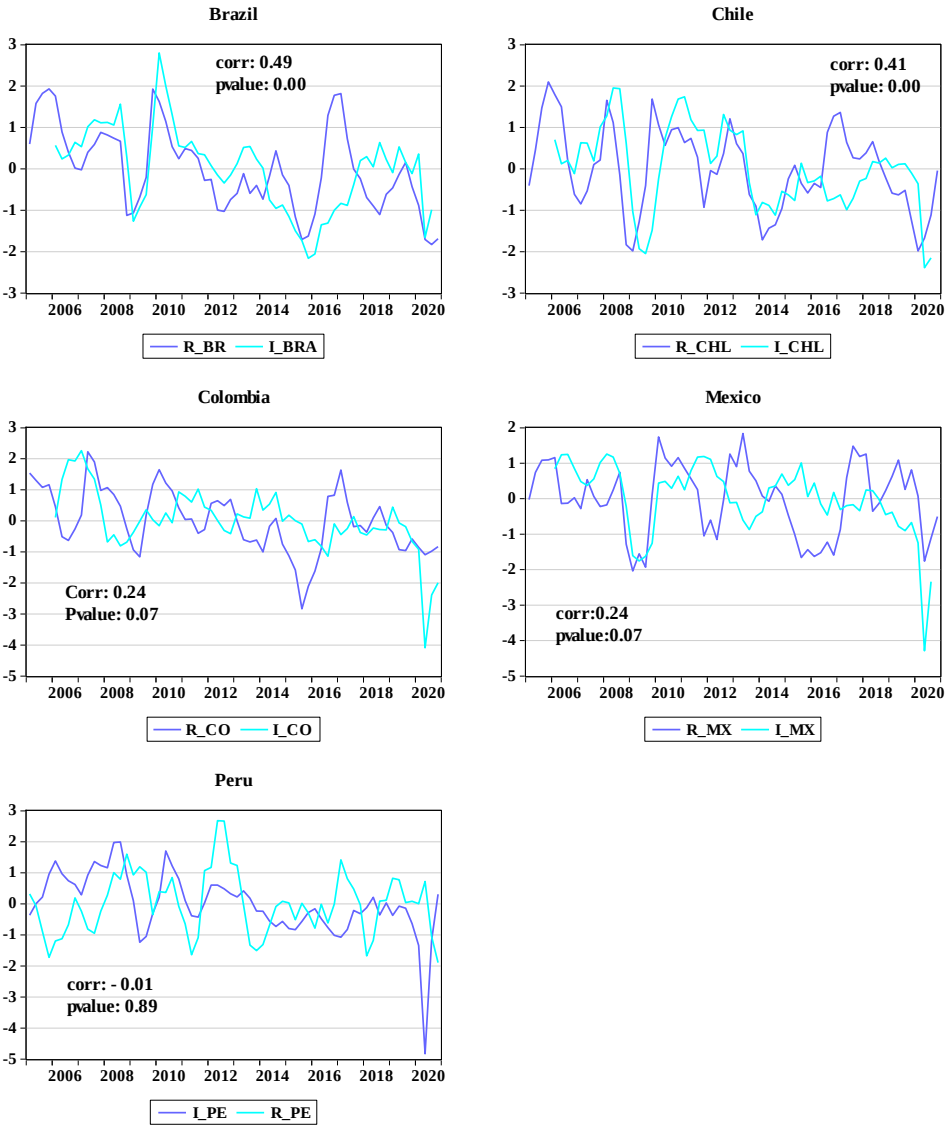
Granger Causality: CEMBI vs FGCF

	Brazil	**Chile**	**Colombia**	**Mexico**	**Peru**
Model		VAR (1)	VAR(1)	VAR(2)	
Dummy Correct Specification	Yes	Yes	Yes	Yes	
Jarque-Bera	3.79 (0.43)	6.75 (0.14)	1.79 (0.77)	2.65 (0.61)	
LM Test (8)	0.68 (0.95)	8.44 (0.07)	3.94 (0.41)	9.86 (0.05)	
White Test (C.T.)	96.80 (0.22)	6.27 (0.99)	17.44 (0.97)	44.22 (0.50)	
H0 : FGCF Granger causes CEMBI	6.16 (0.19)	5.61 (0.01)	11.92 (0.00)	11.44 (0.00)	
H0 : CEMBI Granger causes FGCF	2.23 (0.69)	0.22 (0.64)	1..52 (0.21)	4.26 (0.12)	

Note: P-values in parenthesis; LM Test= residuals autocorrelation test; White Test (C.T.)= Residuals Heteroskedasticity Test; Jarque Bera= residuals normality test

RER vs FGCF

(Yr % change, Normalized Data)



Granger Causality between FGCF and RER (yearly % change)

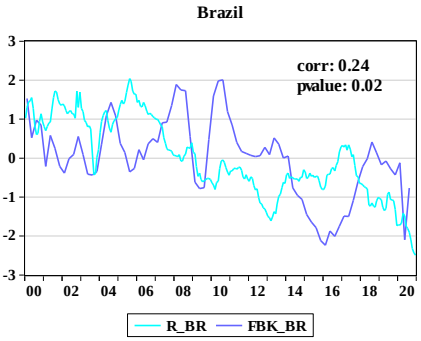
	Brazil	Chile	Colombia	Mexico	Peru
Model	VAR(2)	VAR(2)	VAR(2)	VAR(4)	VAR (5)
Dummy Correct Specification	Yes	Yes	Yes	Yes	Yes
Residual Normality (Urzua)	13.18 (0.15)	10.06 (0.35)	4.95 (0.83)	6.13 (0.73)	4.01 (0.91)
LM Test (8)	2.61 (0.62)	7.70 (0.10)	1.12 (0.89)	5.78 (0.22)	6.61 (0.16)
White Test	84.62 (0.72)	113.90 (0.83)	69.02 (0.13)	152.90 (0.43)	81.68 (0.14)
H0 : FGCF Granger causes RER	0.64 (0.73)	4.23 (0.12)	1.56 (0.40)	2.81 (0.59)	4.30 (0.50)
H0 : RER Granger causes FGCF	24.10 (0.00)	20.52 (0.00)	0.13 (0.94)	1.52 (0.82)	0.64 (0.98)

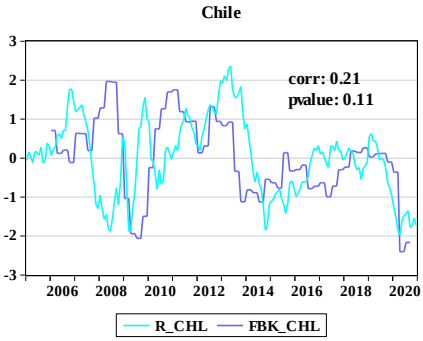
RER vs FGCF

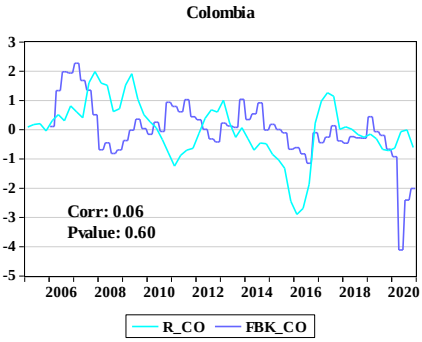
Johansen Cointegration Analysis for GFCF and RER

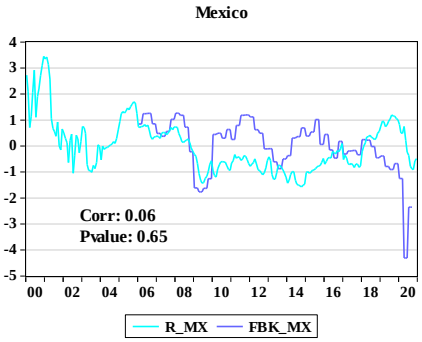
	Brazil	Chile	Colombia	Mexico	Peru
Model	VECM(6)	VECM (10)	VAR(1)	VECM(11)	VECM (8)
Dummy Correct Specification	Yes	Yes	Yes	Yes	Yes
Exogenous variables	C, Trend	C, Trend	C, Trend	C, Trend	Const.
Rank test	1 vec (0.00)	1 vec (0.00)	1 vec (0.00	2 vec (0.00)	1 vec (0.00)
Error Correction Term	-0.20(0.00)	-0.14 (0.00)	-0.03 (0.00)	-0.07 (0.00)	-0.21 (0.00)
Residual Normality (Urzua)	5.20 (0.81)	10.06 (0.35)	1.79 (0.77)	6.20 (0.72)	4.05 (0.91)
LM Test (8)	0.77 (0.94)	7.70 (0.10)	3.94 (0.41)	8.72 (0.07)	5.16 (0.27)
White Test	84.62 (0.72)	113.90 (0.83)	17.44 (0.97)	153.78 (0.33)	109.16 (0.45)
H0 : FGCF Granger causes RER	3.05 (0.80)	13.92 (0.18)	12.35 (0.26)	26.58 (0.00)	18.50 (0.02)
H0 : RER Granger causes FGCF	17.22 (0.00)	12.37 (0.26)	30.98 (0.00)	10.07 (0.52)	1.62 (0.99)

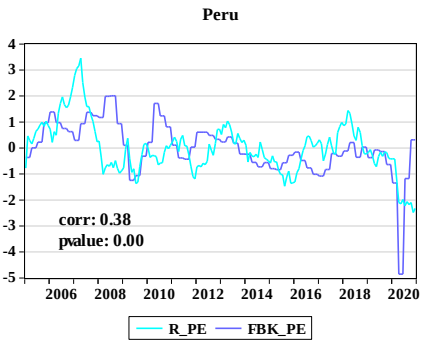
FGCF and R (yearly % change)











Granger Causality between FGCF and R (yearly % change)

	Brazil	**Chile**	**Colombia**	**Mexico**	**Peru**
Model	VAR(2)	VAR(1)	VAR(2)	VAR(10)	VAR (5)
Dummy Correct Specification	Yes	Yes	Yes	Yes	Yes
Residual Normality (Urzua)	7.86 (0.54)	7.91 (0.54)	4.95 (0.83)	6.05 (0.73)	4.24 (0.89)
LM Test (8)	1.46 (0.83)	8.75 (0.07)	7.39 (0.11)	0.32 (0.99)	5.18 (0.27)
White Test	75.43 (0.20)	20.08 (0.52)	52.37 (0.75)	152.90 (0.43)	120.03 (0.63)
H0 : FGCF Granger causes R	8.32 (0.02)	0.10 (0.75)	3.98 (0.14)	20.45 (0.03)	54.02 (0.00)
H0 : R Granger causes FGCF	36.11 (0.00)	0.42 (0.52)	3.36 (0.19)	21.61 (0.02)	25.37 (0.00)

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