



Special Series on COVID-19

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Expanding the Central Bank's Collateral Framework in Times of Stress

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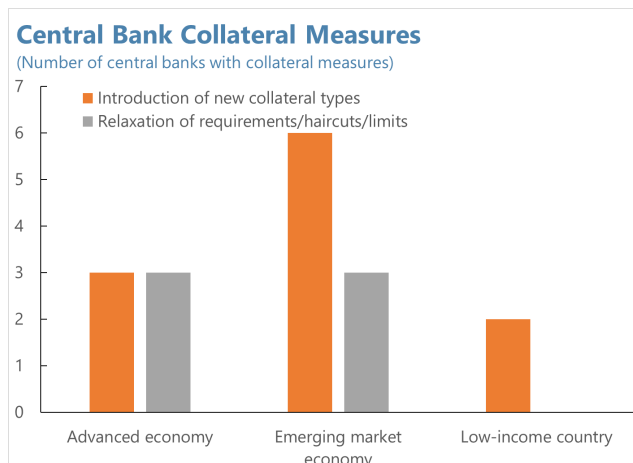
This note provides guidance on how a central bank could expand its collateral framework to respond to a significant tightening of financial conditions during the COVID-19 pandemic. There has been an appreciable increase in the demand for liquidity both from financial and nonfinancial sectors in many economies. The central bank is uniquely positioned to alleviate some of this pressure through its lending operations while pursuing price and financial stability objectives. The central bank's collateral framework needs to balance the requirements for extending sufficient liquidity against the risks posed to its balance sheet and the reputation that accompanies such lending. In times of financial stress, a central bank may need to expand the framework and possibly accept more risks to maintain financial stability. Such changes should be made with due recognition of the additional risks the central bank is taking on. The extent of development of the financial sector, a country's legal framework, and the central bank's operational preparedness are key determinants of how quickly and effectively a collateral framework can be expanded in a crisis.

INTRODUCTION

In a crisis, counterparties may require greater access to central bank liquidity due to (1) a substantial increase in the precautionary demand for liquidity and (2) impaired markets (IMF 2016, IMF 2017, and IMF 2020a). However, such access may be constrained by the collateral framework because counterparties may not hold sufficient eligible collateral. In addition, the amount of lending under a given collateral framework could shrink in a crisis as asset prices fall and the credit quality of some assets deteriorates, leading to their exclusion from the collateral framework. In such a situation, the central bank should consider relaxing the eligibility criteria, the risk mitigation measures, or both.

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In response to the COVID-19 pandemic, various central banks have expanded their collateral framework (IMF 2020b).² Central banks in advanced economies (AEs), emerging market economies (EMEs), and low-income countries (LICs) have expanded their collateral framework by introducing new asset types, including corporate bonds (Central Bank of Chile), asset-backed securities, and credit claims (Banque Centrale des Etats de l'Afrique de l'Ouest—Central Bank of West African States). In addition, central banks (for example, the [Norges Bank 2020](#) and [European Central Bank \(ECB\) 2020](#)) have taken unprecedented measures to relax the risk mitigation measures (for example, haircuts) and limits for accepted asset types. In another crisis response, some central banks have also included credit claims issued under dedicated government guarantee programs and have set up dedicated credit facilities (for example, in Switzerland ([Swiss National Bank 2020](#)) and in the United States ([Federal Reserve Bank of New York 2020](#)). These programs provide a liquidity backstop against credit claims issued under the guarantee programs ([Bank for International Settlements \(BIS\) 2020](#)).



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The adjustment of a central bank’s collateral framework should not threaten its policy solvency.³ In cases for which there may be a need to increase risk tolerance and move further into less liquid and lower credit assets—including credit claims, requiring specific criteria and procedures—the central bank should be mindful that any additional risks it takes to preserve financial stability not undermine or threaten its policy solvency. Such assessment should take into account the specific risk profile of the lending operation, which may differ from that of other operations, such as outright purchases, undertaken to support the functioning of certain key markets, for example. Where the central bank is required to take action pursuant to its financial stability mandate, and the risks of doing so are very high and may jeopardize its policy solvency, risk-sharing arrangements with the government are highly desirable.

A STEADY STATE COLLATERAL FRAMEWORK

A collateral framework has four key objectives: it should (1) support the central bank in reaching its objectives of price and financial stability, (2) reduce the risks incurred by the central bank in its operations (risk mitigation), (3) minimize price distortions and financial arbitrage across asset classes, and (4) avoid undue operational risks and costs. The central bank should collateralize all lending operations to reduce risk. Because using assets as collateral entails risks that vary depending on the type of asset, risk mitigation measures should be calibrated so that the central bank faces similar levels of risk across each eligible asset class (risk equivalence). The costs and risks of day-to-day collateral management procedures may lead to the exclusion of some securities. Second-order objectives include the support of market development, such as through the standardization of procedures. Liquidity regulation, with respect to the impact on the demand for high-quality assets, must also be taken into account (defining “eligibility” too narrowly may result in a scarcity of such assets,

² Research on the impact of collateral expansion and in support of transparent monitoring and evaluation for future crisis preparedness is currently limited.

³ Policy solvency requires the central bank to have “realized” revenues that cover realized policy costs and day-to-day operational expenses with realized capital reserves to buffer against future operational losses and severe but plausible shocks.

thus impacting their market liquidity).

The collateral framework should be based on well-defined eligibility criteria and risk mitigation

measures. The risk mitigation measures address mainly market and liquidity risks, whereas eligibility criteria aim at mitigating credit, legal, and operational risks (ECB 2017). A scalable framework (through the relaxation of criteria and/or risk mitigation measures) facilitates the addition of collateral, when necessary, to support the efficacy of monetary policy implementation and to address financial stress, either for idiosyncratic needs of individual banks (emergency liquidity assistance, ELA), or for the systemwide provision of liquidity to banks or key securities markets. Further, appropriate calibration of the eligibility criteria and risk mitigation measures (limits and haircuts) will allow the central bank to deal with solvent counterparties at similar interest rates despite varying creditworthiness, which is important for the efficient transmission of monetary policy. The framework should be published, thus contributing to the overall transparency of the operational framework.⁴

A coherent collateral framework entails the selection of financial assets and use of risk mitigation measures to limit potential losses to the central bank's balance sheet.

The bank should quantitatively define its risk tolerance, that is, the type and amount of risks the bank is willing to accept to ensure its credibility and policy solvency are not undermined. Both eligibility criteria and risk mitigation measures need to be appropriately calibrated so that risks are contained within the defined level of tolerance. In determining which collateral will be accepted, the central bank should aim for neutrality across asset classes so as to minimize the potential for implicit subsidies to some sectors or participants and for market distortions (for example, in the repo market).

There is a trade-off between collateral availability and risk and efficiency. Maximizing collateral availability by accepting a broad set of eligible assets may disproportionately increase risks and operational costs. The central bank should therefore carefully assess the suitability of individual asset types and the associated risks and operational costs. Further, the central bank should assess potential counterparty liquidity needs across different segments (for example, large versus small banks, foreign versus domestic banks, and banks versus securities dealers, and perhaps higher versus lower rated sovereigns within the context of a currency union), recognizing the heterogeneous range of assets held across the segments.

Criteria for Determining Asset Eligibility

A set of interrelated criteria provides the framework for determining the eligibility of financial assets.

The criteria are the following:

- **Legal certainty:** Eligible assets should be transferable to the central bank with legal certainty, and there should be no legal or operational obstacles to the liquidation of the asset in the event of a counterparty default (BIS 2019).
- **Credit quality:** Credit quality should be assessed, and credit standards must be applied consistently across all eligible assets. Generally, marketable assets are required to be rated by rating agencies, with minimum credit ratings often applied, given that credit and market risks tend to increase non-linearly for lower-rated assets.⁵ For credit claims, credit risk assessment procedures, including, for example, counterparties' internal

⁴ The level of transparency may be more limited for nonstandard operations to facilitate central bank discretion and to limit moral hazard.

⁵ The footprint of the big three rating agencies (Standard & Poor's, Moody's, and Fitch Ratings) is internationally dominant. However, DBRS also has an important role in some jurisdictions (for example, eurozone). Post-Covid-19, ratings will be increasingly under scrutiny for bailouts and estimating haircuts on collateral (for example, defining "fallen angels" by the Federal Reserve or "freezing ratings" by the ECB).

rating systems, need to be in place for the assessment of claims on small- and medium-sized enterprises (SMEs) and households.

- **Pricing and liquidity:** Price determination, where possible, should be based on publicly available market prices. Observed market prices should feed into the risk mitigation framework, allowing for the identification and quantification of financial risks. Where reliable pricing is not available, the central bank will need to develop theoretical pricing models to value nontradable or illiquid assets.
- **Denomination:** Financial instruments denominated in domestic currency and issued and settled domestically are usually more easily transferable and simpler to price. Conversely, foreign-denominated instruments require that foreign exchange risk is adequately addressed in the risk mitigation framework.
- **Operational risks and costs:** To mitigate operational risks and costs, eligible assets should allow for efficient and effective collateral management procedures. The central bank should be able to conduct the eligibility assessment, pricing, and application of risk mitigation measures in a short period of time, and they should be based on standardized, timely, and easily accessible and verifiable asset-specific data. The transfer of title or legal claim should be based on standardized and automated procedures.

Eligible Assets

Government securities issued in the domestic currency are central to a collateral framework, with the identified criteria used to determine which other assets are also eligible. Table 1 in the Appendix provides a specific assessment of the suitability of individual financial instruments. The collateral framework is influenced by the structure and size of the domestic money and fixed-income markets. Domestic government securities are central because they are usually publicly traded, highly standardized, and the most liquid and creditworthy asset in a financial system, and against which other financial assets are priced.

Many debt instruments are good candidates to include in the collateral framework. Supporting the inclusion of debt instruments in many cases is the depth of domestic markets, standardization of structure and terms, availability of agency ratings, and ease of transfer, allowing for a clear determination of price. Typical instruments include covered bonds and mortgage-backed securities (MBS); local, regional, and provincial government bonds; corporate bonds such as commercial paper (CP) and certificates of deposit (CD); ABS other than MBS; foreign debt instruments; and credit claims.

The choices of eligible collateral will be strongly influenced by the structure of the financial sector and the level of its development. In AEs and some EMEs, fixed-income markets are well developed and include a variety of public sector and private sector issuers, thus relying on market-based financing. Standardized mortgage-based instruments, such as covered bonds and MBS, rank high yet do not exist or are in their infancy in other economies. In turn, the role of public sector issuers may depend on the federal structure of the country/government and its funding needs. Market liquidity may be lower and may strongly depend on the overall size of the segment in domestic markets, challenging the *pricing* criterion. Some corporate issuers with an investment grade are likely suitable for inclusion, while issuers with a speculative grade are less suitable on account of the lower credit quality and reduced liquidity. Bonds issued by banks (typical central bank counterparties) are less suitable, given the correlation between the recipient of the central bank liquidity (banks) and the issuers of the collateral used (banks again).

ABS and foreign bonds are less suitable, as their inclusion requires ABS-specific eligibility criteria and risk mitigation measures, thereby increasing the complexity of the framework and related risks. Only the most senior tranche of an ABS is likely to be suitable, given its usually high credit quality and liquidity. In contrast to covered bonds and MBS, the level of standardization of ABS may be low in some jurisdictions, thereby substantively impacting liquidity. A central bank accepting ABS should introduce ABS-specific eligibility criteria to mitigate further credit and liquidity risks. The criteria should include requirements on the composition

of the pool of underlying assets (homogeneity) or legal requirements on the transfer of underlying assets from the loan originator to the special purpose vehicle (SPV) (true sale, ensuring bankruptcy remoteness). In addition, this central bank generally applies higher rating requirements for ABS than for other debt instruments.

Credit claims may be ranked least suitable, according to the criteria above. However, in some EMEs and most LICs, domestic fixed-income markets are not fully developed, while credit claims (loans and mortgages) constitute the vast majority of banks assets in most jurisdictions. Requirements in some countries make it legally or practically impossible to transfer the legal title of a credit claim. While in some instances the explicit consent of the credit claim debtor is required, both issues make it either extremely burdensome or impossible to use credit claims. Eligibility criteria, including on the type of debtor (public sector, nonfinancial corporate sector, and/or private households), its place of establishment and denomination of the credit claim need to be specified and would likely be more stringent than those for marketable assets (see *Asset-Specific Considerations* in the following section). Specific procedures should allow for transferability given the *non-tradable* nature of the claims. A central bank should strive to automate transfers, eligibility assessments, and valuation procedures given the potentially large number of credit claims needed to materially broaden the collateral base.

Risk Mitigation Framework

For marketable assets, a fundamental requirement is a credible process for valuing collateral, ideally on a daily basis. Central bank lending operations should always be fully collateralized, which requires the daily revaluation of all mobilized collateral. On this basis, margin calls—the right of the central bank to receive additional collateral—should be initiated daily, and without delay in case of operations that are under-collateralized. Under-collateralization can occur as instruments mature, lose their eligibility status (due to downgrading, for example), or as their price deteriorates. Valuations should be based on market prices, but such prices may not always be available, because either the collateral was illiquid to start with or because previously liquid markets were frozen. In normal times, the central bank should ensure that market prices are sufficiently “live” (that is, they are not outdated); otherwise, the bank should use a theoretical valuation.⁶

The valuation of credit claims as collateral requires dedicated procedures. The counterparty should provide in a timely manner a predefined set of credit claim data and characteristics, which allow for adequate valuation of each individual claim. Trade-offs exist, as a high valuation accuracy and valuation frequency require the provision and timely update of a large set of data per claim. This potentially can increase handling costs substantially. In practice, simplified valuation approaches (while still requiring estimates of probability of default and loss given defaults), based on the outstanding amount in combination with a haircut for mitigating the risk of overvaluation, may be applied.

The use of assets to which the counterparty is closely related should be prohibited to mitigate correlation risks. High correlation (for example, due to partial or full ownership) between the credit quality of the counterparty and the issuer or debtor of the instrument used as collateral exposes the central bank to heightened financial risks in case of counterparty default. As a result, a counterparty should, for example, not be able to use corporate bonds issued by itself or related parties. In turn, for securitized instruments such as covered bonds, MBS, and ABS, legal provisions may exist that—in case of counterparty default—ensure bankruptcy remoteness of the pool of assets securitizing the instrument (cover pool) from the counterparty.⁷ The

⁶ During a crisis, it is inevitable that there will be wedges (that is, haircut differences) between market price and central bank matrix price; these wedges should be temporary, or the central bank’s solvency policy (and not liquidity) may be at risk.

⁷ In such cases, correlation may be sufficiently limited to accept the use of such assets issued or originated by the counterparty.

central bank should carefully monitor related exposures, as the use of “linked” assets may increase significantly during a crisis where access to market-based funding is impaired.

Haircuts are applied to mitigate a central bank’s exposure to all financial risks in case of counterparty default (ECB 2015). In the case of default, the central bank will likely want to liquidate the collateral quickly to minimize its risks. Conversely, it may move slowly if financial stability risks are likely to be exacerbated, if, for example, there was already forced selling of similar assets. In general, the longer the liquidation period, the greater the market, liquidity, and credit risks—all of which need to be mitigated by appropriately calibrated haircuts. Price volatility and the assumed liquidation period are the key variables when calculating haircuts of individual collateral types.

Box 1. Calibrating Haircuts

Haircuts should be applied as a deduction (in percent) of the market price of the financial instrument. They should be calibrated to protect the central bank against the risk of potential losses during the period in which the collateral is liquidated. For the sake of transparency and simplicity, haircut schemes should be calibrated and applied to homogeneous issuer or asset groups (government bonds, public sector bonds, MBS, covered bonds, corporate bonds) with similar liquidity (and credit quality) characteristics. This approach would avoid a highly granular and less transparent calibration of asset-specific haircuts. Issuer/asset groups should be ranked according to their overall liquidity, measured on the basis of the size of the market segment, bid/ask spreads, or turnover, thereby feeding into assumptions on the expected length of the liquidation period, during which the central bank is exposed to financial risks.

Risks in the form of market, liquidity, and credit risks can be measured on the basis of the price volatility of financial instruments. For debt instruments, price volatility is mainly driven by changes to risk-free and risk-adjusted interest rates, depending on secondary market liquidity, and credit migration risk. Hence, price volatility of debt instruments is driven by their duration, that is, their price sensitivity toward interest rate changes. As a result, for standard fixed coupon instruments, for example, price volatility should increase in proportion to their residual maturity; zero coupon bonds should have a higher haircut than fixed coupon bonds of the same maturity; and the haircut for bonds with variable rate coupons should, all else being equal, be lower than for fixed coupon and zero coupon bonds.

To quantify haircuts based on observed or estimated price volatilities, the central bank should estimate potential losses during the liquidation period based on suitable measures, such as value-at-risk or expected shortfall. Price volatilities and estimated losses (as a predefined quantile of the loss distribution) should be measured over an extended period—through the cycle—to prevent haircuts from reflecting only recent cyclical developments and requiring frequent adjustments/recalibration. In addition, a prudent calibration of haircuts (based on conservative estimates on potential losses) would reduce procyclicality and may facilitate the relaxation of haircuts during crisis times, without adjustment of the central bank’s overall risk tolerance.

The inclusion of foreign-denominated debt instruments requires that the associated exchange rate risk is reflected in the haircut scheme, either in the form of dedicated haircuts for exchange rate risk or as an add-on to the existing haircut scheme.

The haircuts for credit claims may need to be much higher than for other classes of collateral because of illiquidity and the considerable uncertainty about pricing. Estimates on price volatility could be based on price information for tradable debt instruments such as public sector or corporate bonds. To ensure risk equivalence, conservative assumptions should be made for a sufficiently long liquidation period, well above the estimated liquidation period for the least liquid marketable asset accepted. Some central banks apply additional haircuts to mitigate risks associated with the theoretical pricing of collateral (model risk). Such haircuts also reflect that the priced asset is less liquid than comparable instruments of a similar asset or issuer group.

Additional measures may be used to ensure risk neutrality and avoid undue risk transfers to the central bank. For broad collateral frameworks containing several asset types, haircuts alone may not be sufficient to ensure neutrality and to avoid an undue risk transfer through an over-proportionate use of illiquid or lower credit quality collateral. A number of additional measures can be taken, which have to be carefully calibrated: (1) limits could be set, for example, on the composition of the collateral pool or to control exposure to individual sectors or

assets; (2) additional margin requirements could be introduced that stipulate, in addition to asset-specific haircuts, a minimum level of over-collateralization (for example, of liquidity provided in foreign currency); (3) an additional layer of haircuts could be added to asset specific haircuts (for example, to mitigate valuation risk); and (4) liquidity operations could be conducted with collateral-dependent charges in lending operations (for example, the discount window facility of the Bank of England ([Bank of England 2020](#)) determines fees also on the basis of the collateral used to avoid providing a subsidy for illiquid collateral.

ADAPTING THE COLLATERAL FRAMEWORK IN TIMES OF STRESS

General Considerations

In crisis times, such as the COVID-19 pandemic, the demand for liquidity may increase abruptly. This might be the case because liquidity needs become more unpredictable, funding liquidity evaporates, and market liquidity diminishes; hence, banks demand more reserves as precautionary liquidity buffers against sudden liquidity needs. Major changes in the investors' asset composition could impair for some institutions access to wholesale funding. Furthermore, heightened counterparty risk and the impairment to the interbank redistribution of liquidity might require increased central bank liquidity support.

During a crisis, a central bank may need to provide liquidity on a market-wide basis against illiquid assets. In times of financial stress, market mechanisms to manage short-term liquidity may be impaired and manifested, for example, through increased interest rate volatility and/or reduced money market turnover. In such scenarios, for example, during the recent global financial crisis, central banks provided ample liquidity against an expanded range of collateral, given that the central banks do not face illiquidity risks, as they have a monopoly on the creation of reserves (liquidity). The central bank itself is considered a risk-free counterparty, to which no counterparty limit would have to be applied.

The central bank must monitor the level of unencumbered holdings of eligible collateral held by its counterparties. Then, by deduction, the bank will know how much additional liquidity can be advanced within the existing collateral framework. The distribution of the unencumbered collateral is also important, as in some jurisdictions with a narrow framework, government securities, for example, may be disproportionately held by one or two large banks, with other counterparties holding few. In cases where eligible securities are not evenly distributed across the central bank's counterparties, some entities may be particularly vulnerable when interbank or securities' markets break down.

Close monitoring of the unencumbered collateral across the market and awareness of evolving liquidity pressures would provide an early warning that the collateral framework may need to be expanded.

Liquidity pressures may be evidenced by, among other indicators, increases in the level and volatility of short-term interest rates, failed trades in securities markets, and limited volume in repo markets, leading to a sizable difference between policy and repo rates. A forward-looking analysis of counterparties' holdings and encumbrance of eligible assets and developments of the collateral base ("horizon-scanning") may serve as a basis for the central bank to identify emerging liquidity pressures at an early stage.

Estimating counterparties' liquidity needs and analyzing the structure of the asset portfolios of central bank counterparties are the first steps in collateral expansion. Data from previous episodes of liquidity stress would be useful but should be supplemented by information directly from market participants, given the likelihood that situations differ from crisis to crisis, for example, as a result of structural changes in the financial sector, regulation, or technology. The assessment of balance sheet information on the assets held by

counterparties should be broken down by issuer and asset types, and maturities, with a full analysis of the credit quality and the composition and structure of loan portfolios.

Asset-Specific Considerations

A narrowly defined framework could be quickly expanded in a crisis as long as a pool of additional liquid assets is available. Where markets are reasonably well developed, other domestic marketable securities, (for example, covered bonds and MBS; local, regional, and provincial government securities; corporate bonds) should be assessed against their availability and the identified criteria and should be added quite quickly, as the demand for liquidity increases in times of stress. In a second step, the inclusion of ABS and foreign bonds should be assessed.^{8,9}

The acceptance of credit claims requires substantive work and may be unavoidable in bank-centric, less financially developed jurisdictions. Special procedures must be developed for the determination of eligibility, including the credit quality of the debtor, for credit claim valuation, and for the determination of adequate risk mitigation measures. Elements of a credit claim framework should contain the following strongly interrelated elements:

- **Legal certainty on the transfer:** Rules and procedures have to be developed that are consistent with the law and that allow for the efficient and effective transfer of credit claims, ideally in electronic form.
- **Eligibility criteria and minimum requirements:** Criteria and minimum requirements need to be defined for elements such as the type of debtor, credit quality, loan size, maturity, amortization schedules, underlying collateral, place of establishment of the debtor, and denomination.
- **Credit quality determination:** SMEs and households lack an external rating; as a result, the determination of credit quality will, in most cases, need to be based on alternative sources. These include counterparties' credit assessment systems (provided they are adequately supervised) and systems developed and implemented by central banks, the latter requiring considerable lead time.
- **Procedural aspects:** A credit claim framework requires the timely and accurate exchange of a predefined set of static information updated at regular and frequent intervals. Where available, additional sources, such as credit registers, should be used to collect and update specific data on the credit claim and debtor information to ensure the ongoing accuracy of this information. In particular, during the COVID-19 crisis, assessment and verification procedures have to be conducted remotely.

Risk Mitigation

Risks for the central bank balance sheet must remain a focus while expanding the collateral framework. The central bank should try to contain risks within its specified risk tolerance. This can be achieved while adding less suitable assets by applying additional eligibility criteria and/or dedicated haircuts to mitigate the additional risks. However, these steps may not be enough to meet the demand for liquidity, and the central bank may have to go beyond its previously defined level of risk tolerance. Within the increased level of risk tolerance, the central bank would need to carefully recalibrate the individual risk mitigation measures. The criteria include:

⁸ The inclusion of foreign-denominated assets may also include foreign exchange (FX) currencies (cash) as collateral (in case a formal FX swap market does not yet exist). However, the acceptance of FX currencies has to be carefully calibrated (pricing and volume), as it may give rise to risks of distortion of the monetary policy operational framework and multiple currency practices.

⁹ Equities could be considered in exceptional cases, although few central bank counterparties are likely to hold them. Exchange-traded equities do, however, have the benefit of full transparency regarding pricing.

- **Relaxation of limits:** A central bank should be able to quickly increase availability of eligible collateral through the relaxation of limits during a crisis, if needed, leading to a temporarily increased exposure to certain asset types and sectors.
- **Relaxation of credit quality requirements:** During a crisis, the central bank should carefully assess the potentially substantial impact of downgrades on collateral availability. The bank may temporarily reduce minimum rating requirements for all or some eligible issuers or may temporarily freeze rating to the pre-pandemic period. Such relaxation could be combined with additional haircuts for lower rated issuers/assets.
- **Reduction of haircuts:** A central bank may reduce procyclicality and increase collateral availability through the reduction of haircuts. When haircuts have been calibrated in a conservative manner in normal times, a reduction of haircuts may preserve collateral availability.

The central bank should have the capacity to price daily a greatly increased number of assets, make margin calls, and substitute collateral. The increased demand for theoretical valuation may be driven by (1) a broader set of eligible collateral, which now includes rather illiquid assets such as ABS and (2) strongly reduced secondary market liquidity in typically rather liquid fixed income segments.

EXIT CONSIDERATIONS

The collateral framework should expand only to cover the period of liquidity pressure. Counterparties should ensure that collateral availability always exceeds liquidity needs. Consequently, communications about collateral expansion should clearly specify plan objectives, as well as the temporary nature of the expansion to limit moral hazard but avoid time limits ex ante.

The central bank should move back to its pre-pandemic risk tolerance level unless there is reason to believe that structural changes have resulted in a permanent increase in the demand for liquidity. Changes in the financial sector structure, regulation, or technology may impact the demand for liquidity, something that was not evident until the onset of the COVID-19 crisis.

The sequence for unwinding should start with those measures that contribute the most risk to the central bank. In the process of returning to the precrisis risk tolerance level, the central bank should closely monitor market developments, counterparties' recourse to lending operations, and developments related to collateral availability. A cautious approach to returning to precrisis settings would be warranted, as a premature unwinding could result in another bout of stress.

However, not unwinding quickly may lead to limited “ammunition” for the next crisis and may impair market activity. Extended acceptance of less liquid instruments may reduce further secondary market liquidity or prevent recovery. Finally, exit strategies could include a pre-defined timeframe during which expansion measures are gradually phased out (phasing out period/sunset clause) to avoid cliff effects triggered by sudden and unexpected changes to the framework. Similarly, an early alignment of haircuts to reinstate the precrisis risk tolerance level should support market neutrality.

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APPENDIX 1. Ranging Suitability of Financial Instruments

	Collateral availability	Credit quality	Pricing/Market+Liquidity Risk Determination	Legal certainty	Handling costs	
Fixed income instruments						
	Central Government Bonds	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring
		+++	+++	+++	+++	+++
		available amounts	credit quality level	market risk determination and level		collateral management
		+ - +++	+ - +++	+++		+++
	Covered Bonds	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring
		+ - +++	+++	++ - +++	+++	+++
		available amounts	credit quality level	market risk determination and level		collateral management
		++ - +++	+++	+ - +++		+++
	Local/Regional/Provincial Government Bonds	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring
		+ - ++	++ - +++	++	+++	+++
		available amounts	credit quality level	market risk determination and level		collateral management
		+ - ++	++	+++		+++
	Non-Financial Corporate Bonds (incl. Commercial Paper)	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring
		+ - ++	+++	+++	+++	+++
		available amounts	credit quality level	market risk determination and level		collateral management
		+	+ - ++	+++		+++
	Financial Corporate Bonds (incl. Certificates of Deposit)	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring
		+ - ++	+++	+++	+++	+++
available amounts		credit quality level	market risk determination and level		collateral management	
	+	+ - ++	+++		+++	
Asset-backed Securities	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring	
	+ - +++	+ - +++	+ - +++	+ - +++	+	
	available amounts	credit quality level	market risk determination and level		collateral management	
	+ - +++	+ - +++	+		+++	
Foreign Bonds¹	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring	
	+ - +++	+ - +++	+ - +++	0 - +++	+ - +++	
	available amounts	credit quality level	market risk determination and level		collateral management	
	+ - ++	+ - +++	+ - +++		++ - +++	
Other marketable assets						
	Subordinated (mezzanine) debt	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring
		+	0 - ++	0 - +	+ - +++	0 - +
	available amounts	credit quality level	market risk determination and level		collateral management	
	0 - +	0 - +	0 - +		0 - ++	
Investment funds	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring	
	+ - +++	0 - ++	0 - ++	0 - +++	0 - ++	
	available amounts	credit quality level	market risk determination and level		collateral management	
	0 - ++	0 - +++	0 - +		0 - ++	
Equity	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring	
	0 - ++	+ - +++	++ - +++	++ - +++	+ - +++	
	available amounts	credit quality level	market risk determination and level		collateral management	
	0 - +	0 - +++	0 - +		+ - ++	
Non-marketable assets						
	Credit claims	eligible amounts	credit quality determination	price determination	transferability	eligibility assessment/monitoring
		++ - +++	0 - +++	0 - +	0 - +	0 - +
		available amounts	credit quality level	market risk determination and level		collateral management
	++ - +++	0 - +++	0 - +		0 - +	

Notes "Foreign Bonds" includes bonds issued by foreign or supranational issuers, issued in domestic or foreign CDS/SSS, in domestic or foreign currency.

Source: IMF.

0: requirement is hardly met

+: requirement is met to a limited extent

++: requirement is met to some extent

+++: requirement is met to a large extent