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Central Bank Response to COVID-19

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ABSTRACT

The COVID-19 crisis has been, above all, a tragic public health crisis. It has entailed an enormous effort to respond to the demand for health services. In it, fiscal authorities have led the economic policy responses. For their part, central banks responded swiftly by easing their monetary policy stance and implementing facilities to provide liquidity and enable credit in the economy. We discuss key economic issues of the central bank response, in which the monetary authorities have had to account for the crisis' nature. We argue that the actions taken by central banks in general avoided a further deterioration of financial and economic conditions.

Introduction

The COVID-19 crisis struck as we were starting to put the global financial crisis behind us and thinking about, for instance, how advanced economies (AEs) could reduce the size of central banks' balance sheets (Logan, 2019), or whether unconventional monetary policies (UMPs) would become conventional. Whereas, emerging market economies (EMEs) were paying keen attention to the unintended consequences of the AEs' monetary policy normalization, among other concerns. COVID-19 hit regionally first, then propagated globally at a shocking speed. Its impact has been, in many ways, unparalleled.

This crisis is, first and foremost, an extraordinary public health emergency (Figure 1). For many authorities, it took an enormous effort to respond effectively to the demand for health services by ensuring the appropriate supply of testing kits, swabs, medical personnel, personal protective equipment, intensive care unit and regular beds, ventilators, and other necessities. Some are still struggling. On the economic side, the fiscal authorities mainly led policy responses to COVID-19 (Blanchard, 2020).

Such policies not only supported public health responses directly by providing the necessary funding but also, in many cases, enabled much-needed social distancing, isolation, and other associated measures by setting appropriate incentives for their adoption by individuals, corporations, and businesses (Levy, 2020). For example, fiscal support is needed to incentivize isolation and self-quarantine effectively for individuals and businesses. However, fiscal support goes further than this, in many cases constituting a lifeline for individuals and businesses that enabled them to weather the pandemic (Figure 2).

This time around, one should not think of fiscal support as being of a traditionally Keynesian nature. Rather, in analogy with monetary policy, it should be seen mainly as a temporary provision of liquidity. It goes without saying that a global pandemic is not itself a monetary shock. This does not mean, however, that central banks did not respond to the crisis in important ways. On the

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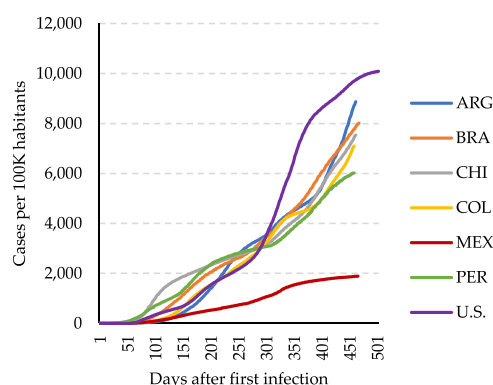


Figure 1. COVID-19 Cases per 100k Inhabitants

Notes: The number of habitants corresponds to the 2020 data from the United Nations' "World Population Prospects 2019." ARG: Argentina, BRA: Brazil, CHI: Chile, COL: Colombia, MEX: Mexico, PER: Peru, U.S.: United States.

Sources: John Hopkins University and the UN.

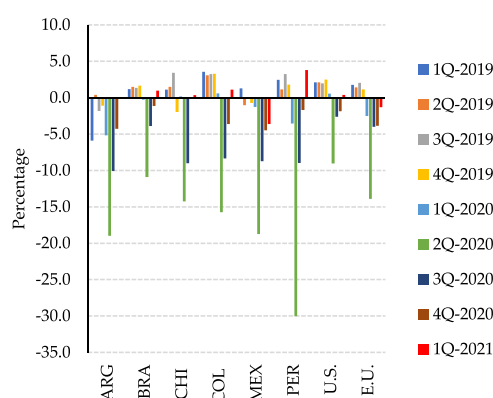


Figure 2. GDP Growth

Notes: Quarterly y/y. ARG: Argentina, BRA: Brazil, CHI: Chile, COL: Colombia, MEX: Mexico, PER: Peru, U.S.: United States, E.U.: European Union.

Source: Haver Analytics.

contrary, they played fundamental roles in the provision of liquidity to financial markets and in enabling the continued provision of credit in the economy.

1. Discussion

To understand a central bank's response to a liquidity shock better, we can look to Bagehot's dictum as a good starting point (Bagehot, 1873). It is worth underscoring that such a dictum is mostly microprudential and therefore should be considered only as a reference point. We will later discuss how it relates to a more macroprudential approach. His shrewd recommendations for a central bank facing this type of shock are: *i) it should lend freely, ii) it should do so against good collateral, and iii) it should do so at a penalty interest rate*. The implementation of these recommendations entails accounting for several pragmatic issues. However, for the most part, it would appear that Bagehot's advice refers more to a micro-prudential type of response.¹

When facing the prospects of a *systemic crisis* (as Figures 2 and 3 show), a central bank needs to respond in a timely, rapid, and forceful way, that is, with a significant amount of resources. This approach is critical for three main reasons. First, a rapid and timely response is needed because liquidity in financial markets can "dry up" very quickly. In effect, under conditions of intense systemic stress, financial markets can "freeze" quite rapidly, as participants will have an incentive to act much more cautiously and, thus, to hoard liquidity given the dramatic rise in counterparty risk and uncertainty. This situation can lead to very adverse equilibria. Such equilibria are akin to the strategic game of a prisoner's dilemma, where in the absence of some coordination device used to reach

¹ Of course, there are significant differences between economies that should be acknowledged as well. Consider the three following well-known examples. Though in the European Union most corporate funding comes from banks, in the U.S., it comes from capital markets. One key feature of the ECB is that it cannot, by law, be a lender of last resort. In the case of emerging market economies, it is unclear whether central banks could implement QE-type policies successfully, given their current fiscal space and the history of fiscal dominance in the not-too-distant past. In sum, any analysis must account for an economy's idiosyncrasies.

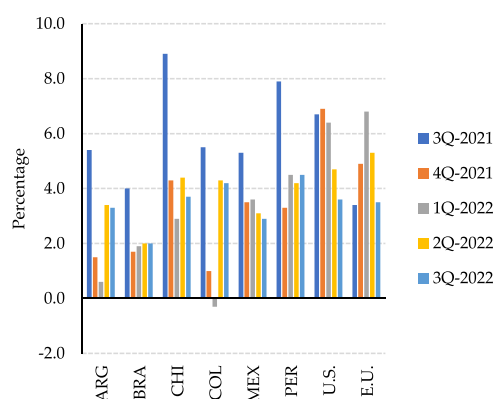


Figure 3. GDP Expected Growth

Notes: Expected Quarterly y/y in 2Q-2021. ARG: Argentina, BRA: Brazil, CHI: Chile, COL: Colombia, MEX: Mexico, PER: Peru, U.S.: United States, E.U.: European Union.

Source: Bloomberg.

the social optimum, each individual's incentive is not to cooperate (e.g., in our case, to hoard liquidity, thus exacerbating an already adverse situation). Second, the amount of support should generate the overall perception that it is sufficient to face the looming crisis. Indeed, the amount of resources should send a sufficiently strong signal so that investors conclude that the potential benefit of maintaining their net assets and positions in the economy is greater than that of withdrawing them. Third, the transmission of financial stress can be particularly widespread given the nature of the liquidity and credit monetary transmission channels, their interactions, and the plausible presence of significant negative feedback loop mechanisms.

Let us, then, be a bit more specific about such channels. A crisis is characterized by reduced market liquidity, large risk premiums, elevated uncertainty, and a higher probability of defaults.² As a result, common sources of liquidity and credit can dry up swiftly. Because banks lack their typical liquidity and credit sources in such a crisis, asset fire sales can ensue. If the crisis deteriorates, banks might default. Investment will most likely decrease and corporate defaults can increase, adversely affecting the demand for labor. These elements will feed into those factors mentioned initially, forming a situation that could spiral out of control. (Bindseil, 2014) In short, a lack of liquidity and systemic risk can rapidly evolve into generalized insolvencies.

This does not imply, however, that the authorities setting up liquidity, and related facilities and policies, need not recognize that their implementation can lead to challenges as well. A way of understanding this situation is to consider it a chain of principal agent relations where, at one end, there is the central bank as the first principal, with a commercial bank intermediating (that is, serving as the agent with respect to the central bank, and the principal with respect to a company, business, or individual). At the other end, as the last agent, there is a company, business, or individual, in need of liquidity and/or credit to be able to survive the pandemic. The design of policies and facilities needs to account for the incentive structure already in place and should mitigate moral hazards and/or adverse selection, with a very clear vision of how the new policies and facilities could modify such a structure.

Bagehot's Dictum tries to do this. However, as mentioned, the dictum is mostly microprudential; in our case (under conditions of systemic stress), calibrating policies or facilities' terms is a much more complicated endeavor. Indeed, central banks need to *strike a much finer balance* between the amount, price, and other general terms of facilities for them to be effective in mitigating the abovementioned risks. Consider the following examples. If possible, certain restrictions should be placed on the use of resources obtained from the referred facilities. For example, in the case of commercial banks, direct restrictions prohibit such a financial support being used for stock buybacks or for the distribution of dividends. Similarly, companies or businesses that are recipients of financial support should not be able to fire or furlough employees for a certain period of time. Finally, recipients' compliance should be monitored and supervised so they comply with all the conditions and restrictions included in the facilities' terms.

In review, the response needs to be quick, timely, and forceful, that is, with significant backing. Its main objectives are 1) to avoid a systemic crisis; and, accordingly, 2) to facilitate recovery. In this context, central banks have had mainly two intermediate objectives: a) the provision of liquidity, and b) the enabling of credit channels.

In terms of the provision of liquidity, one can consider two types: general policies and specific ones. One could also call the latter ones *precision shots*, as they are aimed at assuring that the market continues to function properly for some specific set of assets. Clearly, the proper provision of liquidity is, in local currency and, in most cases in the region, in U.S. dollars. These policies can characterize a central bank all the way from acting as a sort of *market maker of last resort* to a *lender of last resort*.

The policies and facilities to provide liquidity involve various kinds of measures. We would like to highlight three groups: collateral, local currency government yield-curve support, and FX market interventions. First, most facilities use collateral, such as repurchase agreements, more commonly known as *repos*. During crises, what constitutes acceptable collateral usually varies in several ways, including: its valuation, the universe of eligible assets that can be used as such, the set of institutions that can celebrate a contract

² A crisis can affect financial institutions' ability to assess a given company's conditions and prospects. This situation makes the assessment of its credit risk more uncertain and difficult (Flannery, 1992).

entailing collateral with the central bank, the maturity of the repos for which the central authority is the liquidity provider, and the amount of resources that the central bank is willing to allocate to support the facility in question.³

Second, some central banks have chosen to provide support to the long end of their domestic currency government yield curve.⁴ There are several ways to do so. A central bank can exchange (i.e., swap) government bonds with various maturities. In effect, this is another tool central banks can use to enhance the proper functioning of their financial markets. Its use generally implies that the monetary authority buys long-term government bonds in exchange for short-term ones. Evidently, the fiscal authority can also implement maturity-transformation operations. Two important differences may arise: 1) whose balance will absorb potential *ex-ante* losses (or possibly even *ex-post* profits), and 2) which authority will make the appropriate provisions to back the facility or policy in question. It is probably more transparent and preferable socially if the fiscal authority performs these operations. In effect, if the fiscal authority implements these operations, they entail less risk that they are perceived as implicit monetary financing to the government. A central bank can offer interest rate swaps, more commonly, fixed for floating. For example, for those that hold nominal fixed-rate long-term government bonds, it can offer variable rates, thereby reducing maturity risk (a.k.a. duration risk) for the bondholders.

The central bank can also buy government bonds in the secondary market. This is, today, a measure the main central banks of AEs implement. In Latin America, some central banks could face restrictions if they decide to implement them. Even if central banks were limited to buying such bonds in the secondary market, which in many cases could require them to change or modify their charter, they would need to coordinate with the fiscal authorities. To see why this coordination is relevant, consider the following case. Assume that the central bank decides to buy government bonds in the secondary market and, in tandem, the fiscal authority increases their issuance. Apart from their fiscal authority possibly distorting their intended effect, this could be perceived as way of sidestepping its financing restrictions.

Of course, a central bank can buy bonds in the primary market, which means it would be, in effect, *monetizing the fiscal deficit*. More risks and concerns could arise when a central bank buys government bonds in the primary market than when it does so in the secondary one. Moreover, some central banks could face critical legal restrictions that could prevent them from doing so. Perhaps the most important risk would be undermining the central bank independence or even its autonomy. Even in the case in which the legal status of buying bonds in either market is questionable, the erosion of a central bank's independence would be more apparent and the direct financing to the government more plausible. Also, whether a measure of this nature, even if legal, would be feasible for the economies in the region is something that remains to be seen. In this context, it is worth underscoring that it was not too long ago that some economies in the Latin American region underwent episodes characterized by fiscal dominance.

Another policy measure would be for central banks to buy corporate bonds. This measure raises several complex issues, such as the bonds' valuation, default risk, and the rule for determining which corporate bonds would be eligible for purchase and which ones would not. In effect, these issues would lead to significant implementation challenges, not to mention that most central banks would face strict legal restrictions if doing so.

Third, regarding FX market interventions, consider that in the aftermath of the global financial crisis, low natural interest rates, reflected in the unprecedented accommodative monetary policy stance in the main AEs, among other factors, led corporations in EMEs to issue a significant amount of foreign currency-denominated debt, mainly in U.S. dollars. Although some of these corporations have so-called natural hedges, such as export dollar-denominated revenues, and others use financial markets to acquire FX financial hedges, many can remain highly vulnerable to significant exchange rate depreciations. This could significantly increase systemic risk.

Other circumstances could merit the provision of liquidity to FX markets in the case of EMEs. Capital flows' volatility and the reasons behind it are at the forefront, such as the nature of global asset managers and the fact that algorithmic and/or high-frequency trading has grown significantly and is expected to keep growing (analyzingalpha.com, 2022).⁵ Mostly operated through anonymous electronic platforms, this trading method has considerably increased liquidity risk in EMEs' financial markets, especially during episodes of intense systemic stress, as was the case in March and April during this pandemic (Figure 4). That being said, the share of algorithmic trading depends on the asset class, with equities at the top to FX and fixed income at the bottom. Private banks usually do not face these problems, as they are mostly subject to regulations that limit their foreign currency exposures. More generally, this is one of the reasons liquidity in global financial markets has changed through the years (see Azis and Shin, 2015).

FX interventions have been important for several economies in the Latin American region. Lively debates have been held on central banks' FX interventions. They have mainly entailed the best way to intervene, as a number of approaches are available to do so, including the market in which to implement them: the spot, (NDF) forward, and/or other derivatives markets. The choice of where to intervene largely depends on the development of the markets in question. Another debate has been whether interventions should be rules-based or discretionary. For instance, rules-based interventions are more predictable and transparent. That being said, some market participants might use their predictability for their own profit and, thereby, hamper the intervention's effectiveness. This is one of the reasons discretionary interventions have been renewed, mainly to provide U.S. dollar liquidity and/or mitigate FX volatility.

Needless to say, coordination among central banks has been key for all of this. In particular, the Federal Reserve Central Bank Liquidity Swap with some central banks (see Figures A1 and A2), and its dollar Foreign and International Monetary Authorities (FIMA)

³ During a crisis, there is much uncertainty about how collateral's value will evolve. Authorities have relaxed credit quality requirements for collateral, possibly adding to this uncertainty. Moreover, if the borrower defaults, there would be uncertainty about whether the collateral is sufficient to cover the loss, even considering haircuts. If it does, there might be some administrative expenses.

⁴ A key question is the extent to which monetary authority should do so. There are several aspects to this question.

⁵ Source: <https://analyzingalpha.com/algorithmic-trading-statistics/>

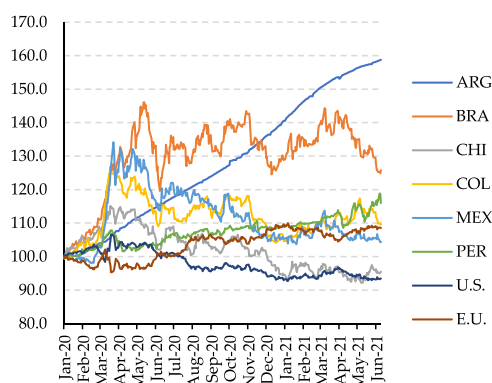


Figure 4. Nominal Exchange Rates' Indices

Notes: Index: Jan-2020 = 100. ARG: Argentina, BRA: Brazil, CHI: Chile, COL: Colombia, MEX: Mexico, PER: Peru, U.S.: United States, and E.U.: European Union.

Source: Own calculations with data from Bloomberg.

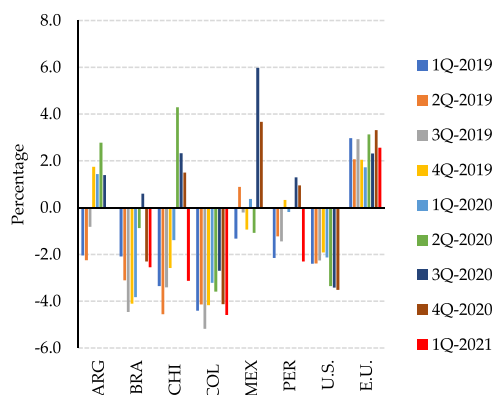


Figure 5. Current Account as a percentage of GDP

Notes: Seasonally adjusted. ARG: Argentina, BRA: Brazil, CHI: Chile, COL: Colombia, MEX: Mexico, PER: Peru, U.S.: United States, and E.U.: European Union.

Source: Haver Analytics.

Repo Facility for others, have been crucial to maintaining the stability of some EMEs' financial markets. It is worth mentioning that the liquidity swaps and the FIMA repos are bilateral, between the Federal Reserve and the central bank in question.

For their part, policies and facilities are available to enable the provision of credit. They have mainly involved regulatory forbearance, such as temporary reductions in capital adequacy and liquidity requirements as well as in nonperforming loan provisions. Another instrument has been the reduction in reserve requirements for commercial banks. Their objective has been to "free up" resources for the latter to continue providing credit. Also, several central banks have implemented facilities that are aimed at enabling the provision of credit to certain specific sectors. Two such cases are for small and medium firms and for individuals. (Please refer to the table at the end of the paper for specific examples of these policies and facilities in a selected group of economies in the region.)

Hitherto, we have explained some of the policies and their aspects that central banks implemented during the COVID-19 crisis. An important related issue is to understand the reasons in a crisis that some of the credit facilities might be only partially tapped or used or perhaps not even used. First, one can think of these facilities in terms of their optionality value. Their presence alone represents an option to those institutions that have access to them. It transmits confidence to those and perhaps other institutions because they know that if financial markets deteriorate, the facilities would be available to them. This is particularly relevant for longer-term decisions. In a crisis, agents need assurance that the facilities will be there if financial conditions deteriorate. Similarly, maintaining policies and facilities during the crisis and for some time after it is necessary to maintain confidence, even if they are not accessed. As a corollary, a facility's assessment should not only depend on its use.

Second, the decision of whether to use a facility largely depends on the perceived nature of the shock. If the perception is that the shock will persist, perhaps even structural; liquidity, or credit provision might be of little use. From an intertemporal perspective, it might be more reasonable to liquidate a business than to provide some resources for an unfeasible one, even if such resources are available at a reasonable cost. The implicit assumption in the use of most these facilities is that the crisis's duration would be such that the business will be able to go back to operate profitably, even if at a reduced rate of activity. Finally, it is worth emphasizing again that the use of policies and facilities put in place should be closely monitored. It should comply with whatever rules they are based on.

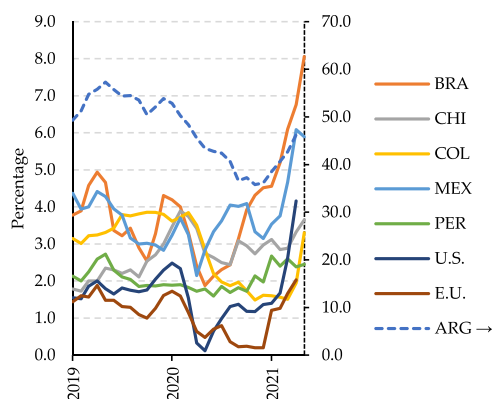


Figure 6. Inflation

Notes: Monthly y/y. ARG: Argentina, BRA: Brazil, CHI: Chile, COL: Colombia, MEX: Mexico, PER: Peru, U.S.: United States, and E.U.: European Union.

Source: Haver Analytics.

For its part, the implementation of monetary policy during crises entails a somewhat different approach because a central bank in this case also aims to affect liquidity and credit and, through them, their associated premiums, and not only the monetary policy rate itself. The market rate is a function of the policy rate as well as of the liquidity and credit risk premiums. Therefore, policies and facilities should be consistent, compatible, and congruent with the interest rate policy.⁶

At the end of the day, these measures are meant to avoid a systemic crisis, that is, to minimize the impact the crisis could have on the economy through financial markets. One way to do this is to distribute the burden the crisis imposes over time through a form of *ex-post* insurance for which no private market exists. In a general equilibrium model under uncertainty, a perfect risk-sharing arrangement implies that shocks to income are smoothed out, so consumption should co-move cross-sectionally. Risk sharing across generations also leads to consumption smoothing over time. Second, to facilitate the recovery—being more specific—as some financial institutions and firms receive support by avoiding possible deterioration of the economic conditions and potential contagion, the whole economy benefits to the extent to which a recovery is achieved more quickly.

All in all, various elements point to the importance for central bank authorities to respond early, forcefully, and decisively to the crisis. These elements also provide the central bank normative rationales to intervene. Some countries in the region seem to have moved past the worst of the pandemic, and although vaccine rollouts have been in most cases slow, their economies are starting to reopen. That in itself would warrant central banks thinking about winding down or rolling back some policies and/or facilities. In effect, central banks should discontinue their facilities and auxiliary policies once mobility and economic activity have recovered, uncertainty has diminished, and their optionality value is sufficiently small. But the most important question for most central banks in the foreseeable future is whether inflation is staging a comeback over and above the expected “re-opening” bout of price increases, particularly in the United States (Figure 6). Answering this question would involve identifying the transitory nature of certain price increases, the strength of the matching frictions in the labor market, and the speed at which bottlenecks in supply chains will be resolved, among other factors.

In a more general context, this episode has taught economic authorities, including central banks, several lessons. Among them, it should be clear that central banks need substantial human capital and should take care of their human resources. In effect, policy design and implementation are not direct, as this episode has shown us. Officials need to be acquainted with the available policy toolkit and its correct and timely use.

2. Conclusion

This paper has touched upon some key issues on monetary policy and other central bank responses to the COVID-19 crisis. Much has been written recently on the topic (see, e.g. Baldwin et al., 2020). Having said that, the profession now will need to assess carefully what comes next, as inflation in many countries has increased significantly and inflation jitters in the United States have become more widespread. It is in this context that this paper is also intended to promote the dialogue between policy makers in the region. A plethora of challenges lie ahead of us; we will be better off if we maintain such a dialogue moving forward.

⁶ A related object is the term premium, which refers to the component that affects the interest rates associated with longer maturities. Most of what economic authorities can do regarding the term premium relates to indirect measures and medium- and long-term horizon policies. For instance, one could aim to decrease risk factors affecting the term premium. While desirable, this is not a direct measure. Relatedly, we mentioned the exchange of long-term for short-term government bonds between the central bank and financial market participants. We pointed out that this exchange reduces the maturity risk for such participants, which would probably affect the term premium albeit only indirectly.

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Annex

Main COVID-19 Facilities and Reference Rate Changes of the Central Banks of Brazil, Chile, Colombia, Mexico, and Peru (as of June 18, 2021)

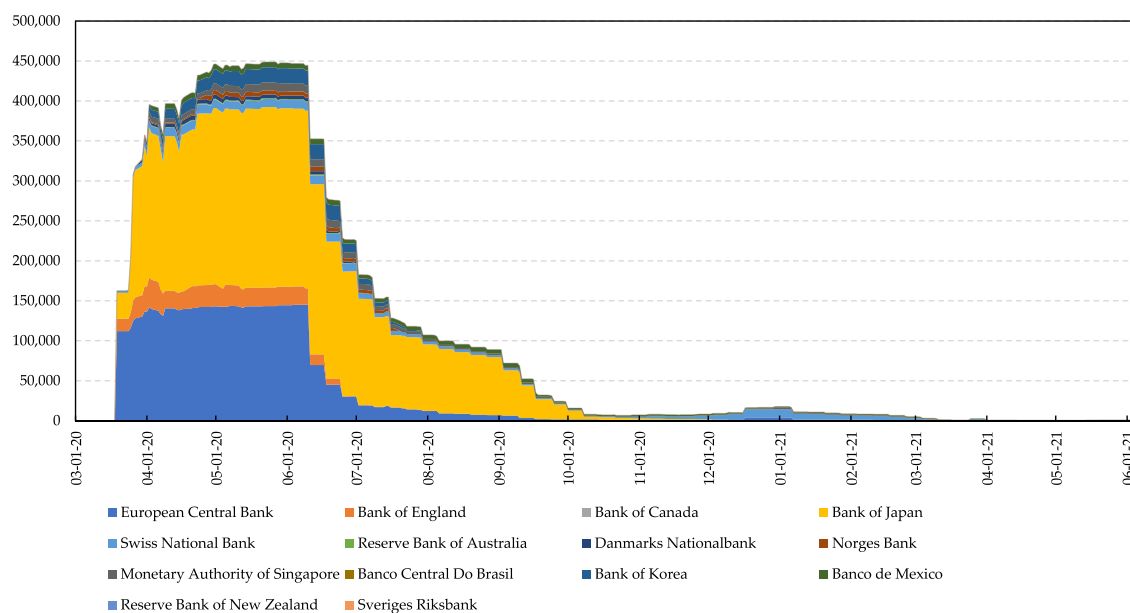


Figure A1. Central bank liquidity swap operations. U.S. dollar liquidity swaps – amounts outstanding in millions of USD.
Source: With data from Federal Reserve Bank of New York.

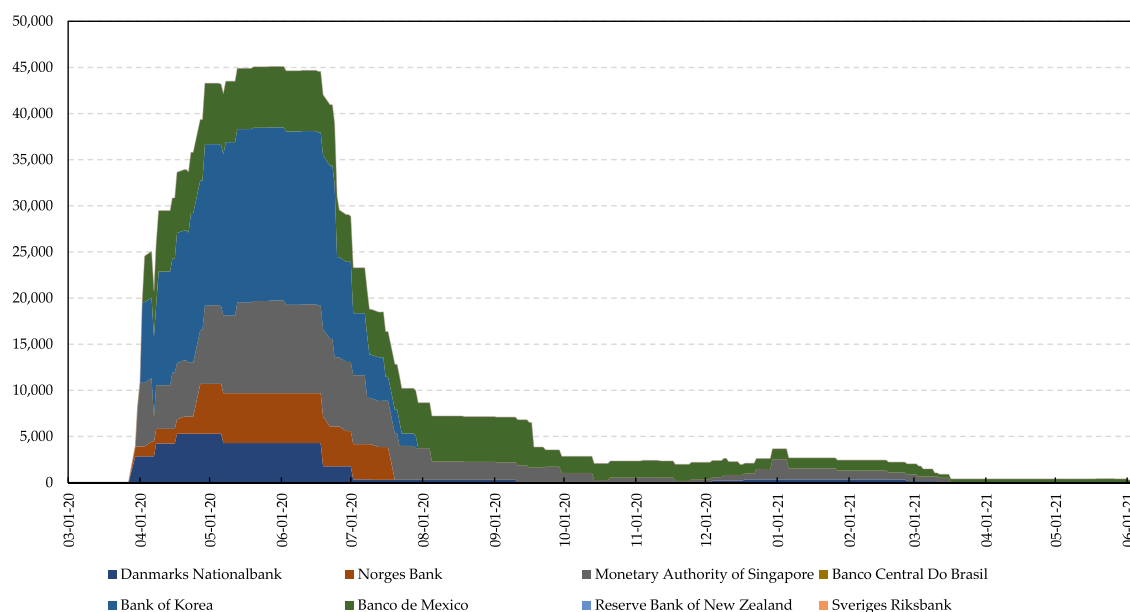


Figure A2. Central bank liquidity swap operations. U.S. dollar liquidity swaps – amounts outstanding in millions of USD.
Source: With data from Federal Reserve Bank of New York.

	Facilities	Collateral / Guaranties	Yield Curve	FX	Others	Reference Rate Changes
Brazil	Working Capital Program (CGPE)	Flexibility in the use of real estate as collateral (July 2020)	Private instruments purchase in the secondary market (if necessary) (May 2020)	Non-delivery forwards (NDF)	Fed Swap (March-July 2020)	Date
	Provides incentives for credit provision to micro and small and medium-sized companies (July – November 2020)	One-year repos backed by sovereign bonds (March 2020)		Spot (March 2020)	Coordination with the Treasury	Jan/20 4.5
	Emergency program payroll financing to SME (March 2020)	BCB allowed to grant loans to financial institutions backed by financial letters collateralized by loan pools or securities, through the Special Temporary Liquidity Facility (LTEL-LFG) (April 2020)		Derivatives	Restrictions on dividend distribution and increased remuneration in financial institutions (June 2020)	04/Feb/20 -25bp 4.25
	Temporary liquidity line in domestic currency (March 2020)			Foreign Exchange Repos (March 2020)	Reduction of capital requirements; reduction and deduction of reserve requirements (March 2020)	17/Mar/2020 -50bp 3.75
	New term deposit with special guarantees as an alternative fundraising instrument for members of the Credit Guarantee Fund (FGC) (March 2020)				Regulatory improvement of leverage coverage ratio (LCR) (March 2020)	05/May/20 -75bp 3.00
	BCB loans for financial institutions backed by debt (debentures) (March 2020)				Loan refinancing provisions (March 2020)	16/Jun/20 -75bp 2.25
	BCB allowed to grant loans to financial institutions backed by financial letters collateralized by loan pools or securities, through the Special Temporary Liquidity Facility (LTEL-LFG) (April 2020)				Release Capital Conservation Buffer Flexibility Agribusiness Credit (March 2020)	04/Aug/20 -25bp 2.00
					Financial companies are authorized to issue deposit certificates (April 2020)	16/Mar/21 +75bp 2.75
					Reduction of the spread of liquidity-leveling operations (March 2020)	04/May/21 +75bp 3.50
					Financial institutions can purchase term deposits with special guarantees issued by other institutions associated with the FGC (April 2020)	Current Rate 4.25
Chile	Conditional Finance Facility (FCIC1, FCIC2, FCIC3) to encourage credit to vulnerable sectors (1: March 30, 2020 – March 30, 2024) (2: July 9, 2020 – July 1, 2024) (3: March 1, 2021 – July 1, 2024)	FCIC1 and FCIC2 have as guarantees CB, government, banking, corporate, and credit instruments. Further expansion of the FCIC-eligible collaterals (May 6, 2020)	Buy bank bonds (March 2020) Program buys own instruments. (Corporate ones are not allowed) (Regulatory change to be able to buy government bonds) (August 2020)	NDF (are being let expired) (March 2020 – January 2021) FX Swaps (higher maturities) (March 2020 – January 2021) Repo (November 2019 – January 2021) Spot (December 2020 – January 2021)	FCL for 23.9 billion USD (May 2020) Fed FIMA repo (June 2020) Expansion of the incorporation of foreign currency bonds as banking reserves. Flexibilization of liquidity requirements for banks (April 2020) Flexibility and compliance with the leverage coverage ratio limit (April 2020) Buy bank bonds (January 2021)-Pension Funds Cash reserves in currencies besides USD allowed (March 2020 – September 2020)	Date
	Liquidity line of credit (LCL) (March 2020)	Inclusion of corporate bonds (April 2020)				Jan/20 1.75
	Direct bank deposits purchases. (July 2020)	Longer maturities, broader collateral universe for Repos				16/Mar/20 -75bp 1.00
	Extension of terms in liquidity management programs in pesos and dollars (March 2020)					31/Mar/20 -50bp 0.50
	Temporary changes in reserve requirements. (March 2020)					Current Rate 0.50

(continued on next page)

(continued)

	Facilities	Collateral / Guaranties	Yield Curve	FX	Others	Reference Rate Changes
Colombia	Increase in the amounts and maturities for repos (March 18, 2020) Repos with private debt securities (March 23, 2020) Repos with portfolio titles (May 2020) New agents in repo operations (March 27, 2020)	Repos with private debt securities and promissory notes (March 16, 2020) Repos with portfolio titles (May 2020) New agents in repo operations (March 27, 2020) Admission of solidarity securities in liquidity operations (April 2020)	Purchase private and public debt (Ongoing since March 2020)	NDF (March 2020 – May 2020) FX swaps (March 2020)	FCL for 17.2 billion USD (May 2020) Fed FIMA repo (April 2020) Reduction of banking reserves (April 2020)	Date Jan/20 4.25 27/Mar/20-50bp 3.75 30/Apr/20-50bp 3.25 29/May/20-50bp 2.75 30/Jun/20-25bp 2.5 31/Jul/20-25bp 2.25 31/Aug/20-25bp 2 25/Sep/20-25bp 1.75 Current Rate 1.75
Mexico	Liquidity Increased liquidity during market hours. (From April 21, 2020. Extended until September 30, 2021.) Additional ordinary Liquidity facility (FLAO): Decrease cost, increase securities (April 2020 – August 2021) and eligible institutions (April 2020 – February 2021) Facilities: government securities repurchase agreements, collateral exchange, corporate securities repurchase agreements (April 2020 – September 2021) Temporary swap facility for low-liquidity instruments. Credit Provision of resources to banking institutions to channel credit to SMEs and individuals. (April 2020 – September 2021) Facility of financing with collateral to banking institutions, various guarantees. Financing for micro, small, and medium-sized companies. (April 2020 – September 2021)	FLAO: decrease cost, expand titles (April 2020 – August 2021) and eligible institutions (April 2020 – February 2021) Facilities: government securities repository, Warranty exchange, corporate repos (April 2020 – September 2021)	Government securities swaps (April 2020 – September 2021)	NDF (MXN) (April 2020) NDF (USD) (April 2020) Credit in dollars (with resources from the Fed's swap) (April 2020) Exchanges for government instruments (April 2020 – September 2021)	FCL for 61 billion USD (November 2020) Fed Swap (March 2020 – December 2021) DRM reduction (April 1, 2020) Improved Market Makers Program (April 1, 2020) Use of capital buffers by banks. (April 2020 – December 2021) Temporary flexibilities on liquidity requirements (April 2020 – September 2021)	Date Jan/20 7.25 13/Feb/20 -25bp 7.00 20/Mar/20 -50bp 6.50 21/Apr/20 -50bp 6.00 14/May/20 -50bp 5.50 25/Jun/20 -50bp 5.00 13/Aug/20 -50bp 4.50 24/Sep/20 -25bp 4.25 Current Rate 4.00

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	Facilities	Collateral / Guaranties	Yield Curve	FX	Others	Reference Rate Changes
Peru	Longer terms for repos and alternative portfolio flexibility (March 2020)	Longer terms for repos and alternative portfolio flexibility (March 2020)	Extension of the amounts and maturity terms of the security and currency repos (March 16, 2020)	Derivatives (FX Swaps) (January 2020 – June 2020)	FCL for 11 billion USD (May 2020)	Date
	Credit repos of government-guaranteed loans (March 26, 2020)	Credit repos of government-guaranteed loans (March 26, 2020)			Fed FIMA Repo (July 2020)	Jan/20 2.25
	Repo operations conditioned to the refinancing of credit portfolios (May 11, 2020)				Expansion and flexibility fitting	19/Mar/20 -100bp 1.25
	Government loan portfolio guarantee program (April 2020 – October 2020)	Repo operations conditioned to the refinancing of credit portfolios (May 11, 2020)			The BCRP can do with the pension fund administrators' securities repos with sovereign bonds and direct purchase of foreign currency (April 2020)	9/Apr/20 -100bp 0.25
	Injection of liquidity through net placements of repos (March 2020)				BIS uncommitted collateralized credit facility (August 14, 2020)	Current Rate 0.25
	Pension fund administrators can participate in securities repos with sovereign bonds and direct purchase of foreign currency with the BCRP (April 2020)				Reduction of the minimum legal reserve rate (March 2020)	
					Reduced the reserve requirement rate for obligations in foreign currency (March 2020)	

Note: Data as of June 18, 2021.**Sources:** Central Banks Web pages and Presentations from CEMLA's X Central Banking Operations Meeting (2020).

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