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MACROPRUDENTIAL POLICIES AND THE COVID-19 PANDEMIC: RISKS AND CHALLENGES FOR EMERGING MARKETS

Sebastian Edwards

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Macroprudential Policies and The Covid-19 Pandemic: Risks and Challenges For Emerging Markets

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ABSTRACT

This paper deals with COVID and macroprudential regulations in emerging markets. I document the build-up of a sturdy macroprudential structure during 2009-2019, and the relaxation of regulations in 2020-2021, as part of the effort to deal with the sanitary emergency. I show that in every country, regulatory forbearance played a key role in the response to COVID. I discuss capital controls as macroprudential instruments. I argue that rebuilding the macroprudential fabric is important to reduce the costs of future systemic shocks. I maintain that post-COVID regulations should incorporate the risks associated with digital currencies.

Sebastian Edwards
UCLA Anderson Graduate School of Management
110 Westwood Plaza, Suite C508
Box 951481
Los Angeles, CA 90095-1481
and NBER
sebastian.edwards@anderson.ucla.edu

"But now, ah now, to learn from crises…"
Walt Whitman (1891-92)

"Deposit banks, which maintain […] 100 percent reserves,
simply could not fail, so far as depositors were concerned,
and could not create or destroy effective money."
Henry Simons (1934)

1. Introduction

"Macroprudential regulation" is a relatively new concept in economic policy discussions. It appeared for the first time in the *New York Times* during the early days of the great financial crisis, on August 22, 2008. The *Times* reported that at the annual Jackson Hole conference of central bankers, academics, and policy pundits, the Fed Chairman, Ben Bernanke, had stated that there was a need for stepping up "macroprudential regulation." This, explained the Chairman, "would involve an attempt by regulators to develop a more fully integrated overview of the entire financial system." The key operational terms in Bernanke's statement were "fully integrated" and "entire financial system." The idea was to go beyond the strength and weaknesses of individual banks and financial institutions, and to focus on the entire sector, taking into account explicitly those linkages that could, under certain circumstances, result in contagion and severe damage to (or collapse of) the payments system and financial edifice. Of particular concern was the fact that, historically, credit had been pro-cyclical, dramatically increasing during economic expansion and declining abruptly during hard times. Credit booms were often accompanied by a relaxation of loan standards and safeguards, and many times ended up in severe crises.[2] In the years that followed, several articles on the subject appeared in the popular press, with the largest number of stories published, in the *NYT*, during 2010 and 2014.

The origins of the concept, however, go back several decades. Some central banks said, very sporadically in internal documents, as early as 1979. In the academic world, and according to *JSTOR*, Rainer Stefano Masera was the first one to use it, in a 1981 article on the Euromarkets published in the *Giornale degli Economisti* (Masera, 1981). It would take almost twenty years for the concept to appear again in an academic publication. The IMF's economist Don Mathieson referred to it in a 1998 book review published in the *Journal of Economic Literature* (Mathieson, 1988). As I argue below, Chile was an early adopter of

[2] Examples include the savings and loans debacle in the 1980s and the Great Financial Crisis (GFC) of 2008-2009.

what we call macroprudential policies today, but the regulations put in place after the 1982 banking/currency crisis were not labeled as such.

Increased policy attention on macroprudential policies was at the center of the Basel III Regulatory Accord of November 2010. A global BIS survey found that between 2000 and 2007, less than 5 central bankers' speeches per year mentioned "macroprudential" regulations or policies. During 2008, the year of the Great Financial Crisis, the number of speeches increased to almost 40. By 2011, the number had catapulted to more than 200 per year.[3] By now there is a voluminous literature on macroprudential policies (MaPs). Much of the work has been done at the BIS, the IMF, and at individual central banks; see the bibliography section to this paper for details on some of the most salient contributions. Theoretical models that provide justification for the use of MaPs include, among others, Allen, Barlevy and Gale (2018) and Farhi and Werning (2016). These two influential papers show that there are many circumstances under which traditional policies are unable to safeguard the financial system from bad states of the world. In those cases, pointed interventions, including setting limits to banks' exposure, building countercyclical buffers, and slowing down international capital movements, provide, in principle, efficient second best solutions.[4]

The concerns behind MaPs are somewhat different in advanced economies (AEs) from those in emerging markets (EMs). In the former, the goal is to protect the financial system (including the shadow banking sector) from domestic exuberance during booms, from loose lending practices during expansions, and from internal asset bubbles.[5] Of course, every one of these issues is important in EMs. In fact, because in poorer nations banks tend to be less capitalized, the dangers of exuberance can be larger than in AEs. However, in EMs, there are additional concerns related to cross-border capital flows, foreign currency loans and deposits, currency mismatches in the banking sector, and balance sheet effects stemming from large devaluations. That is, in EMs, the global dimension of MaPs is more central than in AEs.

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[3] An interesting question is whether the 1933 Chicago Plan on Banking Reform, which included the idea of 100% reserve requirements on deposit-taking banks, could be considered an early precursor of MaPs. In his 1934 pamphlet on laissez faire Simons (1934, p. 64) wrote that "deposit banks, which maintain […] 100 percent reserves, simply could not fail, so far as depositors were concerned, and could not create or destroy effective money."

[4] Forbes (2019). For overall discussions on MaPs, see also Hanson, Kashyap, and Stein (2011) and Berner et. al. (2011).

[5] A tremendous amount of work on the subject has been done at the ECB and other central banks, including the Bank of Canada and the Bank of England.

When looking at the problem through an EM's lens, it is possible to organize the objectives of MaPs under three *interrelated* categories (of course a similar list can be produced for the AEs):

- To build a sturdy and resilient financial system that is able to withstand aggregate shocks, including abrupt surges of capital inflows, sudden stops, current account reversals, housing and other asset bubbles, terms of trade shocks, changes in risk appetite by global financial investors, large exchange rate changes, and other real or financial shocks stemming from abroad;

- To assure that domestic credit booms don't lead to banking overexposure and, eventually, to financial and currency crises. This means building *countercyclical reserves and buffers* that will slow down credit expansion during expansions, and will help maintain credit flows during downturns;

- To reduce structural vulnerabilities in the banking/financial system, in order to avoid possible "contagion" spreading across institutions. This means that in designing the MaPs, regulators should take into account interconnected relations both in the traditional and in the shadow banking and financial sectors. An issue of particular concern is avoiding currency mismatches between bank assets and liabilities.

As a number of authors have documented, major macroeconomic disruptions, including currency and banking crises, can be extremely costly in terms of output collapses, bankruptcies, and heightened unemployment. A very important historical example – and one that triggered an early implementation of what we call MaPs today – is the 1982 crisis in Chile, an episode that forced the government to bail out the entire banking system at enormous costs. The roots of this catastrophe were related to excessive risk-taking by newly privatized banks in an environment of a recently liberalized financial market. Banks borrowed internationally in massive amounts – the current account deficit climbed to 12% of GDP in 1981 --, in order to finance a spectacular real estate boom and other investments in nontradable sectors. Once the peso was devalued in June 1982, borrowers were unable to pay and (most) banks became insolvent. What made the episode particularly interesting was that the government had put in place (very) strict controls on capital inflows and had regulated individual financial institutions tightly. One of the consequences of this early crisis was the adoption, in Chile, of fully integrated regulations covering the complete financial sector. The purpose of these policies, which included controls on capital inflows, loan-to-value limits and other measures aimed at avoiding currency mismatches between

deposits and loans, was to make sure that another systemic crisis would not happen. Like Moliere's *Bourgeois Gentilhomme*, who spoke prose without knowing it, Chile's regulators had invented MaPs without realizing it or giving them a name, and without knowing that the policies would become generalized a few years later.[6]

The purpose of this paper is to analyze MaPs from the perspective of emerging markets. My main interest is to analyze the role played by MaPs in the policy response to the COVID-19 sanitary emergency that started in 2020, and the challenges that regulators are likely to face in the immediate post-COVID period. Throughout the paper I focus on the experiences of twelve countries: China, Korea, Malaysia, the Philippines, Singapore, and Thailand in Asia Pacific, and Argentina, Brazil, Chile, Colombia, Mexico, and Peru in Latin America.[7] Although the emphasis is mostly on pandemic-related effects, in Section 6 on the conclusions I mention, briefly, a development that was unfolding, rapidly, even before the sanitary crisis: the adoption of digital currencies by central banks. The question is: how are CBDCs likely to affect financial stability?

The rest of this paper is organized as follows: In Section 2, I deal with the MaPs landscape before the pandemic. In Section 3, I concentrate on the response to the pandemic between March 2020 and May 2021 (the time of the conference). The core part of this Section is an analysis of the regulatory relief implemented to deal with the emergency. I show that in every country, regulations were relaxed in order to facilitate the provision of assistance to firms and families. In Section 4, I focus on the MaPs in the post pandemic period. I concentrate on three specific challenges, including the increase in non-performing loans and the need to recapitalize banks. I argue that lessons learned during the pandemic will be useful in further advancing towards a more complete MaPs architecture. In Section 5, I discuss controls on cross-border capital flows, a topic that refuses to die in discussions and debates regarding MaPs. Finally, in Section 6, I present some concluding remarks. There is also an Appendix where I sketch a minimalist model of MaPs.[8]

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[6] On the Chilean crisis of 1982 and the policy changes it elicited see, for example, Edwards and Edwards (1991). On the costs of crises see, for example, Kaminsky and Reinhart (1999).

[7] There has been consensus among analysts for some time now that Korea has joined the ranks of the advanced countries. However, in order to maintain uniformity of coverage with respect to other studies, it is included in this analysis.

[8] Before proceeding, a word about this paper and "real-time" developments. During the period I have been working on this document, the world's sanitary, political, financial, and economic conditions have been changing rapidly; there have also been changes in MaPs, both in the AEs and in some of the EMs. Analysts, policymakers, and officials of the multilateral organizations have constantly updated (and changed) their views about the future. Consider the following important developments that unfolded during a few days in late March-early April, 2021. First, Standard & Poor's downgraded Chile's sovereign credit rating from A+ to

2. The macroprudential landscape before the pandemic

As Forbes (2019) has pointed out, it is not straightforward to translate the overall goal of "systemic financial stability" into specific policies. Different authors – and different central banks and regulatory agencies, for that matter – tend to emphasize different mechanisms, transmission channels, and angles. Many times these differences are the result of particular experiences and the country's own history. However, an important common element, present in almost every country and region, has been the creation of a dedicated institutional apparatus to deal with the evaluation of systemic risks, and with the implementation of MaPs. In the majority of countries these functions are shared by two or more institutions. Typically, the central bank and a financial/banking regulator that sometimes also cover insurance companies. This institutional and governance arrangement, which on the surface appears to be routine, becomes very important during a crisis, when urgent and coordinated decisions have to be made.

A useful way of organizing the discussion is to consider a production function for "systemic financial stability." This process consists of combining several regulatory tools or instruments to achieve a certain level of financial protection or sturdiness. At a very general level, regulatory instruments may be substitutes or complements. A well-known production function that satisfies this requirement is the CES:

$$s = A\left(\sum_{j=1}^{k} \lambda_j R_j^{\rho}\right)^{k/\rho}$$

Where s is "financial stability," which can be measured by some type of index, and the R_i are the different regulatory instruments, which play the role of "inputs." This particular function is homogeneous of degree k, and the elasticity of substitution between any two regulatory instruments is constant and equal to $\sigma = \left[1/(1-\rho)\right]$.

In this setting, a higher s – that is, higher financial stability – will reduce the probability and the cost of a major financial/currency/banking crisis. However, a higher s may also have a negative effect on growth during good states of the world, by reducing credit

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A. It would not be surprising that between the conference and the publication of the proceedings, further downgrade actions are taken by the major rating agencies in a number of EMs. Historically, in most regions there has been a close connection between the ratings of the sovereign and those of domestic banks. Second, on March 30, 2021, the IMF adjusted its discourse regarding the EMs, stating that the world should be prepared for an "emerging markets debt crisis." (*Financial Times*, March 31, 2021, p. 3). Third, in early 2021, the Bank of China decided to step-up its MaPs, and released a resolution directing banks "to curb lending as fears rise over property boom." (*Financial Times*, April 5, 2021, p. 1).

availability and introducing other distortions in the capital market. The policy maker faces two problems: to select the level of s that maximizes the level of expected real income across all states of the world and to determine which instruments (and in what proportion) to activate/use in order to achieve the optimal level of s. The optimal mix of instruments will depend, as usual, on two factors: (1) The expected "marginal contribution" of each of the instruments to systemic financial stability s; and (2) The expected marginal cost of deploying each instruments, in terms of (possible) reduction in growth during good states of the world. Of course, there is no need for these marginal costs and benefits to be the same across countries, or to be constant through time. Different countries will, generally, choose different combinations of the $R_i s$ to achieve their desired level of "stability protection." See the Appendix for a model along these lines.

In a recent report, the BIS provides a comprehensive list of instruments and tools deployed in 55 countries in the last 23 years (BIS, 2018). The analysis identified 845 specific MaP actions, which may be grouped into four broad categories:

- Measures aimed at ensuring *capital adequacy*;
- MaPs geared at *protecting the level of liquidity* of the financial system;
- Policies that establish quantitative *limits to banks' exposure to risk*;
- Restrictions setting *limits to foreign currency exposure* of the financial system (*capital controls*).

2.1 A map to MaPs

In Tables 1 and 2, I present a summary of MaPs in place in the 12 countries covered by this study, as of December 2019, just before the eruption of the pandemic.[9] I consider 19 specific instruments, which I have grouped into the four categories listed above: capital adequacy, liquidity protection, limits to risk exposure, and foreign currency exposure.[10] Instead of attempting to develop a numeric indicator to measure the depth and coverage of each instrument, I have relied on a "softer" and "fuzzier" approach: for each instrument in every country I assign zero, one or two "ticks." No tick means that particular instrument

[9] In its 2018 *Annual Report* the BIS provided a comprehensive list of tools and macroprudential policies implemented in 55 countries during the last 23 years (BIS, 2018).

[10] Filling this table is a major task, as in a number of cases the regulations are rather vague and the details on implementation are incomplete. It is interesting to note that 6 out of the 12 countries considered in this study are members of the Basel Committee, the institution that, arguably, has pushed harder for the implementation of macroprudential regulations: Argentina, Brazil, China, Korea, Mexico, Singapore. In addition, Chile and Malaysia are observers of the Committee.

had not been deployed or activated; one tick means that instrument had been partially activated or was in the process of being activated; two ticks means that instrument was in place and in use in December 2019.[11]

These tables show that there is a great diversity of experiences across nations. There aren't two countries in the sample that are exactly alike; each has its own idiosyncratic set of MaPs. The tables also show that in spite of this diversity there are some common elements across countries. In particular, every country has deployed instruments in each of the four broad categories depicted above. This suggests that, based on their own financial, economic and political reality, each of these countries has decided to follow a particular path to achieve financial protection and stability.

Some of the macroprudential instruments in Tables 1 and 2 are aimed at providing "structural" protection, while others provide cyclical safeguards. An important distinction established by the Basel Committee refers to "capital conservation buffers" and "countercyclical capital buffers" or CCyB. The former is additional capital over and above the CET1 capital ratios, while the latter is related to the aggregate credit cycle. Once the conservation buffers are deployed fully (2.5% of CET1 capital), banks with resultant low CET1 capital ratios face restrictions on earnings distributions (including dividend payments and large bonuses to executives). According to the Basel Committee, capital conservation buffers "must be capable of being drawn… [but] banks should not choose to operate in the buffer range simply to compete with other banks and win market share." (BIS 2019, p. 7/20). For internationally-active banks, the CCyB is calculated "as a weighted average of the buffers deployed across all jurisdictions to which it has credit exposure." (BIS 2019).

As noted, the role of CCyB is to reduce the amplitude of the credit cycle, by keeping credit growth in check during booms, and maintaining the credit flow during downturns. In the Basel Committee member countries, the regulator is supposed to judge periods of excessive credit growth that could result in system-wide risk, and deploy the countercyclical capital buffer requirements. "This will vary between zero and 2.5% of risk weighted assets." (BIS 2019, p. 8/20). The activation and release of CCyB is asymmetric: when a regulator decides to raise the buffers, it should pre-announce the decision 12 months in advance. Reductions in the CCyB, however, may take place immediately. By December 2019, the six member

[11] At some point I attempted to use a measure with greater granularity, but the information available makes the exercise difficult. Some instruments, however, are susceptible to being measured quite precisely. These include reserve requirement ratios and LTV ratios. See Alam et al (2019) and Rojas et al (2020) for studies that use these "hard" metrics.

countries of the Committee in our sample, had adopted CCyB, but had not activated them fully.[12]

Tables 1 and 2 also show that most countries enacted some MaP instruments aimed at maintaining liquidity. A particularly important tool is the loan-to-value ratio. The main role of this instrument is to safeguard the banking system from housing price cycles, of the type that has affected a number of countries in Asia-Pacific and Latin America during the last few decades.

Concerns about real estate prices (and potential bubbles) are particularly serious in countries where an important proportion of credit is funded in foreign currency. Many of the regulations in Tables 1 and 2 are aimed at avoiding exposing banks to situations where foreign currency denominated loans finance nontradable industries and sectors. A number of the Latin American countries in this study – Chile (1982), Mexico (1994), Brazil (1998), Argentina (2002) – were affected by large devaluations that wrecked the local banking sector. The recent directive (April 5, 2021) by the Bank of China on restricting credit was triggered by deep concerns on a property boom. That was also the case in New Zealand's recent (2021) reinstatement of loan-to-value ratios.

As may be seen from Tables 1 and 2, five out of the nineteen instruments are aimed, explicitly, at reducing risks related to foreign currency exposures. Throughout history, a common concern has been that allowing for unlimited foreign funding of domestic banks will fuel speculations and destabilize domestic asset markets. For instance, this was a recurrent theme in Korea and Chile during the early 1990s (Edwards and Edwards 1991; Park and Park, 1992).

2.2 Assessing MaPs effectiveness: Selective review

Do MaPs work? Have they accomplished their goals? From a methodological point of view, answering these questions is a challenging endeavor. Some of the difficulties include the following: (1) There are no generally accepted *broad* quantitative measures or indexes on the extent, coverage, and intensity of the policies. (2) There is no clear control group, as almost every country has taken some MaP-related action in the last 10 years or so. (3) There are no obvious counterfactuals. And (4), with the exception of the pandemic, an event that is still unfolding, there are no clear episodes of incipient crises that have been avoided because of the MaPs. In spite of these limitations and difficulties, a number of

[12] After the eruption of the pandemic, Chile, an observer, postponed the implementation of the Basel III directives until December 2022.

scholars have made valiant efforts to analyze the effectiveness of the MaPs. Most of these efforts have consisted of analyzing the effect of the deployment of MaPs on credit growth, consumption and indebtedness. Although a thorough review of the rapidly growing literature is beyond the scope of this paper, in the rest of this section, I discuss a selective and important set of pertinent contributions.

A number of studies have analyzed whether the implementation of MaPs has reduced the amplitude and period of the credit cycle. Most of these analyses combine historical data – the scope of the cycle in past years –, with cross country information. Indeed, this type of analysis is the basis for the BIS influential "credit gaps" indicator. Gambacorta and Murcia (2020) and Barroso, De Araujo, and Gonzalez (2020) found some evidence that MaPs helped stabilize the credit cycle in Argentina, Brazil, Colombia, Mexico and Peru, and contributed to reducing the risk associated with mortgage lending in Brazil. Bruno, Shim and Shin (2017) used data for 12 Asia-Pacific economies and found that MaPs were effective in slowing down banking inflows and, thus, reduced the overall vulnerabilities of the financial sector. According to Dell'Ariccia et al. (2012), MaPs helped reduce the amplitude of credit cycles. During the boom, credit grows more slowly in countries with active MaPs, and the costs associated with credit busts are smaller in those countries.

As noted above, and as documented in Tables 1 and 2, an important class of MaPs is geared at setting limits to banks' exposure by restricting loan-to-value ratios, and other metrics that capture liquidity and vulnerability across the industry. Choi et al. (2011) concluded that more restrictive loan-to-value ratios resulted in a lower housing (mortgage) debt to GDP ratio in Hong Kong. Using a VAR analysis, Tillmann (2015) found that reducing the maximum "loan-to-value" and "debt-service-to-income" ratios reduced consumption credit, relative to GDP, in Korea. Richter, Schularick and Shim (2019) use data for 56 countries over 20 years to analyze the effects (both costs and benefits) of making loan-to-value (LTV) ratios more restrictive. Their "narrative approach" indicates that tightening the ratio has modest effects on output and inflation. More specifically, a reduction of the maximum LTV ratio by 10 percentage points lowers output in the emerging markets (in their sample) by approximately 1.1% after four years. The effects on inflation are negligible. The authors estimate that this effect is similar to what would be generated by a rise in the monetary policy rate of 26 basis points.

Alam et. al. (2019) introduced a new and very comprehensive data set on MaPs for 134 countries for the period 1990-2016.[13] The authors analyzed how some of the more general MaPs affected credit, indebtedness and consumption. They found that instruments that targeted loans reduced household debt (relative to the counterfactual) and had a dampening effect on consumption. Their most interesting results referred to the nonlinear impact of loan-to-value limits on household debt. In addition, and in line with nonlinear models, they found that the initial value of the LTV ratio mattered: this meant that countries that already had tight LTVs were likely to benefit from emphasizing other instruments.

In a recent paper, Rojas, Vegh and Vuletin (2020) found that, when properly identified, one of the most popular MaPs, namely changes in banks' reserve requirements, were costly. According to their analysis, increases in banks' reserve requirements led to a decline in the level of economic activity. Bush et. al. (2021) used data for Chile, Mexico and Russia to analyze the extent to which changes in the monetary policy rate in the United States affected the domestic financial markets in these countries. Their results were mixed and inconclusive. Interestingly, the authors found that in some countries MaPs targeting the asset side of banks' balance sheets tended to magnify the effects of foreign-policy shocks. Cantu et. al. (2020) reported the results of a BIS study that used data for Australia, Indonesia, New Zealand, the Philippines, and Thailand, and focused on supervisory bank-level data. They found that, on average, stricter MaPs reduced "excessive" consumer credit growth. They also found that the effects were asymmetrical, with tightening having a larger effect than easing. Interestingly, only a few of the multi-country and multi-policy studies included capital controls in the group of MaPs evaluated. And yet, many politicians and policy makers across EMs tended to think of them as effective policy tools to protect the domestic financial market from extraneous shocks.

3. The pandemic and the MaPs

Regulatory forbearance has been a key component of the global economic response to the COVID pandemic. It has allowed banks and other financial institutions to continue operating in a "quasi normal" mode, without calling back loans from firms severely affected by COVID. It has also permitted banks to provide new loans to families and firms in need. A key question is whether the vast regulatory relaxation of 2020-21 will leave (some) emerging markets in a vulnerable position, without the required tools to face future and imminent shocks. The fact that at the time of this writing (September 2021), the IMF

[13] Interestingly, the data coverage begins when, as noted in the Introduction of this paper, very few Central Banks were discussing MaPs as such.

and other official institutions have not detected major weaknesses in most financial sectors, but this is not necessarily a sign that everything will be well in the near future. Indeed, it is highly likely that once the emergency is over, and moratoria and regulatory forbearance are over, there will be a need to deal with a large increase in non-performing loans (NPLs) and the recapitalization of banks. It will also be necessary to reconstruct those MaPs that have been released in order to fight the pandemic. Actual outcomes will depend on a number of factors, including the nature of the shocks stemming from the global economy; see Section 4 for a discussion.

In this section, I document the policy response for the 12 countries covered by this study. I begin with regulatory relief, and I then move to the monetary and fiscal responses. The section ends with an assessment of the health of the financial sector a year after the World Health Organization declared a worldwide pandemic.

3.1 Regulatory relief and forbearance

In Table 3, I provide a summary of some of the most important regulatory relief measures undertaken by the 12 countries under study, after the eruption of the pandemic (February 2020-June 2021). As may be seen, these actions are related to every one of the four categories of MaPs defined in Section 2 and summarized in Tables 1 and 2. There have been relaxations to capital adequacy requirements, to regulations aimed at protecting liquidity, to quantitative limits to banks' exposure, and, to a lesser extent, to limits to foreign exchange exposure. These changes in the regulatory framework were implemented by both central banks and regulatory agencies. While in most countries, the different official bodies involved in the regulatory process coordinated their actions, in some, there were tensions and misunderstandings. In Table 3 the measures highlighted in grey refer to loan moratoria and/or to relaxations of the requirements for classifying loans, including the relaxation of the requirement of labeling those with pass due payments as NPLs.

Instead of repeating the information in Table 3, it is useful to focus on one country from each region, by way of example. In what follows, I discuss Malaysia and Colombia.

As may be seen, in Malaysia there was a reduction in reserve requirements for banks, relaxation of loan-to-value ratios, moratoria on loan payments by distressed companies, and forbearance on supervisory compliance by banks. The combination of these policies with the ample government guarantees program summarized in Table 6 allowed Malaysia to put in place an active and aggressive program for dealing with the pandemic.

As the information in Table 3 shows, Colombia also implemented significant adjustments to its regulatory framework once the sanitary emergency was declared. As in Malaysia, there were reductions in reserve requirements to banks, extended maturity to loans, postponement of dates for loan repayments, and relaxation of countercyclical provisions. As will be seen in the next subsection, Colombia's ability to enact an aggressive fiscal program has been affected by the rating of its sovereign debt (BBB-).

As noted, CCyB is one of the most important MaPs. The majority of the countries in this study had implemented the regulation, but had not built the CCyB up before the sanitary emergency. That is, the regulation was in the books, but its rate was still at zero. This means that for the countries in Table 3, it was not possible to release the CCyB buffer stocks, as was done in many (but not all) AEs. In the countries in this study, most of the relief, in terms of capital requirements, came through structural relaxations. Interestingly, this was not a unique situation in the EMs; it also happened in many AEs. As De Guindos (2021) has pointed out, in March 2020 in the Eurozone, CCyBs amounted to only 0.2% of risk weighted assets, a long way from the proposed 2.5%.

The strengthening of regulations in the decade that followed the GFC (2009-2019) allowed the banking sectors across regions to respond to the pandemic, without succumbing. The extent and massiveness of the response – see Tables 4 and 5 for details – were possible because of generalized regulatory relief. This raises a number of important questions related to how to rebuild the strength of the respective banking sectors. This includes how to deal with debt moratoria and NPLs, how to recapitalize banks and how to rebuild the MaPs architecture.

3.2 Fiscal and monetary policy response

In order to provide a more complete picture of the role of MaPs in the response to the pandemic, in this section I analyze, briefly, the evolution of monetary and fiscal policies.

Tables 4 and 5 present data on fiscal policy for the 12 countries under study. Table 4 shows the evolution of the general government balance from 2010 through 2020, and includes projections by the IMF for 2021 and 2025. Table 5 contains data on gross public sector debt relative to GDP for the same period.[14] These two tables capture vividly the magnitude of the fiscal effort.

As may be seen from Table 4 on the central government balance, the response was particularly large in East Asia, where the median government balance went from a surplus

[14] The IMF also presents data and forecasts for net debt for some (but not all) countries in our sample.

of 0.33% of GDP in 2015, to a deficit of 7.3% of GDP in 2020. The two countries with the lowest fiscal response in the combined sample were Korea and Mexico. Table 4 also shows that according to IMF projections, in 2025 all East Asian countries, except Malaysia, will have a larger deficit than in 2019. In Latin America, on the other hand, the IMF projects that in 2025, the public sector deficit will be lower in Chile and Colombia and slightly higher in Mexico and Peru. (A limitation of these projections, however, is that they may reflect the *wishes and hopes* of the IMF, rather than the most probable scenario).

As may be seen in Table 5, in every country, debt increased significantly after the sanitary emergency.[15] Some of the highlights of Table 5 are: (a) Contrary to what many people think, the mean and median level of debt were significantly higher in East Asia than in Latin America. This was the case in 2010, was still so in 2021, and according to the IMF, is projected to continue into 2025. (b) The IMF forecasts that only three out of the twelve countries will have a lower debt to GDP ratio in 2025 than in 2021: Malaysia, Colombia, and Peru. A key question, which will be addressed in the section that follows, is whether these very large debt will affect the vulnerability of these countries' macro and financial situation, including the stability of the financial sector. And (c), in 2010 Chile was a clear outlier with a debt ratio below 10%, a situation that has changed importantly since 2019.[16]

In Table 6, I present a summary of government debt guarantees to corporations, small and medium-sized enterprises (SMEs), and other firms. The provision of these guarantee schemes provides an important bridge between fiscal policy, monetary policy, and regulatory forbearance. Because the government guarantees the obligations, banks are able to renew or restructure existing debts, and/or provide new loans to firms in need. For governments, an attractive aspect of these programs is that loan guarantees are usually "below the line" in public sector balance sheets.

In Table 7, I present the evolution of central banks' policy rates between the fourth quarter of 2019 and the first quarter of 2021. As may be seen, in every country there were rapid interest rates cuts; the depth of these cuts was reflected in the fact that in the first quarter of 2021, the policy rate was below 1% in three Asian countries (Korea, Singapore and

[15] One of the consequences of this very large increase in public sector debt is that the rating agencies have raised concerns about the quality of sovereign securities, and have placed many countries in a "negative outlook" and/or are considering downgrades; see Section 4 for details.

[16] During that year Chile's debt over GDP was outside the +/- 1.65 standard deviations interval, corresponding to 90% probability, for Latin America. However, for 2025, the IMF projections place Chile squarely inside that interval.

Thailand) and in two of the Latin American nations (Chile and Peru).[17] The highest policy rate was in Mexico, a country that, paradoxically, had the largest cuts at 300 basis points (the initial rate was a very high 7.25%). As part of their monetary response, most of the countries in this study have expanded the type of securities that central banks are allowed to purchase, as well as the collateral that can be accepted from commercial banks. Also, as is discussed in Subsection 3.1, and reported in Table 3, the majority of the central banks in this study have reduced reserve requirements and relaxed other quantitative restrictions – many of them of the MaPs type – as a way of expeditiously increasing liquidity.

Table 8 contains data on total bank credit to the private nonfinancial sector, relative to GDP, in the years 2012, 2015, 2019, and in the third quarter of 2020. The pattern that emerges is clear: credit increased significantly in every country in the sample. As with fiscal policy, the East Asian countries have been significantly more aggressive in terms of monetary policy than the Latin American nations. The median increase in credit in 2020, relative to 2019, was 10% in East Asia and only 6.5% in Latin America. In fact, the Latin American country with the most expansive monetary policy – Chile – had a lower expansion in credit to the private sector (5.2% of GDP) than almost any of the Asian countries in the sample. At the macro level, and in spite of the very significant expansions of central banks' balance sheets and government debt, the IMF doesn't predict inflation to pick up, in the near future, in the countries covered in this study.

3.3 Health of the financial sector after the pandemic: The IMF and the rating agencies

Since 2009, the multilateral institutions have been tracking the health of the financial sector in a large number of countries. The IMF, for example, follows 12 core financial soundness indicators for deposit-taking institutions. These include regulatory capital to risk weighted assets, nonperforming loans (net of provisions) to capital, nonperforming loans to total gross loans, liquid assets to total assets, liquid assets to short-term liabilities, and net open position in foreign exchange to capital. As of the time of this writing (April 2021) the IMF had not detected significant deterioration in the financial health of the countries under study.

[17] In contrast with many of the AEs, the central banks in this study are not severely affected by the problem of the "zero lower bound" in policy rates. The discussion that follows excludes Argentina, a country with a mid-double digit rate of inflation.

In Table 9, I present data on NPLs to total gross loans, as reported by the IMF.[18] The Table focuses on four points in time: (i) 2010, approximately 18 months after the eruption of the GFC; (ii) 2015, a year when things were returning to normal; (iii) 2019, the year before the pandemic; and (iv) 2020q3, the latest data point available. These data show that in most Asian nations NPLs declined significantly between 2010 and 2015; and stayed approximately at the same level until 2019. The data also show that after the pandemic was declared and regulations on banks were relaxed, only one country – the Philippines – experienced a significant increase in NPLs as a proportion of gross loans. The Latin American experience was somewhat different, as only two countries – Argentina and Chile – experienced a decline in NPLs after 2010, and only one country – Colombia – experienced a significant increase in NPLs in the first year after the pandemic. These low ratios were, in part, the result of moratoria and regulatory forbearance measures like the ones described in Table 3, and highlighted in grey color.

In a recent study, Ari et. al. (2020) analyzed the dynamics of NPLs in 88 banking crises since 1990. The authors defined *large* NPL ratios as those in excess of 7%. According to this criterion then, as of late 2020, none of the countries in this study had NPLs which approached this "high level." This research also shows that the growth of NPLs lags the eruption of a crisis, and that after a crisis, NPLs increase by 3 times relative to their pre-crisis levels; more than 80% of crises eventually result in NPLs in excess of 7% of loans. In Section 4, I argue that the pace and fashion in which these NPLs are recognized and addressed will be key for future stability.

During 2020, the rating agencies took significant actions lowering the ratings of a number of financial institutions, both banks and nonbanks, from around the world. The following quote from Standard & Poor's regarding Latin American banks is telling:

> "Banks are facing Negative Rating Momentum… This is because of pernicious effects of the pandemic, oil price shock, and market volatility."

In Table 10, I present data on the evolution of Standard & Poor's outlooks for East Asian and Latin American banks between 2019 and 2021. It is useful to compare the situation in

[18] Non-performing loans (NPLs) are defined in different way in different countries. The IMF recommends that loans are classified as NPL when (1) payments of principal and interest are past due by 90 days or more, or (2) interest payments equal to 90 days interest or more have been capitalized (reinvested into the principal amount), refinanced, or rolled over (payment delayed by agreement), or (3) evidence exists to reclassify them as nonperforming even in the absence of a 90-day past due payment, such as when the debtor files for bankruptcy. The BIS and the European Banking Authority use slightly different criteria. See Ari et. al. (2020).

February 2021 and December 2019. As may be seen, in East Asia, the number of banks with a "negative outlook" more than doubled during this period; and the number of banks with a "credit watch negative" outlook increased from 0 to 2. The situation in Latin America was not very different, except that the number of banks with a "credit watch negative" outlook went from 9 to 0. However, the number of banks in the more meaningful category of "negative outlook" more than doubled from 17 to 37. Equally concerning is the fact that in both regions, the number of banks with a "positive outlook" has gone to zero in recent months.

Historically, there has been a close correlation between individual banks' ratings and sovereign ratings. In Table 11, I present data on sovereign ratings by Standard & Poor's for the 12 countries covered in this study, as of early April 2021. In addition to the ratings themselves, the table includes indicators on S&P's views of the strengths of each country according to six metrics. In each of these categories, the score goes from 1 for very strong, to 6 for (very) weak. The data show that according to the rating agencies (Moody's and Fitch present a similar picture), East Asia presents lower risks than Latin America. In the former, the lowest rating is BBB+ (the Philippines and Thailand) and only one country has a negative outlook. In contrast, in Latin America, only one nation (Chile) has a rating in the "As," and in this case there has been a recent (late March 2021) downgrade. Moreover, at the time of this writing, 2 of the 6 Latin American countries have negative outlooks.

The overall message in this subsection is that, although at the present (June 2021) there are no indications of *significant stress* in banking sectors, there are developments that point to an increase in NPLs in the (near) future. The question is not only whether banks have enough capital to withstand the prolongation of the crisis, but also whether the regulatory relaxation has to be undone, and if so, how fast. It is interesting to note that some advanced countries have already begun to unwind the regulatory forbearance triggered by the pandemic. For example, on March 1, 2021, the Reserve Bank of New Zealand announced that "LVR restrictions will be reinstated at the same level as prior to the onset of COVID-19, with a further tightening of investors' restrictions taking effect on 1 May 2021."[19] This policy measure is partially the result of concerns by New Zealand regulators about housing prices, which had increased by 22.8% between February 2020 and February 2021. In a similar vein, on March 19 2021 the Federal Reserve announced that it would let the relaxation introduced in June 2020 to the Supplementary Leverage Ratio (SLR) expire in May 2021. (Consistent with what was discussed above regarding the multiplicity of

[19] https://www.rbnz.govt.nz/regulation-and-supervision/banks/macro-prudential-policy/loan-to-valuation-ratio-restrictions

institutions dealing with regulations, the press release indicating the end of the relaxation of the SLR was a joint release by the Federal Reserve, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency.)

4. Risks and challenges after the pandemic

Pandemics don't end suddenly; they recede slowly as a result of successful vaccination programs and/or herd immunity. Once the COVID pandemic is "officially" over, the world economy will look very different from how it looked like in March 2020. Debt ratios will be significantly higher than what many analysts think is reasonable or sustainable; central banks' balance sheets will be much larger than at any point in the past; and the regulatory landscape will be less protective and less binding than just before the pandemic. A return to "normality" – and even the adoption of a "new normal" – will require dialing back almost every policy undertaken to combat the pandemic. Indeed, doing it will leave the world better prepared to face new threats, including possible future pandemics. An important question is whether this process of "dialing back" should be gradual or fast, and what the newly acceptable normal policy stances will be.

Regarding the MaPs, there will be a need to turn back the regulatory forbearance adopted during the emergency, and to continue to strengthen the regulatory architecture. This process is likely to be complex and face some political economy difficulties. In addition, and in light of the analysis in Subsection 3.3, the authorities will face the task of dealing with NPLs and banks' recapitalization. Also, in many countries there will be substantial changes in social conditions, with higher poverty levels and higher income inequality; many of the distributive changes will be associated with the uneven effect of the pandemic across industries and regions.

Trying to predict the future evolution of the global and regional economies is, of course, well beyond the scope of this paper. However, and for the sake of completeness, it is useful to discuss briefly the possible sources of disturbances and shocks to the countries analyzed, in the immediate post-pandemic period and the role of MaPs under different scenarios. In analyzing these challenges and risks it is useful to distinguish between shocks and developments coming from abroad and those of domestic origin. The bottom line is rather obvious: independently of future developments and of where risks will materialize, it is important to rebuild the preexisting MaPs architecture, to deal with NPLs and to recapitalize banks.

4.1 Potential short-term systemic shocks

At the time of the conference, the greatest potential (and interrelated) risks to the EMs coming from the global economy were: (a) a possible resurgence of global inflation; (b) a major correction in asset prices around the globe; (c) a decline in the appetite for risk by global investors; (d) generalized downgrading action by the rating agencies; and (e) large terms of trade changes. Three months later, the inflationary risk appears to be materializing , as is the "change in appetite" risk.

These potential shocks, either jointly or on their own, are likely to result in higher interest rates in the EMs and currency devaluations in many countries. The consequences of these developments will depend on the size of the pass-through coefficient, and on whether domestic central banks follow the Federal Reserve when it raises interest rates.[20] In a recent column, Martin Wolf, an influential FT commentator, wrote:

> "The combination of a huge U.S. fiscal loosening with sharper than expected monetary tightening might destabilise emerging economies. This happened before, notably in the 1980s debt crisis." (Martin Wolf, Financial Times on March 17, 2021).

In thinking about the future, it is important not to downplay possible political developments. In particular, in a number of countries, there has been unhappiness with the way in which the pandemic was handled, and with the extensive and long lockdown. In most countries, inequality and poverty have increased, and political pressures for increasing expenditures and providing social support may increase in the future. In a recent statement released prior to the Spring Meetings, the IMF has warned of possible social unrest as a result of deteriorating social conditions and rising inequality.

4.2 NPLs and banks' recapitalization

One of the most salient pieces of information in Table 3 refers to NPLs and provisioning; see the highlighted bullets. As noted earlier, in most countries, there has been a relaxation of the requirement to record nonperforming loans and make provisions; across countries and regions, many loans are under moratorium. Once the emergency is over, banks across

[20] In a recent empirical investigation, Edwards (2012) found that most central banks in Latin America tend to follow the Fed. They incorporate, implicitly, the Fed's policy rate in their own Taylor Rules. The same study concluded that East Asian central banks had historically been more independent, and did not react in a clear and unpredictable way to Fed actions.

the world – and not only in the EMs – will have to face this situation, making sure that the appropriate provisions are made, and, when needed, banks' capital is replenished. What makes the current situation quite unique, from a historical point of view, is that NPLs are distributed very unevenly across sector; not surprisingly, they are very large in hospitality and personal services.

In a recent paper, Ari et. al. (2020) analyzed the relation between NPLs and economic growth in a large group of countries over several decades. Their results indicate that NPL resolution is essential for countries to recover promptly from a crisis. Lingering and high NPLs are associated with deeper recessions and slower recoveries. Six years after a crisis, real GDP in countries with high/unresolved NPLs (where, as noted above, "high" is defined as higher than 7% of loans) is 6 percentage points lower than in countries that have not experienced "high NPLs".

Although there is no detailed analysis on the 12 countries considered in this study, it is possible to learn from history and from recent experiences in other regions. The 1997-98 East Asian financial crisis and the succession of Latin American crises have shown that banks have a tendency to delay acknowledging NPLs, in order not to impact their profit and loss (P&L) statements. As a number of authors have pointed out, this may result in the survival of so-called "zombie firms," or companies that operate in spite of the fact that, according to fundamentals, they are not viable.[21] The costs of maintaining these moribund firms on life support can be very high, and contribute to new and severe crises.

Historically, this type of situation with massive and un-provisioned NPLs has been tackled in a variety of ways, including through the creation/encouragement of a secondary market for loans, the creation of "bad banks" that concentrate on non-performing loans, the conversion of debt to equity, and the issuance of new equity that results in the dilution of banks' control. This latter solution is often resisted in EMs, where particular groups/families tend to own controlling blocks of shares, and where banks are part of much larger industrial/financial/technological/commercial concerns. Although discussing the details of each of these possible solutions is beyond the scope of this paper, there is little doubt that EMs (and AEs for that matter) should prepare for moving in this direction.

However, historical experience also shows that none of these approaches is, on its own, a panacea. In a recent paper, Kasinger et. al. (2021) made the following point regarding the

[21] Edwards (2010), Harwood et al (1999), Kasinger et al (2021).

pandemic, and the use of a secondary market for loans as a way of dealing with NPLs in the Eurozone:

> "Assuming an extremely severe pandemic scenario, all or many banks lose capital simultaneously. This potentially leads to fire-sales as all banks find themselves on the sell side of the secondary loan market. The resulting market imbalance may invalidate the supportive role of the secondary loan market for banks with NPLs. In fact, a one-sided secondary loan market will pull banks down further as the resulting loan pricing will feed into a downward spiral, infecting loan valuation on banks' balance sheets even for otherwise healthy banks. Thus, a self-enforcing process of falling secondary prices, lower loan asset values and loss of capital may develop that destabilises the financial system at large."

These concerns appear to be relevant to most of the EMs in this study.

5. Capital Controls: Musings on an instrument that refuses to die

For a long time, policy makers have been concerned about the disruptive effects of large surges in capital inflows. These concerns have been centered on three issues: (1) large inflows tend to generate (temporary) real exchange rate overvaluation, with Dutch Disease type of effects on the local industry. (2) Historically, in the vast majority of countries these inflows have been intermediated by the banking system and have financed massive credit booms, including major expansions in real estate investment. This may result – and in many historical episodes has resulted – in currency mismatches in banks' balance sheets. Liabilities are denominated in foreign currency and loans are either denominated in domestic currency or granted to nontradable sectors, generating a situation of severe vulnerability in the financial sector. And (3), sudden stops in the capital inflows, and the concomitant reversals in current account balances, result in large devaluations that create havoc in the economy. The effects of these currency crises are particularly severe when there are large "balance sheet" effects in the banking sector. These concerns explain why many scholars and policy makers have argued that capital account liberalization in the EMs should be undertaken gradually and in ways that avoid the problems discussed above. See, for example, Prasad and Rajan (2008).

Controls on capital inflows may be considered an early form of macroprudential regulations. In fact, in many countries, capital controls on inflows are at the top of the list of regulations favored by politicians. It is (very) possible that once the pandemic is over,

and an effort is made to rebuild the MaPs, many countries will consider (re)instating capital controls.[22]

5.1 Chile's "first generation" capital controls

The idea of controlling capital inflows was first put into effect in Chile. The notion was that by slowing down inflows it was possible to reduce banks' exposure to foreign currency risks, and protect them from the potential costs of "sudden stops" and currency devaluations.

Chile's controls on inflows during the 1990s are well known and have been studied quite profusely.[23] What is less known is that Chile had an earlier experience – in the mid- to late 1970s – with these types of policies. These "first generation" controls on inflows did not work well, and the country ended up facing a massive and extremely costly currency and banking crisis in 1982.

Starting in 1974, a year after general Augusto Pinochet deposed President Salvador Allende, capital movements were controlled through an array of mechanisms. All capital moving into the country had to be registered with the central bank. Foreign lenders who wanted future access to foreign exchange faced additional restrictions in the form of minimum maturities and maximum interest rates. Foreign loans with maturities below 24 months were forbidden (the exception was trade credit), and those with maturities between 24 to 66 months were subjected to non-interest yielding reserve requirements ranging from 10% to 25% of the value of the loan (Edwards and Edwards, 1991, p. 55). But controls on inflows were not the only tool used by the Chilean authorities in an effort to protect the banking sector from foreign exchange-related excesses. Quantitative restrictions on banks' exposure, very similar to modern MaPs, were also in place.

In spite of these controls, and because of the very large interest rate differentials, massive flows of foreign capital came into the country. Between 1978 and 1982, net capital inflows amounted to almost 8% of GDP. Many of those funds were used by large industrial /financial conglomerates – the so-called "*grupos*" – to finance the acquisition of newly privatized companies and banks, and to finance a real estate boom.

In June 1982, and after having run a gigantic current account deficit (12% of GDP), Chile could not defend its fixed peg any longer, and devalued the peso. In spite of the controls

[22] On controls and macroprudential regulations, see Frost et. al. (2020). On the Chinese approach to managing capital flows, see Prasad and Wei (2005).
[23] Forbes (2007), Edwards and Rigobon (2009), Caputo and Saravia (2018).

and the other policies, the devaluation resulted in a generalized collapse of the banking sector. After demurring for some months, the government ended up bailing out the whole banking system at a cost of close to 40% of GDP. The main lesson from this episode was that it was not only important to manage the amount of the flows, but it was also critical to make sure that there were no currency mismatches on banks' balance sheets, and to be concerned about the sectors where those funds were being deployed (the key was whether they generated earnings in foreign currency).

5.2 "Second generation" Chilean controls on capital inflows

In the early 1990s, and after having recovered from the 1982 crisis, Chile was once again subjected to very large capital inflows. The lesson, however, had been learned, and a sturdier system of unremunerated reserve requirements (URR) was put in place, and supplemented by stricter restrictions on currency mismatches of banks.

"Second generation" Chilean type controls on inflows were later implemented in a number of countries, including Thailand (2006) and Colombia (2007). An important feature of this type of capital controls on inflows is that they act as a tax and, thus, introduce a wedge between domestic and international interest rates. If the domestic interest rate for a k-months investment is denoted by i_k, and the implicit tax by μ_k, then it follows that (where *i* is the international interest rate; in order to simplify the exposition, risk premia issues are assumed away):

$$i_k = i + \mu_k$$

Given the reserve requirement ratio on the inflows, it is possible to calculate the (approximate) tax equivalence of these controls. Assume that the investor will keep his funds in the country for *k* months. Assume, further, that if *k* is lower than some maturity *h*, the investor needs to deposit a fraction *u* of the funds in the central bank. Then, the tax equivalent to the URR is given by:[24]

$$\mu_k \approx i \left(\frac{u}{1-u}\right)\left(\frac{h}{k}\right)$$

In a paper that evaluated the effectiveness of Chile's controls on inflows, De Gregorio et. al. (2000) computed the tax equivalence of URRs in Chile. For a maturity of one month the tax equivalence was 31%. It did decline rapidly for longer maturities, however. For

[24] This ignores the presence of other taxes. In Chile, in fact there were other costs to foreign investors.

instance, for six months' maturity the tax equivalence was slightly above 5%. For a maturity of 12 months it was only 2.6%.[25]

In their empirical analysis, De Gregorio et. al. (2000) reached a number of conclusions that were relevant for any country relying on controls on inflows as a form of MaP. Their most important findings may be summarized as follows:

- Because of the controls, Chile was able to maintain a significant policy interest rate differential with the rest of the world: "We only find a significant effect on the central bank interest rates, which suggests that the URR was indeed used more intensely to accompany monetary tightening."
- The impact on longer-term rates was not clear. It appeared that after 18 months' maturity the effect was very small, not significantly different from zero.
- The effects of the URR on the real exchange rate (RER) were not conclusive, in the sense that different estimation techniques yielded somewhat different results. This let the authors believe that using controls on inflows was not the best policy for dealing with short-term real exchange rate appreciation. The authors pointed out that, one of the possible reasons for not finding much of a connection between the URR and the RER was the existence, at the time, of an exchange rate band in Chile. On URR in a band-based exchange rate regime, see Edwards and Rigobon (2009).
- One thing that the URR did for sure was to change the composition of flows, reducing short-term flows and increasing longer-term ones. This, on its own, provided some stability protection to the financial system, which would not be subjected to sudden reversals of hot capital. The total magnitude of inflows aggregated across maturities, however, did not appear to change.
- With time, market participants found a large number of loopholes, reducing the effectiveness of the capital controls.
- One of the main reasons why capital controls were somewhat successful in Chile was that they were supported by the right type of fiscal policy, which provided the required overall credibility to macroeconomic policy in the country.

Of course, the positive effects, or benefits, of the URR should be compared to the distortionary costs that they introduced in the form of a tax. One of the obvious

[25] See, also, Edwards and Rigobon (2009), Edwards (1999, 2003).

consequences of these taxes was that they might impact on the ability of certain firms to tap the capital market. The controls resulted in higher domestic cost of capital. In a detailed analysis using data from the stock exchange in Chile, Forbes (2007) found that the controls imposed a severe cost to smaller firms. She concluded that as a consequence of the URR policy, smaller traded firms faced a significant financing constraint, and had a higher shadow cost of capital than larger firms that could circumvent the controls (see also Caputo and Saravia 2018, and Edwards and Rigobon, 2009).

6. Concluding remarks

The COVID pandemic tested the efficiency and resilience of the macroprudential regulation edifice that had been built in virtually every country since the year 2008. It is not an exaggeration to say that the system has passed the test with good marks. Banks were better prepared than in the previous crises. Relaxing many of these regulations has been a key component of the response to the pandemic by governments around the world – see Table 3.

The fact that the MaPs have proven to be sturdy, so far, doesn't mean that policy makers can lower their guard. In fact, there is much to do going forward, both in evaluating at a very detailed level the functioning of the current system, and in preparing countries/jurisdictions for future shocks. Some of the key or core questions going forward are:

- When to rebuild the MaPs and return to the pre-COVID situation?
- How fast to rebuild this regulatory framework?
- In light of the experience of the last 18 months, is the pre-COVID situation adequate, or is there a need for a sturdier edifice?
- How to handle NPLs once the current regulatory forbearance is over? If banks need to be recapitalized, how fast is that to be done?
- Is there a need to make changes to the current capital controls landscape?

When thinking about these issues, it is important for policy makers to realize that after the "great regulatory forbearance of 2020-21," most countries' financial sectors are more vulnerable. For the emerging markets, a particularly important question is whether they would be able to survive possible short-term global shocks during the next year or so. Four of the possible shocks identified in this paper are: a surge in global inflation that results in early and significant action by the Fed and the ECB; an important correction in asset prices

around the globe; a substantive decline in risk appetite by global investors; and generalized downgrade action by the rating agencies.

Other (interrelated) questions and issues related to the future strengthening of the MaPs include:

- Should "headroom" or "space" be built into the MaPs in the future?
- Coordination across countries in the same region to release the MaPs, in case of global shocks.
- How to avoid the "stigma" associated with releasing MaPs?
- Coordination between regulators and central banks regarding monetary policy during a systemic crisis.
    - How to deal with "dash to cash"
    - Central bank intervention in the currency market to avoid abrupt devaluations.
    - Rebuilding international reserves.
- Use data from the pandemic to rethink different MaPs. For instance, in the U.S., there is a significant positive correlation between the request for payment suspensions and the loan to income ratio. Borrowers with an LTI of 4 were twice as likely to opt for suspensions and those with LTI's of approximately 2 ½.
- Develop the right MaPs to face the effects of the increasing adoption of Central Bank Digital Currencies, CBDCs.[26]

[26] See the bibliography for some recent contributions on CBDCs: Auer & Böhme (2020); Auer, Monnet, & Shin (2021); BIS (2020, 2021); Bordo and Levin (2021).

Appendix:

The simple analytics of MaPs

In this appendix, I sketch the basic analytical principles governing the design of optimal MaPs. The analysis is kept at a minimalist level, and no attempt is made to obtain closed-form solutions or to calibrate a full-fledged model. More complete analysis may be found in the technical and theoretical literature, including, for example, in Allen et. al. (2018) and Farhi and Werning (2016).

Consider the case where there are two states of the world: "Bad" (B) and "Good" (G). A "bad" state is characterized by a macroeconomic crisis (banking and currency) and is costly. The probability of being in the "bad" state is p_B, and depends on a number of exogenous and policy variables, including the degree of "sturdiness" or "stability" of the financial sector. The strength of the financial system captured by a "stability" index denoted by s.

$$p_B = f(s, x_1, x_2, \dots)$$

s is the result of regulatory measures, including MaPs; see below. A higher *s* reduces the probability of falling in the bad state of the world. However, through a restriction of credit to the private sector, a higher s has a negative effect on growth. Consider the following equations for aggregate (real) income in the good state of the world y_G:

$$y_G = y_0 + \alpha dK$$

where, dK is capital accumulation or net investment; α is the marginal productivity of investment for the economy as a whole. As noted, a higher s results in lower investment.

$$dK = g(s, \dots);\ g' \leq 0.$$

There are a number of possible channels through which this may happen. For instance, in the case of controls on capital inflows the channel would be higher domestic interest rates.

Real income in the bad state of the world is a fraction β of y_G.

$$y_B = \beta\, y_G; \quad 0 \leq \beta \leq 1.$$

The policy problem is to select the value of s that maximizes the level of expected real income across both states of the world.

$$y = y_G - p_B(y_G - y_B)$$

where $(y_G - y_B) = G$ is the income gap between good and bad states of the world, or the cost of a crisis measured in real income. We assume that stricter regulations – that is, higher s – reduce the cost of a macro/banking/currency crisis: $\frac{dG}{ds} \leq 0$.

The first-order condition states that s should be set at the point where the expected marginal benefit of regulations, measured by the reduced probability and lower cost of a crisis, is equal to the expected marginal cost of s, captured by the (negative) effect on economic activity:

$$\frac{dy_g}{ds} = p'_B G + p_B G',$$

where G' and p'_B are the derivatives of the income gap and probability of a bad states with respect to the regulations measure s. Both derivatives are negative.

In order to close the model, we need to define more explicitly three relationships: (a) the precise mechanisms through which changes in the extent of regulations (including MaPs) affect credit availability and investment (and thus real income); (b) the way (and extent) in which a higher s reduces the cost of a bad state of the world; and (c) the determinants of the probability of a crisis, including the marginal effect on this probability of tighter regulations. A multinomial logit model is, possibly, the most expeditious way of dealing with this last issue. Under that assumption, if there are *j* determinants of the probability of a crisis or bad state of the world, then:

$$p_B = \frac{1}{1 + e^{(b_0 + b_1 x_1 + \cdots + b_j x_j)}}$$

where one of the x_i is the "stability" index s. Other determinants of the probability of falling into a bad state include the fiscal stance of the sovereign, whether the country in question is suffering from real exchange rate overvaluation, and the external balance, among other.

Once the level (or intensity of regulations) of s is determined, the authorities have to decide which specific regulatory tools they will use to achieve that optimal s. A simple way of thinking about this is to consider a production function for *s*. The (possible) inputs are the different type of regulatory tools discussed in the literature on MaPs and listed in Tables 1 and 2 of this paper. A general formulation is given by a multifactor CES:

$$s = A \left(\sum_{j=1}^{k} \lambda_j R_j^{\rho} \right)^{k/\rho}.$$

The R_i are the different regulatory tools, which are assumed to be substitutes. This particular function is homogeneous of degree *k*, and the elasticity of substitution between any two regulatory instruments is constant and equal to $\sigma = \left[1/(1-\rho)\right]$. A special, simpler and possibly more intuitive case is that of a Cobb-Douglass function for s:

$s = R_1^{a_1} R_2^{a_2} \dots R_k^{a_k}$.

In this case, the first order condition for the optimal use of each instrument R_i is given by:

$$\frac{\left(a_1 s/R_1\right)}{MC_1} = \frac{\left(a_2 s/R_2\right)}{MC_2} = \dots = \frac{\left(a_k s/R_k\right)}{MC_k},$$

where MC_j is the marginal cost (in terms of effect on the functioning of the financial system) of deploying instrument *j* to achieve a certain level of financial stability, s.

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Table 1. Macroprudential Policies in Selected East Asian Countries, 2019

	China	Korea	Malaysia	Philippines	Singapore	Thailand
A. Capital Adequacy MaPs						
Risk-weighted capital requirements (CR)	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Capital requirements FX positions						
Capital requirements by sector	✓✓		✓✓	✓✓		✓✓
Countercyclical capital buffers (CCyB)		✓✓		✓	✓✓	
Capital Conservation Buffer	✓	✓✓	✓	✓✓	✓✓	
Limits on dividend if capital is low	✓✓	✓✓		✓✓	✓✓	
Profits capitalization	✓✓	✓✓		✓✓	✓✓	
B. Liquidity protection MaPs						
Cyclical reserve requirement ratios	✓		✓	✓		
Higher RRRs for FX positions or non-resident capital inflows	✓✓					
Marginal RRRs on cars and motorcycle loans & mortgages		✓✓				
Higher liquidity ratios on domestic or foreign currency loans (LCR)	✓✓	✓✓	✓✓	✓✓	✓✓	✓
Dynamic provisioning (Cyclical provisioning for NPLs)	✓✓		✓✓			✓✓
C. Quantitative Limits on Banks' Exposure						
Buffer for systemically important financial institution	✓✓	✓✓		✓✓	✓✓	✓✓
Caps on Loan-to-value (LTV) ratios	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Caps on Debt-to-income (DTI) ratios	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Caps on FX exposure & currency matching of loans to deposits	✓✓	✓✓	✓✓	✓✓		✓✓
Limits on the exposure to derivatives		✓✓				
D. MaPs to Limit Foreign Exchange Exposure						
Foreign exchange reserves	✓✓	✓	✓✓	✓	✓✓	✓✓
Limits on cross border capital flows	✓✓	✓	✓✓	✓✓	✓	✓✓

Sources: Alam et al. (2019), BIS (2011-2019, 2017), Cerutti et al. (2017), Corbacho, and Shanaka (2018), and individual central bank publications.

Table 2. Macroprudential Policies in Selected Latin America, 2019

	Argentina	Brazil	Chile	Colombia	Mexico	Peru
A. Capital Adequacy MaPs						
Risk-weighted capital requirements (CR)	✓✓	✓✓	✓✓	✓	✓✓	✓✓
Capital requirements FX positions		✓✓				✓✓
Capital requirements by sector	✓✓	✓✓		✓✓		✓✓
Countercyclical capital buffers (CCyB)	✓	✓			✓✓	✓✓
Capital Conservation Buffer	✓	✓			✓✓	✓✓
Limits on dividend if capital is low	✓	✓			✓✓	✓✓
Profits capitalization	✓	✓			✓✓	✓✓
B. Liquidity protection MaPs						
Cyclical reserve requirement ratios		✓✓		✓		✓✓
Higher RRRs for FX positions or non-resident capital inflows	✓✓					✓✓
Marginal RRRs on cars and motorcycle loans & mortgages						✓✓
Higher liquidity ratios on domestic or foreign currency loans (LCR)	✓✓	✓✓	✓	✓✓	✓✓	✓✓
Dynamic provisioning (Cyclical provisioning for NPLs)	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
C. Quantitative Limits on Banks' Exposure						
Buffer for systemically important financial institution	✓✓	✓✓	✓	✓	✓✓	✓✓
Caps on Loan-to-value (LTV) ratios	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Caps on Debt-to-income (DTI) ratios	✓✓	✓✓	✓✓	✓✓		
Caps on FX exposure & currency matching of loans to deposits	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓
Limits on the exposure to derivatives			✓✓			✓✓
D. MaPs to Limit Foreign Exchange Exposure						
Foreign exchange reserves						✓✓
Limits on cross border capital flows	✓	✓✓	✓✓	✓✓	✓✓	

Sources: Alam et al. (2019), BIS (2011-2019, 2017), Cerutti et al. (2017), Corbacho, and Shanaka (2018), and individual central bank publications.

Table 3: Regulatory Forbearance and Regulatory Relief Measures in Selective East Asia and Latin American Countries Through March 2021

China	• Local banks allowed to provide limited uncollateralized small and medium-sized enterprise (SME) loans; • Delay of loan payments permitted; • Loan size restrictions for online loans eased; • Tolerance for higher NPLs and reduced NPL provision coverage requirements; • Relaxation of regulations on insurers for bond investments.
Korea	• Temporary easing of rules on share buybacks; • Temporary easing of loan-to-deposit ratios for banks and other financial institutions; • Temporary easing of the domestic currency liquidity coverage ratio for banks. • Easing collateral requirements for net settlements in the BOK payments system;
Malaysia	• Lowered the Reserve Requirement Ratio (RRR) to 2 percent. • Temporary eased regulatory and supervisory compliance on banks to help support loan deferment and restructuring. • Regulatory relief measures for public listed companies. • Enhanced protection of distressed companies against liquidation. • Loan-to-Value requirement for third mortgages eased; • Targeted loan payment moratorium for borrowers affected by pandemic; • Banks to provide repayment flexibility to SME affected by COVID-19.
Philippines	• Temporary relaxation of requirements on compliance reporting • Temporary relaxation on penalties on required reserves; • Temporary relaxation of provisioning requirements; • Relaxation of prudential regulations regarding marking-to-market of debt securities. • Loans to SMEs to be counted as part of banks' reserve requirements; • Temporarily reduced SMEs loans credit risk weights to 50 percent; • Assigned zero risk weight to loan exposures guaranteed by the Philippine Guarantee Corporation. • Loans to certain large enterprises recognized as forms of alternative compliance with banks' reserve requirements. • Increased the limit on banks' real estate share of loan portfolio from 20 to 25 percent.
Singapore	• Selected regulatory and supervisory programs revised to enable financial institutions to better deal with issues related to the pandemic. • Wider range of collateral accepted. • Domestic s banks allowed to pledge eligible residential property loans as collateral. • MAS expanded the range of collateral that banks in Singapore can use to access USD liquidity.
Thailand	• The BOT relaxed regulations regarding classification of borrowers • Relaxed levels of loan loss provision to accelerate debt restructuring. • Borrowers not yet classified as NPL or classified as NPL due to COVID-19 can classified as normal if they make repayments in accordance with a debt restructuring agreement, which would not considered be a Troubled Debt Restructuring (TDR). • Reduced lower minimum credit card and revolving repayments from 10 percent to 5 percent in 2020 and 2021 and 8 percent in 2022; • 3-month moratorium on personal loans (installment payments), car loans and motorcycles. • 3-month moratorium on principal repayments for housing, SME, and micro-finance loans with consideration on a case-by-case basis for lower interest payments.

Argentina	• Lower reserve requirements on bank lending to households and SMEs; • Temporary easing of bank provisioning needs; • Temporary easing (extra time) of bank loan classification rules; • Stay on bank account closures due to bounced checks.
Brazil	• Lower reserve requirements and capital conservation buffers; • Temporary relaxation of provisioning rules for banks; • Lower capital requirements for small financial institutions; • Banks allowed to reduce provisions for contingent liabilities stemming from loans to SMEs.
Chile	• Central Bank regulations for bank liquidity made more "flexible"; • Relaxation of the liquidity coverage ratio on a case-by-case basis. • Special treatment of provisions for deferred loans (CMF measure); • Mortgage guarantees accepted as collateral for SME loans; • Timetable for the implementation of Basel III standards revised.
Colombia	• Reserve requirement applicable to savings and checking accounts lowered from 11 to 8 percent; RRRs on savings accounts cut to 3.5 percent. • Loans less than 30 days over-due re-profiled (maturity was extended). • Viable borrowers can postpone payments to June 30, 2021 on December 16. • Countercyclical provisions have been released; • SFC authorized certain related-party transactions for fund managers.
Mexico	• Reduced the mandatory regulatory deposit; • Temporary relaxation in accounting standards allowing credit providers to defer loans for up to 4 or 6 months. • Committee on Liquidity Banking Regulation outlined temporary flexibilities on liquidity requirements for banks, permitting the use of up to 50% of the capital buffer and announcing temporary flexibilities.
Peru	• Reduced reserve requirements for banking sector; • Financial institutions allowed to modify the terms of their loans to households and enterprises affected by the Covid-19 without changing the classification of the loans.

Highlighted measures refer to loan moratoria and/or relaxation on loan classification (including NPLS).

Sources: IMF "Policy Responses to COVID-19," https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#C, and individual central banks.

Table 4. General government fiscal balance or general government net lending/ borrowing (as percentage of GDP)*

	(1) 2010	(2) 2012	(3) 2015	(4) 2019	(5) 2020	(6) 2021	(7) 2025
East Asia							
China	-0.36	-0.30	-2.79	-6.31	-11.89	-11.78	-8.14
Korea	1.47	1.49	0.52	0.37	-3.24	-2.33	-2.54
Malaysia	-4.32	-3.10	-2.55	-3.69	-6.53	-4.67	-3.14
Philippines	-2.25	-0.29	0.59	-1.78	-8.06	-7.31	-6.06
Singapore	5.69	7.34	2.86	3.84	-10.77	1.17	2.61
Thailand	-1.07	-0.86	0.13	-0.82	-5.21	-4.92	-1.89
Mean	-0.14	0.71	-0.21	-1.40	-7.62	-4.97	-3.19
Median	-0.72	-0.30	0.33	-1.30	-7.30	-4.80	-2.84
Latin America							
Argentina	-1.39	-3.02	-6.00	-4.47	-11.42		
Brazil	-3.82	-2.52	-10.25	-6.01	-16.78	-6.52	-5.90
Chile	-0.36	0.68	-2.08	-2.65	-8.71	-4.01	-1.55
Colombia	-3.30	0.16	-3.52	-2.51	-9.48	-6.20	-0.90
Mexico	-3.98	-3.73	-4.00	-2.35	-5.80	-3.40	-2.50
Peru	0.12	2.05	-2.13	-1.37	-9.41	-4.31	-1.70
Mean	-2.12	-1.06	-4.66	-3.23	-10.26	-4.89	-2.51
Median	-2.35	-1.18	-3.76	-2.58	-9.44	-4.31	-1.70

*General government fiscal balance or general government net lending/ borrowing is calculated as revenue minus total expenditure. Source: IMF.

Table 5. General government gross debt (as percentage of GDP)*

	(1) 2010	(2) 2012	(3) 2015	(4) 2019	(5) 2020	(6) 2021	(7) 2025
East Asia							
China	33.92	34.39	41.49	52.63	61.70	66.53	78.07
Korea	29.49	35.04	40.78	41.92	48.41	52.24	64.96
Malaysia	51.21	53.79	56.97	57.24	67.58	66.03	62.00
Philippines	47.59	45.69	39.64	36.97	48.86	52.51	59.33
Singapore	98.70	106.74	102.30	130.02	131.19	132.35	137.11
Thailand	39.83	41.93	42.56	41.10	50.45	56.37	56.87
Mean	50.12	52.93	53.96	59.98	68.03	71.01	76.39
Median	43.71	43.81	42.02	47.28	56.08	61.20	63.48
Latin America							
Argentina	43.45	40.44	52.56	90.38	96.69		
Brazil	63.05	62.20	72.57	89.47	101.40	102.76	104.41
Chile	8.56	11.95	17.28	27.91	32.81	37.51	47.98
Colombia	36.50	33.97	50.42	52.29	68.23	68.07	59.52
Mexico	41.96	42.65	52.78	53.75	65.54	65.60	64.91
Peru	25.34	21.17	24.07	27.12	39.48	39.13	37.80
Mean	36.48	35.39	44.95	56.82	67.36	62.61	62.92
Median	39.23	37.20	51.49	53.02	66.89	65.60	59.52

*Gross debt consists of all liabilities that require payment or payments of interest and/or principal by the debtor to the creditor at a date or dates in the future. This includes debt liabilities in the form of SDRs, currency and deposits, debt securities, loans, insurance, pensions and standardized guarantee schemes, and other accounts payable. Source: IMF.

Table 6. Provision of debt guarantees to corporations, SMEs, and other firms in sectors affected by the pandemic

China	• Government support "below the line" in the budget includes guarantees for SMEs of RMB 400 billion (0.4 percent of GDP).
Korea	• Supplementary budget contemplated up to KRW 10.9 trillion loans and guarantees for business households, and support local governments. • Expanded lending, partial and full guarantees, and collateralization of loan obligations to SMEs, small merchants, mid-sized firms, and selected large companies; • KDB to support seven industries (airlines, shipping, shipbuilding, autos, general machinery, electric power, and communications) with funds raised by government-guaranteed bonds.
Malaysia	• RM 50 bn government fund for loan guarantees for working capital to benefit COVID-19 affected firms.
Philippines	• Funds for credit guarantees and stand-by financing totaling 0.8 percent of 2020 GDP. • Credit guarantee program for small businesses and agriculture sector amounting 0.7 percent of 2020 GDP.
Singapore	• Several state-guarantee schemes, up to a total of EUR 4 billion or 4.4 percent of 2020 GDP, covering both SMEs and large firms.
Thailand	• The government guarantees loans to tourism-related sectors for 2 years; guaranteed may be extended for up to eight years for a 1.75 percent per year fee.
Argentina	• Government guarantees for bank lending to micro, small and medium enterprises for the production of foods and basic supplies.
Brazil	• Working Capital Program to preserve business continuity (CGPE) of micro, small and medium-sized companies and a 40 billion emergency line that aims at supporting the payroll costs of SMEs by Central Bank. Emergency Access to Credit Program - the FGI-PEAC by the Government of Brazil, that gives guarantees to participating financial institutions on loans provided to SMEs.
Chile	• Credit-guarantee scheme that would potentially support loans for up to US$24 billion.
Colombia	• National Guarantee Fund, supported new credit lines for corporates and SMEs in the sectors most seriously affected by the pandemic.
Mexico	• Development banks provided liquidity support and guarantees for up to 250 billion pesos.
Peru	• Government guarantees partially backed loans for up to one percent of GDP to support restructurings for households and SMEs. • Two government-guaranteed lending programs for SMEs and the tourist sector.

Sources: IMF "Policy Responses to COVID-19," https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#C, and individual central banks and regulatory agencies.

Table 7. Central bank policy rates (%)

	(1) Q4 2019	(2) Q1 2020	(3) Q2 2020	(4) Q3 2020	(5) Q4 2020	(6) M1 2021
East Asia						
China	4.15	4.05	3.85	3.85	3.85	na
Korea	1.25	0.75	0.50	0.50	0.50	0.50
Malaysia	3.00	2.50	2.00	1.75	1.75	1.75
Philippines	4.00	3.25	2.25	2.25	2.00	2.00
Singapore	2.13	1.68	0.78	0.70	1.08	0.86
Thailand	1.25	0.75	0.50	0.50	0.50	0.50
Latin America						
Argentina	55.00	38.00	38.00	38.00	38.00	38.00
Brazil	4.50	3.75	2.25	2.00	2.00	2.00
Chile	1.75	1.00	0.50	0.50	0.50	0.50
Colombia	4.25	3.75	2.75	1.75	1.75	1.75
Mexico	7.25	6.50	5.00	4.25	4.25	4.25
Peru	2.25	1.25	0.25	0.25	0.25	0.25

Sources: BIS, except for Singapore, where IMF data are used.

Table 8. Credit to Private non-financial sector from Banks as percent of GDP*

	(1) 2012	(2) 2015	(3) 2019	(4) 2020-Q3
East Asia				
China	129.2	152.8	165.7	183.6
Korea	120.1	121.1	138.6	149.9
Malaysia	124.1	132.5	130.9	142
Philippines	26.5	33.7	42.6	44.5
Singapore	107.7	116.4	114.1	122.5
Thailand	108.2	117.1	112.5	123.2
Mean	102.6	112.3	117.4	127.6
Median	114.2	119.1	122.5	132.6
Latin America				
Argentina	15	14.2	12	12.1
Brazil	62.5	66.8	62.7	67.2
Chile	74.6	81.8	87.8	93
Colombia	38.2	46.6	45.9	50.4
Mexico	15.6	17.8	19.9	21.4
Peru	28.0	35.4	36.0	44.7
Mean	39.0	43.8	44.1	48.1
Median	33.1	41.0	41.0	47.6

In the case of Peru, the data corresponds to credit to private sector from banks. For Philippines it corresponds to credit to private non-financial sector from universal and commercial banks. Sources: BIS except for Peru and Philippines that corresponds to individual central banks.

Table 9. Non-performing Loans to Total Gross Loans, in percentage terms*

	(1) 2010	(2) 2015	(3) 2019	(4) 2020
East Asia				
China	1.13	1.67	1.86	1.94
Korea	0.59	0.46	0.25	0.24
Malaysia	3.35	1.61	1.53	1.39
Philippines	3.38	1.89	1.97	3.43
Singapore	1.41	0.92	1.31	na
Thailand	3.89	2.68	3.13	3.27
Latin America				
Argentina	2.12	1.74	5.75	4.52
Brazil	3.11	3.31	3.11	2.38
Chile	2.69	1.87	2.06	1.72
Colombia	2.86	2.85	4.17	4.51
Mexico	2.04	2.52	2.09	2.02
Peru	3.03	3.93	3.37	3.47

The data in column (4) corresponds to data for 2020Q3, except for China, Korea, Mexico and Peru that have available data until 2020Q2. Source: Financial Soundness Indicators, IMF.

Table 10: Standard and Poor's Outlook for East Asian and Latin American Banks: 2019-2021

	EAST ASIA						LATIN AMERICA				
	Credit Watch Negative	**Negative Outlook**	**stable**	**Positive Outlook**	**Credit watch Positive**		**Credit Watch Negative**	**Negative Outlook**	**stable**	**Positive Outlook**	**Credit watch Positive**
Dec-2019	--	9	84	7	--		9	17	55	19	--
May – 2020	--	17	83	1	--		2	41	57	--	--
Oct - 2020	3	19	78	--	--		--	43	57	--	--
Feb-2021	2	20	76	--	1		--	37	63	--	--

Source: Standard & Poor's.

Table 11: Standard and Poor's Sovereign Ratings, East Asia and Latin America, April 2021*

Issuer	Sovereign foreign currency ratings	Institutional	Economic	External	Fiscal/budget performance	Fiscal/debt	Monetary
China	A+/Stable/A-1	3	3	1	4	2	3
Korea	AA/Stable/A-1+	3	1	1	1	4	2
Malaysia	A-/Negative/A-2	3	4	2	3	5	2
Philippines	BBB+/Stable/A-2	4	4	1	3	3	3
Singapore	AAA/Stable/A-1+	1	1	1	1	1	1
Thailand	BBB+/Stable/A-2	4	4	1	3	3	2
Argentina	CCC+/Stable/C	6	5	6	6	5	6*
Brazil	BB-/Stable/B	4	5	2§	6*	5	3
Chile	A/Stable/A-1	2	4	4	2	1	2
Colombia	BBB-/Negative/A-3	3	4	6	3	4	3
Mexico	BBB/Negative/A-2	3	5	2	3	4	3
Peru	BBB+/Stable/A-2	3	4	3	2	2	3

* The different characteristics of sovereign debt are rated, in the different columns from 1 for strongest to 6 for weakest. Source: Standard and Poor's.