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A Toolbox for Sustainable Crisis Response Measures for Central Banks and Supervisors

INSPIRE Briefing Paper

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INSPIRE

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Key messages

- Central banks and financial supervisors are playing a crucial role in shaping the responses to the crisis brought about by the COVID-19 pandemic in both the immediate stabilisation phase and the subsequent recovery phase. Many of the same central banks are also taking action to incorporate climate risks and green finance across their operations.
- So far, however, there is limited evidence that central banks' and supervisory authorities' responses to COVID-19 have actively taken account of climate change or wider sustainability goals.
- To avoid lock-in to a high-carbon recovery and to fulfil their mandates for financial stability, central banks and supervisors need to align their COVID-19 response measures with the Paris Agreement on climate change. This toolbox provides a framework for doing this.
- A strong rationale exists for this:
    1. To ensure that climate risks are accurately reflected in central banks' balance sheets and operations
    2. To minimise climate-related risks for regulated financial institutions
    3. To minimise climate-related risks at the level of the financial system
    4. To support governments' efforts to scale up sustainable finance in line with the Paris Agreement and the Sustainable Development Goals.
- Numerous instruments that are already being applied by central banks and financial supervisors in the crisis can be calibrated in ways that account for climate- and other sustainability-related financial risks and/or contribute to the achievement of climate and sustainability goals. This initial toolbox sets out three broad categories of measures – monetary, prudential and other – covering nine types of tools. It provides central banks and financial supervisors with options to align their crisis response measures.
- The briefing also reviews the responses to the COVID-19 crisis taken to date by monetary and financial authorities in jurisdictions that are members of the Network for Greening the Financial System, a central bank alliance.
- Looking ahead, monetary and financial authorities can take steps now that would contribute to sustainable crisis responses and prevent a further build-up of climate risks in financial institutions' balance sheets, namely:
    1. Amend collateral frameworks to better account for climate change-related and other environmental risks
    2. Align asset purchases and refinancing operations with Paris Agreement goals
    3. Adjust prudential measures to avoid a manifestation of transition risks on the balance sheets of financial institutions
    4. Adopt sustainable and responsible investment principles for portfolio management, including policy portfolios.

Introduction: Aligning recovery measures with sustainable finance

Central banks and financial supervisors have taken measures extraordinary in both nature and scale to respond to the financial and economic crisis brought about by the COVID-19 pandemic. They have played a crucial role in the immediate stabilisation phase and this will continue in the subsequent recovery phase. The policies adopted during the crisis will in many cases have profound implications for long-term outcomes. In particular, crisis response measures, while geared towards short-term pressures, also need to be consistent with long-term climate and sustainability goals and contribute to a just transition to a sustainable economy. As highlighted by Frank Elderson, the Chair of the Central Banks and Financial Supervisors Network for Greening the Financial System (NGFS), "It is vital that we do not lose the momentum that we had before the pandemic [and] keep the long-term perspective and manage climate-related risk" (Elderson, 2020a), and that "we need to do everything to support a green recovery" (Elderson, 2020b).

Aim of the paper

This briefing is designed to provide central banks and financial supervisors with an initial toolbox of options to align their crisis response measures with climate and sustainability objectives and mitigate potential sustainability risks. It has been produced by the International Network of Sustainable Financial Policy Insights, Research and Exchange (INSPIRE), a research stakeholder of the NGFS. The paper is written as a 'rapid response' and therefore provides only a snapshot of policy tools, but it can serve as a guide to further work to support central banks and supervisors as they seek to apply these measures.

Why should central banks and supervisors be concerned with climate change and the environment at this time?

The rationale for central banks and supervisors to incorporate climate and sustainability factors into the COVID-19 crisis response measures is four-fold:

1. To ensure that climate risks are accurately reflected in central banks' balance sheets and operations.[1]
2. To minimise climate-related risks for regulated financial institutions.
3. To minimise climate-related risks at the level of the financial system.
4. To support governments' efforts to scale up sustainable finance in line with the Paris Agreement and the Sustainable Development Goals.

This way, central banks and supervisors would operate consistently with other governmental policies and avoid the long-term risks associated with climate change and environmental degradation.

[1] Strictly speaking, most central banks are not existentially threatened at present by their exposure to climate risks, given their ability to expand the money supply if these risks should manifest in their balance sheets (in contrast to private financial institutions). There is, however, an important signalling effect to central bank actions.

What does the toolbox include?

Numerous instruments being applied by central banks and financial supervisors in the crisis can be calibrated in ways that account for climate- and other sustainability-related financial risks and/or contribute to the achievement of climate and sustainability goals. The toolbox is set out in **Table 1** (p9): it presents the policy tools available to central banks and financial supervisors, distinguishing between conventional (often sustainability-blind) measures and those that are sustainability-enhanced, in other words they take climate and wider sustainable development factors into account.

Tools and areas

The table identifies nine different types of tools, grouped in three broad areas: monetary policy, financial stability, and 'other'. The table comprises both instruments that have already been used by central banks or supervisors in a sustainability-enhancing calibration, and instruments that have thus far not been utilised to address sustainability risks or objectives.

The current situation, in which central banks are implementing large-scale stimulus measures, not only presents an opportunity for supporting a sustainable recovery through targeted policy instruments: it also necessitates that the implementation of prudential instruments that account for sustainability risks – and climate risks in particular – is not delayed, and is even strengthened to mitigate the potential build-up of additional risks in portfolios. Liquidity-enhancing stimulus measures that are not aligned with sustainability objectives can contribute significantly to the build-up of sustainability-related risks in portfolios of financial institutions and overall in the financial system by locking in investment pathways. The easing of countercyclical and other prudential instruments without a sustainability-risk-sensitive calibration can further increase these risks. This issue is particularly pressing as many central banks and supervisory authorities are currently relaxing micro- and macroprudential standards to encourage lending by financial institutions. Finally, the profound social consequences of the COVID-19 crisis have highlighted the need for central banks and supervisors to consider the role they could play in delivering a just transition, alongside governments and other actors in the financial system (Thallinger and Robins, 2020).

The toolbox therefore includes both monetary and financial stability-related instruments, since these are each currently employed by central banks and supervisors for countercyclical policy responses. Monetary expansion that is calibrated by central banks to achieve an inflation target (in expectation of a certain time horizon), but does not take sustainability objectives into consideration in its operational implementation (e.g. in open market operations, standing facilities and reserve requirements) creates an even stronger urgency for supervisors to address the potential build-up of climate-related risks in the calibration and current easing of prudential instruments. While instruments such as interest rates, asset purchase programmes and collateral framework changes are usually seen as the main crisis response tools, the countercyclical calibration of prudential instruments, including capital buffers, liquidity coverage ratios (LCR) or loan-to-value ratios (LVR), is also actively used and can therefore be discussed as a crisis response measure that needs to be aligned with sustainable objectives in the current context, and for which general progress should not be delayed (e.g. tools 5, 6, 8 and 9 in Table 1).

In order to illustrate the toolbox and technical implementation details, we include references to a selection of the relevant literature.

Informed by global experience

The toolbox draws on global experience, reflecting differing financial cultures and objectives of central banks and supervisors around the world. Instruments that are seen as standard by some central banks may not be conventionally used elsewhere (e.g. directed lending in India, targeted refinancing in Bangladesh and window guidance in China)[2]. Central banks and supervisors across different jurisdictions operate within different mandates and legal frameworks (Dikau and Volz, 2020a). They also face diverse challenges in their economies and financial systems. This has strong implications for the selection of instruments that can be employed and for the degree to which a country-specific selection of them could be calibrated in a sustainability-enhanced way. It needs to be emphasised, therefore, that there should be no one-size-fits-all recommendation for crisis response measures that support a transition towards greener growth and a sustainable economy.

At the same time, acknowledging that different institutions have different mandates should not be taken as a reason for inaction. The response of central banks and supervisors to COVID-19 has demonstrated the vast array of policy measures and instruments potentially at their disposal, and renders ongoing debates redundant regarding the availability of a number of 'unconventional' measures. The threat of financial crisis brought on by COVID-19 provides a uniquely clear picture of what measures each institution is capable of. Now, these measures should take climate and sustainability into account.

The emerging evidence base: limited responses so far aligned with Paris or the SDGs

Table 2 provides an overview of the responses to the COVID-19 crisis taken to date by monetary and financial authorities in jurisdictions with NGFS member institutions. So far, there is limited evidence that central banks' and supervisory authorities' responses have been aligned with the Paris Agreement or wider Sustainable Development Goals.

One emerging finding from this empirical exercise is that many central banks have, apart from lowering interest rates, moved quickly to extend their collateral frameworks to include a broader variety and quality of assets, implemented new or scaled up existing quantitative easing programmes and introduced various targeted and non-targeted additional (re)financing and purchase facilities. Given that most of these instruments do not take environmental, social or climate-related risks into account, these efforts might not only slow the pace at which a just and sustainable transition can be achieved, it may also lead to a significant additional build-up of climate risk on the balance sheets of financial institutions, the financial system, and the economy as a whole. This risk could be exacerbated by our finding that most central banks and supervisors have eased countercyclical capital buffers and general (microprudential) regulation and supervisory standards. We recognise that the situation is highly dynamic, and many newly announced programmes will take time to fully design and implement: this provides considerable scope for central banks and supervisors to 'retrofit' sustainability factors into their crisis response measures.

Some continued advancement of the sustainability agenda: examples

While we have not been able to identify any monetary or prudential policy crisis responses that have been calibrated in sustainability-enhanced ways, there are some positive examples of monetary and financial authorities advancing the sustainability agenda despite the challenges of COVID-19. For example:

[2] While in the absence of well-developed financial markets some central banks in emerging and developing economies may have to rely on these direct instruments for the implementation of monetary policy, these tools may be inappropriate or even harmful if implemented by central banks operating in highly advanced financial markets.

- In March 2020 the Bangko Sentral ng Pilipinas – the central bank of the Philippines (which has not yet joined the NGFS) – approved a Sustainable Finance Framework (BSP, 2020).
- In May the Hong Kong Monetary Authority and the Securities and Futures Commission jointly launched a Green and Sustainable Finance Cross-Agency Steering Group to "co-ordinate the management of climate and environmental risks to the financial sector, accelerate the growth of green and sustainable finance in Hong Kong and support the Government's climate strategies" (HKMA, 2020).
- In May the European Central Bank (ECB) launched a public consultation on guidelines for addressing climate-related and environmental risks (ECB, 2020).
- In May the French Prudential Supervision and Resolution Authority published a report on good practice in governance and management of climate-related risks by French banking institutions (ACPR, 2020).
- The Mexican Central Bank created a Sustainable Finance Committee together with the Ministry of Finance, also in May.
- Last but not least, the NGFS published a *Guide for Supervisors Integrating Climate-related and Environmental Risks into Prudential Supervision* (NGFS, 2020).

These steps and initiatives are not directly related to the COVID-19 crisis but are outcomes of longer processes and as such may not be characterised as crisis response measures. However, they send an important signal to financial markets at this point in time, namely that monetary and financial authorities will not relent in their efforts to climate-proof financial systems, despite the current crisis.

Initial conclusions and ways forward

This toolbox provides an initial framework for categorising the range of measures that central banks and financial supervisors can take to support a sustainable recovery and ensure that their crisis response measures do not have unintended consequences in terms of climate risk. It will be important to go into greater technical detail about the application of instruments in the particular circumstances facing individual countries during the crisis. Considerable scope also exists for collaboration between central banks, supervisors and researchers to explore priority actions across a range of countries and jurisdictions. Supporting this type of collaboration is a core goal of INSPIRE (INSPIRE, 2020). INSPIRE will provide further analysis and updates on the toolbox as practice evolves.

Without putting an undue burden on financial firms during times of crisis, monetary and financial authorities can take steps now that would contribute to sustainable crisis responses and prevent a further build-up of climate risks in financial institutions' balance sheets.

Four priorities include:

- **Collateral frameworks:** First, the underlying risk assessment for collateral frameworks could be adjusted to better account for climate change-related and other environmental risks, leading to a change of haircuts and collateral valuation, as well as of the eligible collateral pool. In a second step, assets from firms heavily exposed to climate-related transition risk could be excluded, which would have positive implications for the Paris-alignment of asset purchase programmes, refinancing operations and other central bank operations. Because the exclusion of these high risk assets would reduce the total amount of pledgeable collateral, thereby adversely affecting the access of financial institutions to liquidity, it is essential to replace them in the collateral framework with environmentally-friendly assets. Furthermore, central banks could require commercial banks to pledge a pool of collateral aligned with sustainability objectives, while leaving banks free to choose the composition of this pool.
- **Asset purchases, refinancing operations and crisis facilities:** Central banks could better align their asset purchases with Paris Agreement goals. For example, they could decrease the share of assets exposed to climate-related transition risks in their corporate debt purchases. This option would align their asset purchases on environmental objectives, but also reduce their own exposure to climate risks. Moreover, central banks' refinancing operations and crisis facilities could be conditioned on borrowers' alignment with sustainability goals.
- **Prudential measures:** In response to the current expansionary liquidity provision measures and the easing of countercyclical regulatory and supervisory instruments, it is necessary to adjust prudential measures to avoid a manifestation of transition risks on the balance sheets of financial institutions. Announcing environmental disclosure requirements and stress testing for 2021 is a first step that would not cause any immediate regulatory burdens on financial institutions, but would signal the necessity to account for potential exposure to climate risks added through lending and investment decisions in the current crisis phase. Supervisors should also announce their intention to calibrate risk weights for climate-risks exposures and work towards an adoption of such an approach globally through the Basel Committee on Banking Supervision. Furthermore, where prudential instruments such

as capital requirements are eased, such measures could exclude assets from firms most exposed to climate risks, and transition risks in particular.[3]

- **Management of central bank portfolios:** Last but not least, and as outlined by the NGFS (2019), central banks should adopt sustainable and responsible investment principles for portfolio management, including policy portfolios, such as the Principles for Responsible Investment (PRI), and commit to following the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). They should also integrate climate risk metrics in portfolio risk managements, to better control for the exposure of their assets to such risks.

The COVID-19 crisis should not deter the resolve of central banks and supervisors to integrate sustainability and climate risks into financial decision-making. Rather, the pandemic crisis illustrates the need to strengthen the resilience of our economies and societies, and this requires financial markets to better mitigate climate and other sustainability risks. The current crisis, which has prompted radical changes of long-established policy practices, also offers a window to include and address climate risks in these new-found approaches. Central banks and supervisors must ensure that they do whatever they can, within their mandate, to align their own COVID-19 crisis responses and decision-making in the financial sector with long-term sustainability goals to help the world economy to achieve a just transition to sustainability.

[3] The details of this approach would have to be further explored, and details and questions with regard to whether central banks were to exclude assets from firms that were not particularly exposed to climate risks (e.g. because they are well diversified) even though they also owned substantial carbon-intensive assets have to be clarified.

Table 1: Policy tools available to central banks and financial supervisors

	Conventional (sustainability-blind) calibration	Sustainability-enhanced calibration
1. Monetary policy		
(1) Collateral frameworks	• Collateral credit quality is assessed based on conventional methods, perpetuating exposure to and market mispricing of climate risks and carbon bias and maintaining financing conditions for industries not aligned with the Paris Agreement.	• Collateral frameworks become carbon-neutral, take climate- and other sustainability-related financial risks into account and apply haircuts[4] to account for these risks. • Collateral frameworks exclude asset classes that are not aligned with sustainability goals such as the Paris Agreement.[5]
(2) Implementing monetary policy: indirect instruments (open market operations, standing facilities, reserve requirements)	• Standard instruments such as refinancing operations and programmes are calibrated without sustainability considerations, leading to a potential carbon bias.	• Align refinancing operations with sustainability goals such as the Paris Agreement.[6] • Differentiated reserve requirements, risk weights, accounting for carbon footprint, climate-related financial risk (particularly transition risks),[7] or other sustainability factors. • Interest rates based on sustainability criteria.
(3) Non-standard instruments	• Asset purchase programmes (APPs) ignore climate- and other sustainability-related financial risks, perpetuating financial markets' exposure to climate risks and carbon bias.[8] • Direct (short-term) credit to the government to support standard fiscal spending. • Helicopter money without conditionality.	• APPs exclude carbon-intensive assets.[9] • Direct (short-term) credit to the government to support sustainable/ Paris-aligned fiscal policies.[10] • Purchase of green sovereign bonds • Helicopter money conditioned on sustainable/Paris-aligned spending.

[4] Further research is needed to provide a framework for the calculation and application of these haircuts, building on the application of an appropriate risk assessment methodology.

[5] Monnin (2020) stresses the shortcomings of the risk metrics to sufficiently reflect climate financial risks used by central banks to assess whether securities are eligible as collateral. He proposes to (i) supplement the external risk assessments with existing climate risk analytics; (ii) integrate climate risk analysis in their in-house risk assessments; (iii) to only accept assessments provided by rating agencies that adequately account for climate financial risks; and (iv) accept counterparties' risk assessments conditional on these counterparties' climate financial risk assessments. For more on the greening of collateral frameworks in the context of the Eurosystem Collateral Framework, see Schoenmaker (2019).

[6] Building on collateral framework adjustments, this could be operationalised through the exclusion of highly polluting and carbon-intensive assets eligible under different refinancing programmes. Alternatively, additional haircuts or differentiated interest rates could be used to account for higher climate-related risks and to disincentivise non-Paris alignment. In the European context, this could include the greening of the targeted longer-term refinancing operations.

[7] The incorporation of physical risks could also have adverse side effects for countries vulnerable to climate change (Buhr et al. 2018).

[8] See Matikainen et al. (2017).

[9] In order to maintain the same total value of purchases and to replace excluded assets, it could be necessary to ease some of the standard assessment criteria of eligible assets.

[10] The Fed's municipal bond purchases under its Municipal Liquidity Facility are of particular interest in this context as they could potentially offer a set of decarbonisation opportunities given the limited fiscal capacity of cities/states.

(4) Direct credit allocation instruments[11]	• Direct controls on interest rates (e.g. minimum and maximum interest rates, preferential rates for certain loan categories). • Credit ceilings (at aggregate level or on individual banks). • Directed lending policies (e.g. preferential central bank refinance facilities to direct credit to priority sectors). • Window guidance/moral suasion to promote priority sectors.	• Credit interest rate ceilings for sustainable priority sectors, asset classes, and firms. • Minimum/maximum allocation of credit through credit ceilings or quotas to restrict/promote lending to carbon-intensive/sustainable sectors. • Targeted refinancing lines to promote credit for sustainable sectors. • Window guidance/moral suasion to promote lending to sustainable sectors.[12]
2. Financial stability: Regulation and supervision		
(5) Microprudential instruments	• Conventional stress testing / excessive delay of climate-stress testing. • No disclosure requirements for climate-related financial risks. • Standard supervisory review process (SRP). • Conventional calibration of other Basel III instruments.	• Stress testing frameworks that acknowledge climate and other sustainability risks and help firms take into account longer-term risks.[13] • Mandatory disclosure requirements for climate-related financial risks or other sustainability risks. • Supervisory review process (SRP) that highlights management of climate-related financial risks or other sustainability risks. • Climate risk-sensitive calibration of other Basel III instruments, distinguishing between low-carbon and carbon-intensive/high-exposure assets to create buffers against climate-related losses (e.g. differential risk-based capital requirements, lower required stable funding factor for green loans).
(6) Macroprudential instruments	• Conventional system-wide stress testing. • Calibration of instruments along the cyclical dimension without explicit acknowledgement of climate-related financial risks. • Calibration of instruments along the cross-sectional dimension without explicit acknowledgement of climate-related financial risks.	• System-wide stress testing that acknowledges and assesses systemic climate-related financial risks (see Battiston et al., 2017). • Cyclical instruments calibrated to account for and mitigate systemic risk implications of climate change and restrain the build-up of risk-taking during the recovery/expansion phase (e.g. countercyclical and higher capital buffer in order to protect the financial sector from periods of excessive carbon-intensive credit growth, LVRs and loan-to-income ratios to limit the extension of credit by banks to carbon-intensive industries and investment in non-sustainable asset classes).[14]

[11] Direct instruments, which are mostly relevant in the emerging market and developing economy context where underdeveloped financial markets permit the effective employment of indirect instruments, operate by setting or limiting either prices or quantities through regulations and may also be used to allocate credit. Furthermore, it is important to note that the calibration of many central banking and supervisory instruments can have intended or unintended consequences for the allocation of credit.

[12] Window guidance, also known as moral suasion, has been used in the past by the BOJ and the PBOC to influence the quantity and quality of credit. The PBOC has, until recently, used window guidance to promote sustainable finance. See Dikau and Volz (2020).

[13] Stress-testing frameworks that include both, (a) 'conventional' stress tests that are applied to climate tail risks over a shorter period to assess capital adequacy and (b) the development of stress tests to account for longer-term risks that can have other prescriptive outcomes.

[14] See Schoenmaker and van Tilburg (2016) for more details on the incorporation of climate change-related risks into macroprudential instruments.

		• Cross-sectional instruments calibrated to account for and mitigate systemic risk implications of climate change and to mitigate individual institutions' contribution to systemic risk (e.g. large exposure restrictions to limit financial institutions' exposure to highly carbon-intensive assets, capital surcharges for systemically important financial institutions and institutions with high exposure to carbon-intensive assets).
3. Other policies		
(7) Further financing schemes and other initiatives	• Corporate financing facilities or loan guarantees without climate or sustainability conditionality. • Financial sector bailouts without climate or sustainability conditionality.	• Corporate financing facilities or loan guarantees subject to reduction of CO_2 emissions or sustainability enhancing activities. • Incorporation of sustainability considerations into bailout packages in case of partial or full nationalisation of financial institutions. • Funding sustainable lending/investment schemes by public banks and development finance institutions (e.g. for renewable energy or retrofitting of buildings) through refinancing credit lines or purchase of bonds under APPs in secondary market or direct refinancing operations. • Tailoring of supervisory frameworks for development banks to enhance their public policy capacity to bear risk, promote economic transformation.
(8) Management of central bank portfolios	• Management of central bank portfolios without consideration of climate change and other sustainability risks.	• Disclosure of climate-related financial risks in own portfolios (e.g. following the TCFD recommendations) (see NGFS, 2019 and Fender, 2019). • Adopting sustainable and responsible investment principles for portfolio management (e.g. PRI).
(9) Supporting sustainable finance		• Sustainable finance roadmaps/ guidance for financial institutions. • Advice and dialogue with other parts of the government. • Research and publication of handbooks and resources (e.g. reference scenarios, risk assessment methodologies). • Capacity building programmes in sustainable finance for the financial sector, convening role of central banks.

Source: Compiled by authors drawing on Dikau and Volz (2019, 2020a), Dikau et al. (2019) and Schoenmaker and van Tilburg (2016).

Table 2: Policy tools used by central banks and financial supervisors during the COVID-19 pandemic (as of 2 June 2020)

1. Monetary policy	
(1) Collateral frameworks	• Australia – Reserve Bank of Australia (RBA): Broadening the range of eligible collateral for open market operations to include securities issued by non-bank corporations with an investment grade. • Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, Togo – Central Bank of West African States (BCEAO): Extension of the collateral framework to access central bank refinancing to include bank loans to prequalified 1,700 private companies. • Canada – Bank of Canada (BOC): Expanding the list of eligible collateral for Term Repo operations to the full range of eligible collateral for the Standing Liquidity Facility, except the Non-Mortgage Loan Portfolio. • Chile – Central Bank of Chile (CBC): Inclusion of corporate securities as collateral for the Central Bank's liquidity operations and inclusion of high-rated commercial loans as collateral for the funding facility operations. • Colombia – Banco de la Republica (BDR): Expansion of liquidity overnight and term facilities in terms of amounts, applicable securities and eligible counterparts. • Eurozone – European Central Bank (ECB)/European System of Central Banks (ESCB): Broad package of collateral easing measures for Eurosystem credit operations (e.g. expansion of the scope of so-called additional credit claims framework so that it may also include public sector-guaranteed loans to small and medium-sized enterprises (SMEs), self-employed individuals, and households), expanded range of eligible assets under the corporate sector purchase programme, and relaxation of collateral standards for Eurosystem refinancing operations. • Hungary – Magyar Nemzeti Bank (MNB): Expansion of eligible collateral. • Italy – Banca d'Italia: Extension of additional credit claim frameworks to include loans backed by COVID-19-related public sector guarantees in order to promote the use of credit claims as collateral and to incentivise lending to SMEs. • Japan – Bank of Japan (BOJ): Expansion of the range of eligible counterparties and collateral to private debt (including household debt). • Korea – Bank of Korea (BOK): Expansion of the list of eligible open market operations (OMO) participants to include select non-bank financial institutions; expanding eligible OMO collateral to include bank bonds, certain bonds from public enterprises and agencies, and government-guaranteed mortgage-backed securities issued by Korea Housing Finance Corporation, easing collateral requirements for net settlements in the BOK payments system. • Mexico – Banco de México (Banxico): Expansion of liquidity facilities, accepting a broader range of collateral and expanding eligible institutions. • Morocco – Bank-Al-Maghrib (BAM): Expansion of the range of collateral accepted for repos and credit guarantees to include public and private debt instruments (including mortgages). • Sweden – Riksbank: Easing rules for the use of covered bonds as collateral.

(2) Implementing monetary policy: indirect instruments (open market operations, standing facilities, reserve requirements)	• Brazil – Banco Central do Brasil (BCB): Reduction of reserve requirements and capital conservation buffers, temporary relaxation of provisioning rules, facility to provide loans to financial institutions backed by private corporate bonds as collateral. • Cambodia – National Bank of Cambodia (NBC): Lowering required reserves that banking and financial institutions. • Colombia – BDR: Lowering the reserve requirement applicable to savings and checking accounts. • Chile – CBC: Introduction of a new funding facility for banks conditional on them increasing credit. • China – PBOC: Liquidity injection of RMB 3.33 trillion (gross) into the banking system via open market operations (reverse repos and medium-term lending facilities). • Denmark – Danmarks Nationalbank (DN): Launch of an 'extraordinary lending facility' which will make full-allotment, 1-week, collateralised loans available to banks at -0.5 per cent interest rate. • Eurozone – ECB/ESCB: Temporary additional auctions of the full-allotment, fixed rate temporary liquidity facility at the deposit facility rate and more favourable terms on existing targeted longer-term refinancing operations, new liquidity facility, which consists of a series of non-targeted Pandemic Emergency Longer-Term Refinancing Operations carried out with an interest rate that is 25bp below the average main refinancing operations rate prevailing over the life of the operation. • Germany – Bundesbank: Additional €100 billion to refinance expanded short-term liquidity provision to companies through the public development bank KfW, in partnership with commercial banks. • Hong Kong SAR – Hong Kong Monetary Authority (HKMA): Regulatory reserves cut by half to increase banks' lending capacity. • Hungary – MNB: Introduction of a long-term unlimited collateralised lending facility; suspension of penalties for unmet reserve requirements. • Indonesia – Bank Indonesia (BI): Lowering reserve requirement ratios for banks. • Malaysia – Bank Negara Malaysia (BNM): Lowering the Statutory Reserve Requirement Ratio by 100 basis points to 2 per cent. • Mexico – Banxico: Reduction of the mandatory regulatory deposit with Banxico, in conjunction with the Ministry of Finance, seeking to strengthen market making in the government bond market. • New Zealand – Reserve Bank of New Zealand (RBNZ): Introduction of Term Auction Facility allowing banks access to collateralised loans of up to 12 months, and a corporate facility in which the RBNZ will offer up to NZ$500 million per week in open market operations with banks against corporate paper and asset-backed securities, Term Lending Facility, a longer-term funding scheme for banks at 0.25 per cent. • Norway – Norges Bank (NB): Provision of additional liquidity to banks in form of loans of differing maturities. • South Africa – South African Reserve Bank (SARB): Increasing the number of repo auctions to two to provide intraday liquidity support to clearing banks at the policy rate; reducing the upper and lower limits of the standing facility to lend at repo-rate and borrow at repo-rate less 200 bps; and raising the size of the main weekly refinancing operations as needed, programme aimed to purchase government securities in the secondary market across the entire yield curve and extend the main refinancing instrument maturities. • Korea – BOK: Making unlimited amounts available through open market operations, expansion of BOK repo operations to non-banks, creation of a BOK lending programme to non-banks with corporate bonds as collateral. • Russia – Central Bank of Russia (CBR): Introduction of long-term refinancing instrument (long-term repos are planned for one month and one year). • Switzerland – Swiss National Bank (SNB): COVID-19 refinancing facility operating in conjunction with the federal government's guarantees for corporate loans, allowing banks to obtain liquidity from the SNB. • Sweden – Riksbank: Lending of up to SEK 500 billion to companies via banks; introduction of a new lending facility whereby banks can borrow unlimited amounts (given adequate collateral) with 3-month maturity. • United Arab Emirates – Central Bank of the United Arab Emirates (CBUAE): Halving of banks' required reserve requirements from 14 to 7 per cent; zero-interest rate collateralised loans to banks (AED 50 billion)

	• United Kingdom – Bank of England (BoE): activating a Contingent Term Repo Facility to complement the Bank's existing sterling liquidity facilities • United States – Fed: Purchase of Treasury and agency securities in the amount as needed. Expanded overnight and term repos. Lowering cost of discount window lending. Reducing existing cost of swap lines with major central banks and extending the maturity of FX operations; broadening US dollar swap lines to more central banks; offering temporary repo facility for foreign and international monetary authorities.
(3) Non-standard instruments	• Canada – BOC: Extension of the bond buyback program across all maturities, supporting the Canada Mortgage Bond (CMB) market by purchasing CMBs in the secondary market, launching the Bankers' Acceptance Purchase Facility, announcing the Provincial Money Market Purchase program, the Provincial Bond Purchase Program, the Commercial Paper Purchase Program, the Corporate Bond Purchase Program, and the purchase of Government of Canada securities in the secondary market. • Colombia – BDR: COP 10 trillion programme to purchase securities issued by credit institutions, treasury purchases in the secondary market. • Costa Rica – El Banco Central de Costa Rica (BCCR): Purchasing government securities in the secondary market to provide liquidity during market distress. • Chile – CBC: Programme for purchase of bank bonds (up to US$8 billion). • Eurozone – ECB/ESCB: Additional asset purchases of €120 billion under the APP, €750 billion asset purchase programme of private and public sector securities (Pandemic Emergency Purchase Program, PEPP). • Finland – Bank of Finland (BOF): Support to liquidity through investing in short-term Finnish corporate commercial paper (€1 billion). • Hungary – MNB: QE programme, buying government securities on the secondary market, and the mortgage bond purchase programme is being re-started. • Indonesia – BI: Given authority to purchase government bonds in the primary market as a last resort, purchase of government bonds in the primary market during the latest Islamic bonds auction. • Japan – BOJ: Targeted liquidity provision through an increase in the size and frequency of Japanese government bond (JGB) purchases, special funds-supplying operation to provide loans to financial institution to facilitate financing of corporates, a temporary increase in the annual pace of BOJ's purchases of Exchange Traded Funds (ETFs) and Japan-Real Estate Investment Trusts (J-REITs), and a temporary additional increase of targeted purchases of commercial paper and corporate bonds. • New Zealand – RBNZ: Near doubling of the Large-Scale Asset Purchase programme (LSAP) to purchase up to $60 billion of government bonds and Local Government Funding Agency (LGFA) bonds in the secondary market over the next 12 months, adding NZ$3 billion (equivalent to 30 per cent on issue) of LGFA debt to the LSAP, doubling the overdraft on the crown settlement account to NZ$10 billion for April to June to meet the government's short-term cash needs. • Korea – BOK: Purchasing Korean Treasury Bonds (KRW 3.0 trillion). • Sweden – Riksbank: Increase of purchases of securities of up to SEK 300 billion in 2020 (where securities may include government and municipal bonds, covered bonds and securities issued by non-financial corporations). • Thailand – Bank of Thailand (BOT): Corporate Bond Stabilization Fund to provide bridge financing of up to THB 400 billion to high-quality firms with bonds maturing during 2020/21, at higher-than-market 'penalty' rates; purchase of government bonds in excess of THB 100 billion in March to ensure the normal functioning of the government bond market; a special facility was set up to provide liquidity for mutual funds through banks. • UK – BoE: Expanding the central bank's holding of UK government bonds and non-financial corporate bonds by £200 billion; HM Treasury and the BoE have agreed to extend temporarily the use of the government's overdraft account at the BoE to provide a short-term source of additional liquidity to the government if needed. • US – Fed: Commercial Paper Funding Facility to facilitate the issuance of. commercial paper by companies and municipal issuers; Primary Dealer Credit Facility to provide financing to the Fed's 24 primary dealers collateralised by a wide range of investment grade securities; Money Market Mutual Fund Liquidity Facility (MMLF) to provide loans to depository institutions to purchase assets from prime money market funds (covering highly rated asset backed commercial paper and

	municipal debt); Primary Market Corporate Credit Facility to purchase new bonds and loans from companies; Secondary Market Corporate Credit Facility to provide liquidity for outstanding corporate bonds; Term Asset-Backed Securities Loan Facility to enable the issuance of asset-backed securities backed by student loans, auto loans, credit-card loans, loans guaranteed by the Small Business Administration, and certain other assets; Paycheck Protection Program Liquidity Facility (PPPLF) to provide liquidity to financial institutions that originate loans under the Small Business Administration's Paycheck Protection Program (PPP) which provides a direct incentive to small businesses to keep their workers on the payroll; Main Street Lending Program to purchase new or expanded loans to SMEs; and (ix) Municipal Liquidity Facility to purchase short-term notes directly from state and eligible local governments.
(4) Direct credit allocation instruments	• Australia – RBA: Establishing a term funding facility of at least A$90 billion for access to three-year funding at 25 basis points to allow banks to lend more to SMEs during the period of disruption caused by COVID-19. • Colombia – Superfinanciera: Banks cannot increase interest rates on loans, charge interest on interest, or report entities to credit registries for availing themselves of any forbearance measures. • Costa Rica – BCCR: Reducing the cost of credit, minimum two-month moratorium on the payment of principal and/or interest for personal credit, mortgages, auto loans, credit card loans, consumer loans, and education loans for affected households and firms. • Chile – Financial Markets Commission: Measures to facilitate the flow of credit to businesses and households, including special treatment in the establishment of provisions for deferred loans; use of mortgage guarantees to safeguard SME loans; adjustments in the treatment of assets received as payment and margins in derivative transactions. • Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, Togo – BCEAO: special three-month refinancing window at a fixed rate of 2.5 per cent for limited amounts of three-month 'Covid-19 T-Bills' to be issued by each West African Economic and Monetary Union sovereign to help meet funding needs related to the current pandemic; measures to promote the use of electronic payments. • China – People's Bank of China (PBOC): Expansion of re-lending and re-discounting facilities by RMB 1.8 trillion to support manufacturers of medical supplies and daily necessities, micro and SMEs and the agricultural sector at low interest rates; reduction of targeted medium-term lending facility rate by 30 and 20 bps; targeted reserve requirement ratio cuts by 50–100 bps for large- and medium-sized banks that meet inclusive financing criteria which benefit smaller firms; an additional 100 bps for eligible joint-stock banks, and 100 bps for small- and medium-sized banks in April and May to support SMEs, policy banks' credit extension to micro- and small enterprises (RMB 350 billion). • Cyprus – Central Bank of Cyprus (CBC): Encouraging banks to apply favourable interest rates for new loans and newly restructured loans. • France – Banque de France (BdF): Credit mediation to support renegotiation of SMEs' bank loans. • Hong Kong SAR – HKMA: Introduction of low-interest loans for SMEs with 100 per cent government guarantee (HK$ 50 billion). • Hungary – MNB: New SME lending programme (FGS GO!) with increased amounts and increase in the interest rate subsidy, provision of a grace period of repayment of loans to the Growth Funding Facility (subsidised lending to SMEs supported by the MNB); extension of short-term loans to businesses, cap on the average annual percentage rate on new unsecured consumer credit at the central bank base rate (currently, 0.9 per cent) plus 5 per cent, intended to sterilise liquidity injected through both the FSG GO! and BFSG programmes through a preferential deposit facility bearing a 4 per cent interest rate. • Japan – BOJ: New fund-provisioning measure to support financing of mainly SMEs through the provision of funds against loans such as interest-free and unsecured loans made by eligible counterparties based on the government's emergency economic measures. • Latvia – 50 per cent cut in interest rates on loans for SMEs in the tourism sector and a 15 per cent cut for large enterprises. • Mexico – Banxico: New financing facilities for commercial and development banks (350 billion pesos) to allow them to channel resources to micro and SMEs and

	individuals affected by the COVID-19 pandemic. Credit will be provided in exchange for conventional repo collateral as well as banks' corporate loans, which would free up liquidity in the banks' balance sheets currently used especially by corporate credit lines for new credit extension. • Morocco – BAM: Suspension of loan payments for SMEs and self-employed people; increasing and lengthening of central bank refinancing operations to support banking credit to SMEs. • Russia – CBR: Introduction of RUB 500bn facility for SME lending; interest rate on CBR loans aimed at supporting lending to SMEs, including for urgent needs to support and maintain employment was reduced from 4.0 to 3.5 per cent. • Korea – BOK: Increasing the ceiling of the Bank Intermediated Lending Support Facility by a total of KRW 5 trillion (about 0.26 per cent of GDP) and lowering the interest rate to 0.25 per cent (from 0.5–0.75 per cent) to augment available funding for SMEs. • Thailand – BOT: Soft loans by BOT to financial institutions amounting to THB 500 billion for on-lending at 2 per cent interest to SMEs with outstanding loans not classed as non-performing loans (NPLs); the government covers the first six months of interest and guarantees up to 60–70 per cent of these loans. • UAE – CBUAE: 15–25 per cent reduction in provisioning for SME loans; limiting bank fees for SMEs. • UK – BoE: New Term Funding Scheme to reinforce the transmission of the rate cut, with additional incentives for lending to the real economy, and especially SMEs.
2. Financial stability: Regulation and supervision	
(5) Microprudential instruments	• Australia – Australian Prudential Regulation Authority: Temporary relief from capital requirement, allowing banks to utilise some of their current large buffers to facilitate ongoing lending to the economy as long as minimum capital requirements are met. • Chile – CBC: Expansion of eligible currencies for meeting reserve requirements in foreign currencies, flexibilization of Central Bank regulations for bank liquidity. • Denmark – Danish Financial Supervisory Authority: Case by case relaxation of regulation on the LCR requirement. • Eurozone – ECB/ESCB Banking Supervision: Flexibility in the classification requirements and expectations on loss provisioning for NPLs, temporary capital relief for market risk by adjusting the prudential floor to banks' current minimum capital requirement. • Cambodia – NBC: Delaying additional increases in the Capital Conservation Buffer. • Cyprus – CBC: Release of capital and liquidity buffers for banks directly supervised by the CBC (€100 million), simplification of documentation requirements for new short-term loans and other credit facilities. • Hong Kong SAR – HKMA: Encouraging banks to deploy their liquidity buffers more flexibly, and easing interbank funding conditions by reducing the issuance size of Exchange Fund Bills, measures by banks to the extent permitted by their risk management principles, including delay of loan payment, extension of loan tenors, and principal moratoriums for affected SMEs, sectors, and households as appropriate. • Italy – Banca d'Italia: Allowing possibility to temporarily operate below selected capital and liquidity requirements; extension of some reporting obligations. • Japan – Financial Services Authority (FSA): Banks can assign zero risk weights to loans guaranteed with public guarantee schemes. • Malaysia – BNM: Temporary easing of regulatory and supervisory compliance on banks to help support loan deferment and restructuring. • Morocco – BAM: Banks are authorised to go below the 100 per cent LCR until end of June 2020; provisioning requirements are suspended for loans' benefiting from a temporary payment moratorium until end of June 2020; capital conservation buffer is reduced by 50 bps for one year. • New Zealand – RBNZ: Reduced bank's core funding ratio requirement to 50 per cent from 75 per cent; regulatory change requiring higher capital for banks has been postponed. • Norway – NB: Temporary easing of mortgage regulations, in particular increase in the percentage of mortgages that can deviate from the regulations. • Russia – CBR: Temporary regulatory easing for banks intended to help corporate borrowers.

	• Singapore – Monetary Authority of Singapore (MAS): adjusted selected regulatory requirements and supervisory programmes. • South Africa – SARB: Temporary relief on bank capital requirements and reduction in the LCR from 100 to 80 per cent to provide additional liquidity and counter financial system risks. • Spain – BOS: for banks it supervises, the BOS applies the flexibility provided by the legal system in relation to the setting of transition periods and the intermediate minimum requirements for own funds and eligible liabilities targets. • Korea – BOK: Temporary easing of loan-to-deposit ratios for banks and other financial institutions and the domestic currency LCR for banks. • UAE – CBUAE: Allowing the use of banks' excess capital buffers (AED 50 billion); increasing LVRs for first-time home buyers by 5 percentage points; raising the limit on banks' exposure to the real estate sector from to 30 per cent of risk-weighted assets, subject to adequate provisioning. • UK – Prudential Regulatory Authority (PRA): Pillar 2A requirements set as a nominal amount instead of a percentage of total Risk Weighted Assets; to mitigate the possibility of procyclical market risk capital requirements, firms are temporarily allowed to offset the increase in risk-weighted assets due to the automatic application of a higher Value-at-Risk (VaR) multiplier through a commensurate reduction in risks-not-in-VAR capital requirements. • US – Federal banking supervisors: Holdings of U.S. Treasury Securities and deposits at the Federal Reserve Banks can be temporarily excluded from the calculation of the supplementary leverage ratio for holding companies; community bank leverage ratio lowered to 8 per cent; PPP covered loans will receive a 0 per cent risk weight; and assets acquired and subsequently pledged as collateral to the MMLF and PPPLF facilities will not lead to additional regulatory capital requirements.
(6) Macroprudential instruments	• Canada – Office of the Superintendent of Financial Institutions: Lowering the Domestic Stability Buffer for Domestic Systemically Important Banks. • Costa Rica – BCCR: Temporary reduction in the minimum accumulation of countercyclical provisions for financial entities to zero. • Denmark – DN: Release of the countercyclical capital buffer and cancellation of the planned increases meant to take effect later. • Eurozone – ECB/ESCB Banking Supervision: Allowing significant institutions to operate temporarily below the Pillar 2 Guidance, the capital conservation buffer, and the LCR; new rules on the composition of capital to meet Pillar 2 Requirement were front-loaded to release additional capital; appropriate release of the countercyclical capital buffer by the national macroprudential authorities will enhance its capital relief measures. • Cyprus – CBC: Additional capital release measure, with a 12-month extension of the phased-in introduction of Other Systemically Important Institutions capital buffer. • Estonia – Eesti Pank: Reducing the systemic risk buffer for the commercial banks from 1 to 0 per cent. • Finland – BOF: 1 ppt reduction in the structural buffer requirements of all credit institutions by removing the systemic risk buffer and adjusting institution-specific requirements. • France – BdF: Reducing the countercyclical bank capital buffer to 0 per cent. • Germany – Bundesbank: Release of the countercyclical capital buffer for banks from 0.25 to 0 per cent. • Belgium – National Bank of Belgium: Reducing the countercyclical bank capital buffer to 0 per cent. • Hong Kong SAR – HKMA: Reducing the countercyclical capital buffer from 2 to 1 per cent. • Hungary – MNB: Reducing the Foreign Exchange Coverage Ratio; temporary elimination of additional capital buffer requirement for systemically-important banks. • Indonesia – BI: Adjusting macroprudential regulation to ease liquidity conditions and support bond market stability. • Ireland – Central Bank of Ireland: Release of the countercyclical capital buffer, which will be reduced from 1 to 0 per cent. • Japan – FSA: Banks can draw down their capital conservation and systemically important bank buffers to support credit supply, and draw down their stock of high-quality liquid assets below the minimum LCR requirement.

	• Lithuania – Band of Lithuania: Reducing the countercyclical capital buffer from 1 to 0 per cent. • New Zealand – RBNZ: Removing mortgage LVR restrictions. • Norway – NB: Easing of countercyclical capital buffer by 1.5 percentage points; banks can temporarily breach the LCR. • Russia – CBR: Measures to ease liquidity regulations for systemically important credit institutions, cancellation of add-ons to risk weights for mortgage loans. • Portugal – Banco de Portugal: Relaxing some aspects of its macroprudential measures for consumer credit; series of measures directed to less significant banks under its supervision; possibility to temporarily operate below selected capital and liquidity requirements. • Spain – Adoption of a new macroprudential liquidity tool empowering the National Securities Market Commission to modify requirements applicable to management companies of Collective Investment Schemes. • Switzerland – SNB: Deactivation of the countercyclical capital buffers; Swiss Financial Market Supervisory Authority: temporary exclusion of deposits held at central banks from the calculation of banks' leverage ratio. • Sweden – Riksbank: Easing of countercyclical capital buffer by 2.5 percentage points; possibility for banks to temporarily breach the LCR for individual currencies and for total currencies; suspension of amortisation requirement; extension of the phase-in period for banks to comply with the new minimum requirements for own funds and eligible liabilities. • Netherlands – DNB: Reducing systemic buffer requirements for the three largest banks to support bank lending; temporary regulatory relief to less significant banking institutions; planned introduction of a floor for mortgage loan risk weighting is postponed. • UK – BoE: Reducing the UK countercyclical buffer rate to 0 per cent from a pre-existing path towards 2; PRA: non-publication of results of 2019 Insurance Stress Test 2019 (including a climate change exploratory exercise) and postponement of next Insurance Stress Test until 2022; PRA and Financial Policy Committee: postponing the launch of the Climate Biennial Exploratory Scenario exercise for large banks and insurers until at least mid-2021.
3. Other policies	
(7) Further financing schemes and other initiatives	• Singapore – MAS: Package of measures to help individuals and SMEs facing temporary cashflow difficulties. The package has three components: help individuals meet their loan and insurance commitments; support SMEs with continued access to bank credit and insurance cover; and ensure interbank funding markets remain liquid and well-functioning. • UK – BoE: Launch of the joint HM Treasury–Bank of England Covid Corporate Financing Facility which, together with the Coronavirus Business Loans Interruption Scheme, makes £330bn of loans and guarantees available to businesses (15 per cent of GDP).
(8) Management of central bank portfolios	• No initiatives found.
(9) Supporting sustainable finance (examples of measures newly implemented in the context of COVID-19)	• Cambodia – NBC: Guidelines to financial institutions on loan restructuring for borrowers experiencing financial difficulties (but still performing) in priority sectors (tourism, garments, construction, transportation and logistics). • EU – ECB: Public consultation on guide on climate-related and environmental risks. • France – Autorité de Contôle Prudentiel et de Résolution/BdF: Report on 'Governance and management of climate-related risks by French banking institutions'. • Hong Kong SAR – HKMA: Creation of a Green and Sustainable Finance Cross-Agency Steering Group. • Indonesia – BI: Initiatives to futher financial deepening, access to financial services, and monetary operations, including by facilitating collaboration between the banking industry and Fintech companies, and introducing Sharia-compliant instruments. • Mexico – Banxico: Creation of a Sustainable Finance Committee.

	• Philippines – BSP: Sustainable Finance Framework to safeguard the financial system from the evolving material hazards from climate change and energy transition risk including stranded assets. • Singapore – MAS: S$125 million support package to sustain and strengthen financial services and Fintech capabilities (funded by the Financial Sector Development Fund, has three main pillars: supporting workforce training and manpower costs; strengthening digitalisation and operational resilience; and enhancing Fintech firms' access to digital tools).

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