MONETARY AND CAPITAL MARKETS

Special Series on COVID-19

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Central Bank Support to Financial Markets in the Coronavirus Pandemic[1]

This note provides broad guidance to country authorities regarding possible central bank responses to impairment in money, securities and foreign exchange (FX) markets that could emerge in the wake of financial disruptions including the COVID-19 pandemic.

INTRODUCTION

This note provides an overview of the considerations that should underpin decisions to intervene in money, securities, and FX markets and how intervention programs should be designed. Many central banks have provided substantial liquidity to help alleviate the sharp tightening of financial conditions associated with the COVID-19 pandemic. Tighter liquidity conditions have precipitated exceptional volatility in securities and FX markets which has been accompanied by difficulties in accessing funding for many entities. The main differences with the 2007/08 crisis are the unprecedented scale in the economic disruption, the uncertainty about how the situation will evolve, and the high leverage of the non-financial corporate sector in AEs.

The support provided to money, securities, and FX markets is grounded in the central bank mandate, where price and financial stability objectives preeminently feature. Financial stability requires maintaining an adequate supply of credit to households and firms, countering both a sharp tightening in liquidity and the risks of fire-sales, and supporting the functioning of the payments system. These features are integral to monetary transmission and, therefore price stability. In light of these overall objectives, this note considers the following key questions regarding intervention strategy:

- Which markets are critical for maintaining financial stability?
- How can market dysfunction be identified and what are the appropriate triggers for intervention?
- How should programs be designed to address market impairment?

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The last section summarizes experiences of central bank support to financial markets provided in the context of the COVID-19 pandemic, breaking them down between AEs, EMs, and LICs.[2]

The note focuses on broad principles for deciding when and how to intervene in distressed markets.[3] The principles are relevant across jurisdictions while their application requires recognition of the differences in the structure, size and level of development of the financial sectors. Follow-up notes will delve deeper into: (i) central bank support to the FX market; (ii) extension of collateral framework; and (iii) expansion of central banks' counterparties list. Finally, this note leaves aside programs that aim at providing additional monetary policy accommodation at the lower bound (i.e., quantitative easing), actions to support individual financial institutions (e.g., emergency liquidity assistance), and actions intermediated by central banks aimed at providing solvency support for enterprises (e.g., payroll support for enterprises).

WHICH MARKETS ARE IMPORTANT?

Interventions should typically be aimed at markets which play a crucial role in financial intermediation. Authorities should carefully consider which financial markets are important for maintaining financial stability as not all markets can be supported, while interventions involve significant financial and reputational risks. Conceivably, some markets may not and should not survive a crisis. Several criteria are identified to assess which markets potentially have the requisite impact on financial stability, these are: (i) importance for intermediating liquidity within and between the banking and non-bank sectors (e.g., short-term funding and spot FX markets), (ii) markets generally need to be relatively large; (iii) interconnectedness with other markets (e.g., repo and FX swap markets); or (iv) use as benchmark reference rates (e.g., government securities market).

Financial sectors vary considerably in size and structure and therefore markets critical to the maintenance of financial stability must be carefully assessed in each jurisdiction using the identified criteria. As a starting point, relevant markets will generally be liquid and of high credit quality in normal times. The government securities market, in this regard, is perhaps the most important market to the functioning of the financial system because of its size, liquidity, and benchmark status as a risk-free asset. For open economies, with floating exchange rates, the FX spot market is also critical, to facilitate capital flows and will also be more important in jurisdictions with large unhedged exchange rate exposures, with high exchange rate pass through to domestic prices.

As financial systems develop with more intermediation occurring outside of the banking system, other markets become important; including, commercial paper markets, longer-term private sector securities markets (e.g. asset-backed securities), repo markets, and FX derivative markets. The importance of these markets would depend on their role in financial intermediation and as a reference, e.g., non-financial corporation bond markets would play a less important role than financial corporation bond market (intermediaries) or government securities (reference rates). FX funding market would be more important in financially integrated markets and partially dollarized financial sectors. Markets that are under the authorities' control due to policy choices, such as the FX spot market under fixed exchange rate arrangement, will already be supported. Here the question is not one of market functioning, but rather one of whether the authorities are willing and able to continue defending their policy stance. Small or nascent markets should generally not receive support.

[2] Country groups are based on the classification used in the World Economic Outlook.

[3] King, et. al., 2017, Central Bank Emergency Support to Securities Markets, IMF Working Paper WP/17/152.

IDENTIFICATION OF MARKET DYSFUNCTION AND TRIGGERS FOR ACTION

Central banks should have a clear understanding about the appropriate triggers for intervention, recognizing the importance of a timely response in a crisis. The triggers should help identify conditions in which market liquidity has deteriorated substantially relative to normal conditions, so that small changes in transactions volumes may cause large price swings, and asset prices may depart substantially from fundamentals. The authorities should have a clear understanding about the trigger ex-ante—both descriptively and quantitatively—however, the complex nature crises will mean that judgment will always be required.

The triggers may be linked to quantitative indicators that are either price-based or quantity-based. The quantitative indicators could be drawn from the literature on measuring market liquidity,[4] and signal distress when the measure moves sufficiently far into the tail of the distribution (say, the 95th percentile) based on historic data or reaches identified non-linearities resulting in prices overshooting. More specifically, the indicators may include the following:

Price-based indicators:

- Bid/ask spreads (with widening spreads indicating poorer liquidity).
- Daily or intraday price movement.
- Risk spreads vis-à-vis a risk-free reference rates, which captures both higher default risk and heightened risk aversion.

Volume-based indicators:

- Order book depth, which indicates the number of buy and sell orders at each price (the higher the number of the better the market liquidity).
- Turnover, which is defined such as the daily traded volume as the percentage of the outstanding stock of the asset.
- The ratio of the change in price to the change in volume, which reflects the market capacity to execute large transactions without major price adjustment.
- Demand for the central bank refinancing operations, with fluctuations reflecting changes in the banks' demand for precautionary reserves.

PROGRAM DESIGN TO ADDRESS MARKET IMPAIRMENT

Effective programs will incorporate several key features. They should: (i) address key market failures (e.g., to reduce informational asymmetries and balance sheet constraints); (ii) maximize positive spillovers while mitigating possible adverse side effects on other markets (i.e., minimize negative spillovers); (iii) minimize the financial risks to governments and central banks; (iv) minimize moral hazard; and (v) contain an exit strategy.

Interventions can address two key sources of risk (Table 1).

- The first is "funding liquidity" risk, whereby market participants (e.g., banks and broker-dealers) experience a shortage of funding, either because their precautionary demand for liquidity (the amount of liquidity they want to hold to meet expected outflows) has increased, or they have lost access to funding (e.g., wholesale funding markets have dried up). In these situations, the central bank can step in through various lending operations, including with short- and long-term repo operations, standing facility operations (possibly at longer maturities),

[4] Abdourahmane Sarr and Tonny Lybek, 2002, Measuring Liquidity in Financial Market IMF Working Paper WP/02/232.

and FX swaps to help banks to roll over U.S. dollar funding.[5] Central banks could also reduce banks' funding needs (as opposed to increase the supply of funding) by reducing the reserve requirement (which increases the available precautionary liquidity held) if the collateral available for repo in the market has become scarce.

- The second risk is that "market liquidity" may be impaired, so that the market for various assets—ranging from commercial paper and asset-backed securities to FX—is very thin, and dealers cannot trade assets at reasonable prices and without excessive price fluctuations. In this case, outright asset purchases may be appropriate to improve market liquidity, which can take the form of a program to buy or sell securities or FX.

Central banks may frame their intervention by specifying either a target (or target range) for a key asset price, such as an interest rate or exchange rate, or in terms of a quantity of the asset that they will transact.

- The price-based approach has an advantage over a quantity-based program in terms of the transparency of the objective for the asset price, and, hence, central banks often find it preferable when the asset price plays an important role in the economy (such as short-term interest rate or the exchange rate). The central bank could either (i) take control of the pricing market (e.g., price-level program targeting a short-term interest rate level based on fixed-rate full-allotment or exchange rate target) or (ii) operate as a self-liquidating backstop by setting the price trigger at a level relatively expensive for counterparties in normal market conditions (e.g., FX swap or asset purchase priced at a premium from a risk free reference rate such as LIBOR for FX and OIS for local currency).[6] A key risk of a price-based program is that defending a price may entail substantial losses to the central bank if it sets it at the wrong level, preventing a timely adjustment to equilibrium (especially when the equilibrium price is unclear and fundamentals are rapidly changing), or foster moral hazard (especially in spread-based program in which the spread in too small).
- A quantity-based program involves specifying a volume—of money, securities or FX the central bank will supply, purchase, or swap—and allowing market prices to adjust accordingly. These programs are usually implemented early on during the crisis, for limited period, and should not be confused with purchase programs aiming at providing more policy accommodation at the lower band, which usually last longer. They are preferable when the intent is to support an orderly adjustment of an asset price to a new equilibrium (e.g., the exchange rate). Interventions are usually based on preannounced fixed amounts executed at market rates (e.g., via an auction). In these programs, central banks can keep a close control of their risks, because they set the amounts and because they intervene at market prices. Such programs likely have more price volatility but does have the advantages of interfering less with market functioning (thereby aiding price-discovery) and reducing the risk to the central bank balance sheet relative to a price-based program (the amount of risk is controlled through setting of the volumes).

The effectiveness of an intervention program depends on several key factors including which assets the central bank can buy, or lend against, and who it can deal with. Therefore, in a crisis, consideration may need to be given to changing three important operational parameters:

- *Eligible collateral for lending operation:* Central banks may need to extend the range of eligible collateral for its lending operations and increase exposure limits to effectively address identified funding market impairments. Appropriate risk mitigation measures (e.g., haircuts) should be used, while recognizing there is full risk transfer with outright purchases.

[5] A standing facility is a commitment on the part of the central bank to accept or lend funds at defined rates and maturities and under well-defined conditions (i.e. collateral requirements in the case of lending).

[6] Overnight Index Swap (OIS) involves the exchange of net interest flows and therefore entails little credit risk.

- *Eligible assets for outright purchases:* Central banks may need to extend the range of eligible assets for outright purchases to effectively address impairments in markets identified as important for the maintenance of financial stability.
- *Eligible counterparties:* Central banks may need to broaden their range of eligible counterparties to ensure liquidity is distributed to those parts of the financial system that are experiencing significant stress. This would include systemic institutions critical financial market infrastructures (e.g., central clearing counterparties, and large non-financial institutions (e.g., pension funds, mutual funds, and securities dealers). Central banks should ensure that all its counterparts are always adequately supervised by a financial regulator.

Risks arising from actions taken to maintain financial stability may need to be shared with the fiscal authorities to protect central bank independence. Central banks will likely have to take more risk during crisis times, which may result in the need for a temporary increase in risk tolerance as compared with non-crisis times.[7] In extreme events, risks that need to be taken to restore financial stability could unduly compromise central bank policy solvency.[8] In such cases risk sharing agreements with the fiscal authorities should be in place, which could take the form of an automatic recapitalization clause (in central bank legislation triggered by losses), or by design built into individual programs. The risker schemes that expose the central bank directly to the credit risk (e.g., commercial paper or asset-backed purchase programs) often have direct government support. Another example are schemes for refinancing small and medium sized enterprises. These often combine liquidity support with a public sector guarantee to protect the central bank balance sheet.

Clear communication in times of crisis is crucial while decisions about the transparency of operations should focus on reducing information asymmetries and supporting price discovery. The announcement of a comprehensive package of scalable measures to address market dysfunction would increase the chance of success as it would demonstrate that the central bank understands the problem, is committed to and has the means to address it. Transparency allows for central banks to be held accountable for their actions while also supporting program performance to the extent that liquidity pressures are reduced, and price discovery enhanced. Most central banks responding to the COVID-19 pandemic have an announced program size (outside of the programs that are announced as unlimited), with about one third of those publishing data on realized amounts, including for intervention in the FX market, which were traditionally less transparent. Good practices require publishing aggregated FX intervention data with a reasonable lag.

[7] Some risk mitigation measures, such as the use of ratings, are procyclical, forcing central banks either to freeze ratings at pre-crisis levels or to accept lower ratings.

[8] Central bank policy solvency requires sufficient realized revenues to cover costs and to build longer-term capital reserves allowing for independent and appropriate policy decisions, and the implementation of these decisions including the provision of necessary backstops to the financial sector.

SUMMARY OF SUPPORT TO FINANCIAL MARKET TO DATE (UP TO APRIL 27)

All 17 central banks in AEs have taken measures to support financial *markets (excluding easing in monetary policy)* during the COVID-19 pandemic (Table 2). Most interventions were aimed at easing stress in short-term funding markets, including FX swaps. About half of AE central banks intervened to ease the stress in securities markets, mainly in the form of asset purchases. Interventions to ease the stress in the FX spot market were relatively uncommon, as those markets remained deep despite the elevated volatility.

Among the 81 economies classified as EMs, 55 took measures to support financial markets during the COVID-19 pandemic (Table 3). There are some common features between AEs and EMs, as most central banks in each group aimed at easing pressures in short-term funding markets. However, EMs intervened more in FX markets than AEs reflecting partial dollarization and capital outflows. EMs seldom intervened in securities market, reflecting the bank-centric nature of their financial systems.

Among the 49 central banks in LICs, 31 took measures to support financial markets during the COVID-19 pandemic (Table 4). Compared with AEs and EMs, they took relatively fewer measures. There are some common features between LICs and other country groups as the majority of actions in each group were in response to pressures in short-term funding markets. LICs intervened on several instances in FX markets reflecting their partial dollarization and capital outflows, but seldom in securities and derivatives markets, reflecting the less developed nature of their financial systems.

TABLE 1. Central Banks' Intervention in the Market

Problem	Markets	Trigger	Risk transferred	Type of operations	Collateral	Counterparties
Loss of Funding Liquidity	Money market	Deviation from the policy rate Demand for central bank's operations	Funding	Price program Longer-dated operations	Unchanged	Banks
	Longer- dated private debt issuance	Failed issuance	Funding	Longer-dated operations Targeted operations	Extended collateral framework	Banks
	Repo	Daily or intra price move Turnover	Funding	Quantity program	Unchanged Security lending	Banks *Mutual Funds FMIs*
	Foreign exchange	Spread vis-à-vis FX risk free	Funding	Quantity program	Extended collateral framework	Banks
Loss of Market Liquidity	Government securities	Daily or intra price move Turnover	Liquidity and credit	Price program	Unchanged	Banks *Mutual Funds FMIs*
	Private securities	Spread vis-à-vis domestic risk free Turnover	Liquidity Liquidity and Credit	Price program Quantity program	Extended collateral framework	Banks *Mutual Funds FMIs*
	Foreign exchange (spot and derivatives)	Daily or intra price move Bid/ask spread	Exchange rate	Price program Quantity program	Unchanged	Banks

TABLE 2. Summary of Measures Taken by AE[9] Central Banks (April 27)

Markets \ Objectives	Monetary policy easing	Easing stress in short-term funding markets	Easing stress in longer term funding markets	Easing stress in securities markets	Ease stress in FX market	Total
Money market	15	37			1	53
FX swap		14			3	17
Funding market		1	11			12
Government securities	5	1		5		11
Non-government securities				11		11
Private short-term debt market		4		1		5
FX market (spot and derivatives)					4	4
Total	20	57	11	17	8	113

TABLE 3. Summary of Measures Taken by EME[10] Central Banks (April 27)

Markets \ Objectives	Monetary policy easing	Easing stress in short-term funding markets	Easing stress in longer term funding markets	Easing stress in securities markets	Ease stress in FX market	Total
Money market	46	79				125
FX swap		4			10	14
Funding market			25			25
Government securities				9		9
Non-government securities				4		4
Private short-term debt market		3				3
FX market (spot and derivatives)		1			27	28
Total	46	87	25	13	37	208

[9] Australia, Canada, Hong Kong SAR, Czech Republic, Denmark, European Central Bank, Iceland, Israel, Japan, South Korea, New Zealand, Norway, Singapore, Sweden, Switzerland, United Kingdom, and the United States.

[10] Algeria, Argentina, Armenia, Aruba, Bahrain, Barbados, Botswana, Brazil, Bulgaria, Cabo Verde, Chile, China, Colombia, Costa Rica, Croatia, Dominican Republic, Egypt, Eswatini, Fiji, Georgia, Hungary, India, Indonesia, Iran, Jamaica, Jordan, Kazakhstan, Lebanon, Malaysia, Maldives, Mauritius, Mexico, Mongolia, Morocco, Republic of North Macedonia, Oman, Pakistan, Paraguay, Peru, Philippines, Poland, Romania, Russian Federation, Saudi Arabia, Serbia, Seychelles, South Africa, Sri Lanka, Thailand, Trinidad and Tobago, Turkey, Ukraine, United Arab Emirates, Uruguay, and Venezuela.

TABLE 4. Summary of Measures Taken by LIC[11] Central Banks (April 27)

Markets \ Objectives	Monetary policy easing	Easing stress in short-term funding markets	Easing stress in longer term funding markets	Easing stress in securities markets	Ease stress in FX market	Total
Money market	23	38			1	62
FX swap					1	1
Funding market			6			6
Government securities				2		2
Non-government securities						0
Private short-term debt market						0
FX market (spot and derivatives)					10	10
Total	23	38	6	2	12	81

[11] Bangladesh, Central Bank of West African States, Bank of Central African States, Cambodia, Democratic Republic of the Congo, Ethiopia, The Gambia, Ghana, Haiti, Honduras, Kenya, Kyrgyz Republic, Lao People's Democratic Republic, Lesotho, Madagascar, Malawi, Mauritania, Moldova, Mozambique, Myanmar, Nepal, Nicaragua, Nigeria, Papua New Guinea, Rwanda, Sierra Leone, Tajikistan, Uganda, Uzbekistan, Zambia, and Zimbabwe.

ANNEX I. QUESTIONS AND ANSWERS

1. What do you recommend regarding the sequencing of the policies? Should all central bank actions be taken at the same time or should follow any particular sequence?

The announcement of a comprehensive package of measures that demonstrates that the authorities understand the problem and have a firm commitment to address it, will increase the chances of success. Therefore, generally, all measures necessary to address the identified problem should be introduced at the outset. However, two points are worth considering here:

- The magnitude of the intervention required to address the problem will likely be uncertain at the outset. Given that actions are generally scalable, to minimize the risks to the CB, there may be merit in somewhat tempering the size of the initial operation. What is important in this regard is clear communication that outlines that operations are scalable, and that the CB is fully committed to deal with the problem. The size of the operations can be quickly increased when there is such need. Similarly, with price-based programs, the price can be adjusted depending on the success of the program.
- In complex and interconnected financial systems, problems in one sector may eventually spillover to other sectors. While it may not be possible to anticipate the extent of spillover from one market to another, a timely intervention in a market showing signs of stress may prevent a spillover to other markets, thereby alleviating the need for broad intervention across many markets. Therefore, the CB should announce measures to provide robust backstops in the key markets that are showing signs of stress, with actions extended to other markets as needed based on an assessment of the risks to financial stability.

2. How can CBs take on the credit risk on their balance sheets? Will they have the capacity considering the sharp decline in capital markets that suggests asset quality could also be severely damaged.

Maintaining financial stability has become a key part of the CB mandate, and when financial stability is at risk, it may face a difficult trade-off between: supporting key markets and institutions that are under stress and taking on more risk, *or* allowing conditions to deteriorate thereby putting financial stability at risk and not fulfilling its mandate. Unavoidably, a central bank will need to take on some additional risk during a crisis, which may not necessarily undermine its capacity to meet its mandate (i.e., a policy solvency question). At all times, the CB should ensure its operations are adequately collateralized—even if it is required to take lesser quality or more risky collateral to achieve this objective. However, there is a point at which the amount of risk that it needs to take to arrest instability may put its balance sheet at risk.

Agreements with the government should assure the policy solvency of the central bank. Such arrangements can take the form of recapitalization triggers in central bank laws or explicit underwriting of the programs and indemnities provided by the government. That said, the programs should be designed to avoid unnecessary risk transfers. Risk mitigation includes the collateralization of lending operations, an appropriate pricing of outright purchases, and intervention triggers that allow asset prices to adjust. There could be circumstances in which the central bank act of behalf of the government to accelerate the process of providing support. The ultimate risk of those quasi-fiscal activities should be borne by the government to protect the central bank solvency, but also for governance and transparency reasons. In general, the riskier the operation the more it is likely to be a solvency rather liquidity problem, and in such cases the government should take the financial risks directly onto its own balance sheet.

3. In addition to overdraft and marginal lending facilities and emergency liquidity assistance, what are the other common instruments used by the central banks in low-income and emerging economies to support liquidity? We are thinking about a highly dollarized low-income country.

The financial sectors in low income and emerging economies tend to be more bank-centric than advanced economies. Therefore, programs in these cases would support key markets that banks rely upon, which generally are short-term funding markets. Central banks can allot their short-term lending operations to fully satisfy banks' demand for short-term loans at a predetermined rate (i.e., fixed-rate full-allotment operations) to address dislocation in interbank market thereby meeting banks' precautionary demand for reserves. In other cases, central banks can extend the maturity of their lending operations to compensate for banks' lost access to longer-term funding. Reducing reserve requirements (see question 6) can also provide liquidity support especially as often, they are relatively high in low income countries. Similarly, lengthening the reserve maintenance period and allowing banks to comply on average over the reserve maintenance period can reduce liquidity pressures.

Partially dollarized economies have limited room to provide support to financial markets. A central bank can ease dollar funding stresses (due say to outflow of FX from domestic banks) via FX swaps and repo (FX loans secured with less liquid FX assets) but will be constrained by the amount of foreign reserves it has access to—either through its own resources and from FX swap lines that it may have arranged with other central banks. It should be recognized that such operations utilize resources that could otherwise be used to intervene in the FX market in support of its FX policy. Regarding stress on local currency market, central banks may be constrained by the lack of eligible collateral denominated in domestic currency for lending operations in partially dollarized economies. Therefore, some have used FX swap to be lent in local currency against US$ collateral. However, central banks should ensure that local currency injections do not destabilize the FX market, whose stability is often a priority in partially dollarized economies due to pervasive unhedged exposures to exchange rate risk.

4. How could the central bank provide enough support to the market while managing the risk transferred to its balance sheet? Could the central banks waive the use of credit ratings to avoid their impact on counterparties' access to its facilities?

Managing the credit risks of any central bank operation is critical during both normal and stressed times. In normal times, a central bank should define and embed its risk tolerance in its operational framework through mitigation measures such calibrations on the size of haircuts (i.e., the margins of overcollateralization) for its lending operations, and the credit quality of assets it is prepared to buy and lend against. During periods of extreme stress, it very likely that the central bank will need to take on more risk, while its lending operations should always be fully secured.

The central bank will need to decide how it assesses credit risks and one approach is the use of rating agencies. This approach, however, is only available in financial systems that have a sufficient volume of rated securities. To address the procyclicality issue, central banks can compensate by accepting lower-rated securities during a crisis than they would do during normal times—thereby taking on more risk. Similarly, some central banks, such as the Bank of England in its commercial paper purchase program, acknowledge that downgrades due to adverse economic circumstances could close the program to issuers that they want to reach. Therefore, they set the rating for program eligibility to the period before the crisis and would, thus, not cut off access to issuers that were downgraded during the program. It is important to recognize though that such programs are fully backstopped by the government—otherwise the central bank would likely not be able to be so accommodating.

5. In the context of a segmented interbank market and an overall excess liquidity, if the central bank wants to inject liquidity to support banks which are in shortage, how should it choose between the increase of refinancing operations and the decrease of reserves requirements?

Market segmentation

In a crisis, counterparty risk perception increases and, in a context of asymmetry of information, some solvent banks may be cut off the market or banks may be unwilling to participate in the market more generally. Confronted to the dislocation of the interbank market, banks would tend to hoard liquidity for precautionary reasons, which would make banks' demand for liquidity unpredictable.

- The first best option would be to reduce asymmetry of information, e.g., the central bank could order an asset quality review and publish the results, as well as the corrective actions taken by banks to improve their asset quality or raise capital. Recapitulation and resolution could be also part of the measures, if necessary, to reestablish the confidence in the financial sector. However, these are a medium-term policy measures that would not provide sufficiently fast relief in midst of a crisis.
- An alternative would be to activate the interbank repo market (with government securities as collateral). This alleviates the credit risk when dealing with another party, although it is recognized that this approach too may not be practical in a crisis unless some measures had already been taken including implementation of appropriate payments and settlements infrastructure and necessary legal documentation.

Recognizing that an asset quality review and establishing a repo market will take time, the central bank may need to consider offering unlimited short-term liquidity at a set price (i.e., fixed-rate full allotment), subject to banks having sufficient collateral. The benefit here is that it quickly satisfies all bank demand for liquidity. Furthermore, the central bank would find it difficult to forecast the exact market needs for short-term funding when the interbank market is segmented; therefore, calibrated allotment, in which the central bank offers a fixed amount at variable rate, may not be practical. While full allotment may sound problematic, there is an incentive for banks not to over bid as they would incur a loss equal to the difference between the rate at which they borrow through the operation, and the rate at which they subsequently redeposit surplus funds at the central bank.

Reducing the reserve requirement

- **Reducing the reserve requirement is the fastest way to address funding needs for banks that are short of liquidity as it can be done immediately by central bank dictate—no operations are necessary.** However, this is not a targeted approach as it frees up liquidity (rather, reduce liquidity need) for all banks regardless of their respective needs. This approach is particularly effective in financial sectors where there is a scarcity of good collateral (e.g., significant amount of the available collateral has been already pledged for CB loans) but is also predicated in the level of the reserve requirement being sufficiently high to start with—say, above 5 percent.

6. Are there examples of CBs providing subsidized loans to SME banks or any sector-specific financial support (e.g., to a sector impacted by the COVID-19 crisis)? What are the words of caution?

The purpose of the intervention is to repair a broken market thereby facilitating a resumption of market-based financial intermediation. It is not to provide a subsidy to any particular sector. If any such subsidy were to be provided, it should come from the government and not the central bank.

The Bank of England's Funding for Lending Scheme provides a good example of support for SMEs which is not a subsidy given the base case that credit to this sector is flowing during normal times. The program is predicated on the importance of this sector for the real economy together with an assessment that during a crisis the market for long-term funding to SME's quickly becomes impaired.