CROSS-BORDER SETTLEMENT INFRASTRUCTURE FORUM BRIEF No. 2

COMPARATIVE ANALYSIS OF COLLATERAL ELIGIBILITY CRITERIA

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I. Introduction

Key tasks of the Cross-Border Settlement Infrastructure Forum (CSIF) are to conduct a study on the collateral eligibility of the region's local currency (LCY) bonds and to discuss possible implementation of the Cross-Border Collateral Arrangement (CBCA) and the Central Bank Liquidity Bridge.[1] These tasks are set out in the ASEAN+3 Asian Bond Markets Initiative (ABMI) Mid-Term Roadmap, 2023–2026.[2]

Collateral plays a pivotal role in supporting secured financial transactions. And the importance of eligible collateral criteria has been increasingly recognized since the global financial crisis. This importance may even increase further as risk management practices evolve and financial institutions step up efforts to respond to global financial regulatory changes.

The global financial crisis drove central banks and market participants to consider revamping their eligibility criteria for collateral. To be eligible for collateral, assets must support sufficient market liquidity in view of valuation and be transferable across participants as well as markets.

Overall, sound eligibility criteria for collateral and efficient collateral transactions would contribute to both the development of LCY bond markets and financial stability in the region. In parallel, facilitating collateral transactions require a robust collateral framework, liquid domestic bond markets, and interoperable market infrastructures.

HIGHLIGHTS

- Eligible collateral plays a pivotal role in supporting financial transactions. The importance of eligible collateral criteria has garnered significant attention as financial market infrastructures and financial institutions step up their efforts to respond to global financial regulatory changes.
- Central banks tend to take a more conservative approach in setting collateral criteria compared to other collateral frameworks. This behavior accounts for various restrictions imposed by individual central banks in accordance with relevant laws and regulations.
- Central counterparties (CCPs) in the markets of developed economies provide underlying collateral baskets for CCP-cleared repo transactions.
- Global financial regulatory frameworks extensively affect CCPs and financial institutions in conducting secured financial transactions and collateral risk management.
- To facilitate the development of local currency bond markets in the region, it is important to (i) expand eligible collateral criteria, (ii) revamp market infrastructures, (iii) revise market regulations, and (iv) conduct further study.

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[1] This brief was written by Leelark Park, CSIF consultant, with support from Satoru Yamadera, advisor, and Jiwoong Choi, financial sector specialist, both of the Economic Research and Development Impact Department of the Asian Development Bank (ADB); Matthias Schmidt, ASEAN+3 Bond Market Forum (ABMF) consultant; and Yvonne Osonia, ADB consultant.

[2] ASEAN+3 refers to the 10 members of the Association of Southeast Asian Nations (ASEAN) plus the People's Republic of China, Japan, and the Republic of Korea.

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In this regard, it is crucial to identify the collateral eligibility criteria applicable to financial transactions in the markets.

Cross-Border Settlement Infrastructure Forum

The Asian Bond Markets Initiative (ABMI) was launched in 2003 by the finance ministers of the Association of Southeast Asian Nations (ASEAN) plus the People's Republic of China (PRC), Japan, and the Republic of Korea (collectively known as ASEAN+3) to boost the development of local currency bond markets. The Asian Development Bank has been acting as the ABMI Secretariat since its inception.

The Cross-Border Settlement Infrastructure Forum (CSIF), which has central banks and central securities depositories (CSDs) as members and ASEAN+3 government officials as observers, is a subforum under ABMI that promotes more active intraregional portfolio investments by creating an efficient regional settlement intermediary.

Cross-border transactions in bonds and other securities are currently processed through custodians and a correspondent banking network (depending on currency), generating an inevitable time lag between the time of trade and the delivery of securities and money, thus increasing credit risk and settlement risk. To address this problem, the CSIF member organizations agreed to establish a central securities depository (CSD)–real-time gross settlement (RTGS) linkage, which directly links the settlement systems of central banks and CSDs. The linkages among national CSDs and central banks' real-time gross settlement systems in different regional markets are expected to facilitate intraregional portfolio investments and the use of local currency bonds as collateral, which otherwise have been locked in onshore markets, by enabling cross-border, cross-currency delivery-versus-payment of cross-border securities transactions, as well as payment-versus-payment of local currencies in the region without a time lag.

This study provides comparative analysis of collateral eligibility criteria across key frameworks, with a view to managing uncertainty, inefficiency, and complexity—all of which are issues that financial market infrastructures (FMIs) and market participants must deal with in managing their collateral arrangements.

To this end, this study analyzes and compares the similarities and differences in eligible collateral criteria across key frameworks of central banks, central counterparties (CCPs), and global financial regulatory frameworks.

II. General Collateral Eligibility Criteria

This section presents the general description of eligible collateral criteria in financial transactions.

The establishment of securities as eligible collateral helps to protect central banks and market participants from financial losses by focusing on assets of sufficiently high quality. The European Central Bank (ECB) suggests the following general collateral requirements to be desirable for eligible collateral:[3]

- **Legal certainty**. Collateral needs to be incontrovertible in terms of legal status.
- **Minimum credit quality**. Market participants should always set a credit quality threshold for collateral.
- **Simplicity**. The structure of collateral and its inherent risks should be simple.
- **Operational efficiency**. The features of collateral should ensure smooth, safe, and speedy handling by takers.
- **Market neutrality**. Collateral criteria should avoid market distortion.
- **Market transparency and price availability**. Collateral needs to be traded on markets with established rules.
- **Market liquidity of collateral**. Collateral should be sold easily, quickly, and without depressing prices if a counterparty defaults.

In addition, many central banks explicitly stipulate the collateral criteria with high credit ratings. For instance, in the case of the United States Federal Reserve system, several criteria are mandatory:[4]

[3] ECB. 2017. *The Eurosystem Collateral Frameworks Explained. Occasional Paper Series. No. 189.* Frankfurt. pp. 12–13.
[4] The Federal Reserve. Collateral Eligibility–Securities and Loans. https://www.frbdiscountwindow.org/Pages/Collateral/collateral_eligibility.

- A pledging institution must have rights in the securities that are sufficient to grant an enforceable security interest to the reserve bank.
- Securities should not be subject to any regulatory or other constraints that impair their liquidation.
- Securities must meet the regulatory definition of "investment grade" at a minimum, and in some cases must be of "AAA" rating quality (where indicated).

The Bank of Japan (BOJ) also specifies guidelines for eligible collateral. These include: (i) maintaining the soundness of the central bank's assets, (ii) ensuring smooth business operations of the central bank and efficient use of collateral, and (iii) utilizing market information.

Likewise, global regulatory frameworks also provide general eligible criteria for collateral. For instance, the Principles for Financial Market Infrastructures (PFMI), which form the most representative global standard for collateral, recommend that an FMI should:[5]

- limit the use of assets as collateral with low credit, liquidity, and market risks;
- establish prudent valuation practices;
- set and enforce appropriately stable and conservative haircuts and concentration limits; and
- mitigate the risks associated with its use when accepting cross-border collateral.

To include assets as collateral, these requirements may need to be carefully considered and adopted.

III. Collateral Eligibility Criteria

This section explains in detail the collateral eligibility criteria across three key frameworks:

(i) central bank frameworks covering open market operation (OMO) repo transactions for monetary policy implementation and foreign currency (FCY)-denominated collateral for the CBCA or standing facilities;
(ii) a CCP framework covering underlying collateral for CCP-cleared repos and margin collateral pools for over-the-counter (OTC) derivatives;[6] and
(iii) global regulatory frameworks covering the PFMI, Basel III liquidity coverage ratio (LCR), and margin requirements for non-centrally cleared derivatives (NCCDs).

1. Central Bank Collateral Frameworks

Collateral Criteria for Open Market Operation Repo Transactions

This section focuses on the collateral eligibility criteria of OMO repo transactions of central banks to implement monetary policy.

The collateral criteria of central banks are important in determining the accessibility of financial institutions to central bank liquidity.[7] In general, central banks' collateral frameworks are based on legal certainty, credit quality, operational efficiency, market neutrality, and transparency with regard to large transactions.

In practice, several collateral criteria factors can be observed across central banks. When central banks conduct their OMO using repo transactions, they typically buy a specific set of assets. These generally include government bonds and various debt instruments issued by both the public sector (e.g., central banks and government agencies) and the private sector (including credit institutions and corporations).

Table 1 shows the eligible collateral criteria accepted as part of the monetary policy operations of central banks in major economies. The main eligibility criteria refer to the issuer of assets, credit standards, and foreign currency.

In terms of the issuer of assets, the BOJ, Eurosystem, and Riksbank accept a wide range of assets as collateral, including bonds from the public sector as well as the private sector. However, each central bank included in Table 1 applies different standards for debt instruments issued by the private sector (e.g., credit institutions and corporations) and supranationals. In the cases of the Bank of England (BOE) and the Federal Reserve, for example, the eligibility criteria for OMO repo collateral are limited basically to public sector bonds.

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[5] The PFMI were established by the Bank for International Settlements' (BIS) Committee on Payments and Market Infrastructures and the International Organization of Securities Commissions in 2012. Selected parts of the PFMI recommendations are cited in the text.
[6] ECB. 2013. *Collateral Eligibility Requirements: A Comparative Study across Specific Frameworks*. Frankfurt. p. 7.
[7] ADB. 2022. *Local Currency Collateral for Cross-Border Financial Transactions: Policy Recommendations from the CSIF*. Manila. p. 8.

Table 1: Eligible Collateral Criteria for Open Market Operation Repo Transactions of Central Banks in Major Economies

	Federal Reserve System	Eurosystem	BOE	Riksbank	BOJ
Issuer of Asset					
Government	✓	✓	✓	✓	✓
Public Sector	✓	✓	✓	✓	✓
Central Bank		✓	✓	✓	
Credit Institutions		✓		✓	
Corporations		✓		✓	✓
Supranationals		✓		✓	✓
Minimum Credit Standard		BBB−		A−	BBB
Foreign Currency			CAD, EUR, USD	DKK, EUR, GBP, JPY, NOK, USD	EUR, GBP, USD

BOE = Bank of England, BOJ = Bank of Japan, CAD = Canadian dollar, DKK = Denmark krone, EUR = euro, GBP = pound sterling, JPY = Japanese yen, NOK = Norwegian krone, USD = United States dollar.
Source: Bank for International Settlement's Market Committee. 2022. *Compendium: Monetary Policy Frameworks and Central Bank Market Operations*. Basel.

Concerning credit standards, central banks typically require that such standards are set high.

As for foreign currency, three central banks included in Table 1 (the BOE, the BOJ, and Riksbank) accept foreign assets denominated in global reserve currencies—such as the euro, US dollar, and pound sterling—in addition to collateral denominated in their domestic currencies. Notwithstanding, the Federal Reserve and Eurosystem are some central bank examples that have limited their accepted currency to domestic only.

In contrast, for ASEAN plus the People's Republic of China and the Republic of Korea (i.e., ASEAN+3 except for Japan), as shown in **Table 2**, collateral criteria for the OMO of regional central banks are more conservative than that of central banks in developed economies in terms of the issuer of assets and foreign currency. Almost all regional central banks accept a specific range of assets issued by governments, public institutions, and central banks. In general, they do not accept debt instruments issued by the private sector. Only Bank Negara Malaysia (BNM) recognizes corporate bonds as collateral for OMO repo transactions with a high credit rating.

Regarding FCY-denominated collateral, similar to the Federal Reserve and the Eurosystem, most regional central banks do not accept assets denominated in foreign currencies for OMO repo transactions. Only the Bangko Sentral ng Pilipinas accepts FCY-denominated obligations of the Government of the Philippines as collateral for its repo transactions.

Collateral Criteria for Cross-Border Collateral Arrangement or Standing Facilities

In order to provide LCY liquidity to domestic financial institutions through the CBCA or standing facilities, central banks may accept FCY-denominated collateral with a broader range of currencies. Basically, the major collateral for the CBCA or standing facilities comprise high-quality government bonds, central bank bills, and government-guaranteed bonds.

CBCA is a monetary policy instrument in which the central banks of the two participating countries enter into a reciprocal arrangement to provide liquidity to financial institutions accepting FCY-denominated assets as collateral. In other words, it is a policy tool that helps a central bank smoothly supply liquidity to foreign financial institutions operating in its market with FCY-denominated bonds held in their home countries. In this

Table 2: Eligible Collateral Criteria for the Open Market Operation Repo Transactions of Central Banks in ASEAN+2

	BI	BNM	BOK	BOT	BSP	MAS	PBOC	SBV
Issuer of Asset								
Government	✓	✓	✓	✓	✓	✓	✓	✓
Public Sector		✓	✓	✓			✓	✓
Central Bank	✓	✓	✓	✓		✓	✓	✓
Credit Institutions								
Corporates		✓						
Supranationals								
Minimum Credit Standard		A–		AAA				
Foreign Currency					USD			

BI = Bank Indonesia, BNM = Bank Negara Malaysia, BOK = Bank of Korea, BOT = Bank of Thailand, BSP = Bangko Sentral ng Pilipinas, MAS = Monetary Authority of Singapore, PBOC = People's Bank of China, SBV = State Bank of Vietnam, USD = United States dollar.
Note: ASEAN+2 refers to the 10 members of the Association of Southeast Asian Nations (ASEAN) plus the People's Republic of China and the Republic of Korea.
Source: Bank for International Settlement's Market Committee. 2022. *Compendium: Monetary Policy Frameworks and Central Bank Market Operations*. Basel.

regard, central banks accept various types of assets denominated in a range of foreign currencies.[8]

To be eligible as FCY collateral for the CBCA or standing facilities, assets need to meet specific requirements, ranging from foreign exchange risk to counterparty credit risk, to ensure sufficient quality and proper risk management of central banks.

Table 3 presents FCY-denominated collateral criteria for the CBCA or standing facilities of central banks in major economies as well as economies from ASEAN+3.

The central banks listed in Table 3 accept various types of foreign assets as collateral for the CBCA or standing facilities with a range of currencies. The major types of collateral include government bonds, government-guaranteed bonds, and central bank bills. The eligible collateral criteria of the BOE is more general and includes a broader range of assets such as asset-backed securities and corporate bonds with high credit standards.

In terms of currency, central banks provide LCY liquidity to their financial institutions. They do so by accepting LCY- or FCY-denominated assets as collateral through the CBCA or standing facilities.

Almost all central banks in major economies accept FCY-denominated collateral for the CBCA or standing facilities. However, in the region, only a few central banks—Bank Indonesia, BNM, BOJ, Bank of Thailand, and the Monetary Authority of Singapore (MAS)—all of which introduced the CBCA, accept FCY-denominated collateral to provide LCY liquidity.

The major currencies recognized include the euro, US dollar, pound sterling, and Japanese yen. By contrast, some central banks (e.g., BNM, Federal Reserve, MAS, and Riksbank) accept an extensive range of major or regional-currency-denominated assets as collateral.

[8] Footnote 7, p. 16.

Table 3: FCY-Denominated Collateral for Cross-Border Collateral Arrangements and Standing Facilities of Central Banks

	Federal Reserve System	Euro-system	BOE	Riksbank	BOJ	BI	BNM	BOT	MAS
Type of Asset									
Government Bonds	✓	✓	✓	✓	✓	✓	✓	✓	✓
Government -Guaranteed Bonds	✓	✓	✓				✓		
Central Bank Bills			✓	✓		✓	✓	✓	✓
ABS, Corporate Bonds			✓						
Foreign Currency	AUD, CAD, CHF, DKK, EUR, GBP, JPY, SEK	JPY, USD	CAD, EUR, USD	DKK, EUR, GBP, JPY, NOK, USD	EUR, GBP, USD	JPY	EUR, GBP, JPY, USD, EMEAP -member currencies	JPY, MYR, SGD	EUR, GBP, JPY, MYR, THB, USD

ABS = asset-backed securities, AUD = Australian dollar, BI = Bank Indonesia, BNM = Bank Negara Malaysia, BOE = Bank of England, BOJ = Bank of Japan, BOT = Bank of Thailand, CAD = Canadian dollar, CHF = Swiss franc, DKK = Danish krone, EMEAP = Executives' Meeting of East Asia and Pacific Central Banks, EUR = euro, FCY = foreign currency, GBP = pound sterling, JPY = Japanese yen, NOK = Norwegian krone, MAS = Monetary Authority of Singapore, MYR = Malaysian ringgit, SEK = Swedish krona, SGD = Singapore dollar, THB = Thai baht, USD = United States dollar.
Sources: Asian Development Bank. 2022. *Local Currency Collateral for Cross-Border Financial Transactions: Policy Recommendations from the CSIF*. Manila; Bank for International Settlements' Market Committee. 2022. *Compendium: Monetary Policy Frameworks and Central Bank Market Operations*. Basel.

2. Central Counterparty Collateral Frameworks

CCPs manage their risk exposure to the clearing members, employing a set of management instruments such as minimum credit ratings and margin requirements. The scope of eligible collateral for each clearing business is defined based on these policies. Therefore, all CCPs have basic policies and procedures of accepting collateral with low risk in relation to credit, liquidity, and market.

The collateral frameworks of CCPs related to the (i) underlying collateral pool for CCP-cleared repos, and (ii) initial margin collateral for centrally cleared repos and OTC derivatives are presented in this section.

Underlying Collateral Pool for Central Counterparty-Cleared Repo

For repo transactions, if the parties agree that a specific basket be used rather than a specific asset, the transaction is referred to as a "general collateral" (GC) repo. GC refers to either the "narrow" or "broad" set of collateral.[9]

Table 4 introduces the narrow eligible collateral baskets for CCP repo-clearing arrangements in major global markets. It includes four different narrow baskets: (i) the ECB and (ii) INT MXQ baskets, both operated by Eurex Clearing; (iii) the €GCPlus basket 1 operated by LCH SA in European markets; and (iv) general collateral financing (GCF) repo operated by the Fixed Income Clearing Corporation in the US market.

[9] Footnote 6, p. 21.

Table 4: Narrow Collateral Baskets for Central Counterparty Repo in Major Global Markets

CCP	Eurex Clearing		LCH SA	FICC
GC Pooling	ECB Basket	INT MXQ Basket	€GC Plus Basket 1 (LCR equivalent)	GCF Repo
Issuer of Asset	Governments, central banks, agencies, supranationals, financial and public corporations, and corporates	Central governments, agencies, supranationals, and credit institutions	Central governments, central banks, local governments, supranationals, agencies, covered bonds, and corporates	US Treasury bonds; MBS by Fannie Mae, Freddie Mac, and Ginnie Mae; non-mortgage-backed US agency securities; and STRIPS
Coverage	Approximately 3,000 securities	Approximately 1,500 securities	Approximately 3,300 securities	
Minimum Credit Standard	A–	AA–	GBs: A– Others: AA–	
Currency	EUR	AUD, CAD, CHF, DKK, EUR, GBP, JPY, NOK, SEK, and USD	EUR	USD

AUD = Australian dollar, CAD = Canadian dollar, CCP = central counterparty, CHF = Swiss franc, DKK = Denmark krone, ECB = European Central Bank, EUR = euro, FICC = Fixed Income Clearing Corporation, GBP = pound sterling, GBs = government bonds, GC = general collateral, GCF = general collateral financing, JPY = Japanese yen, LCR = liquidity coverage ratio, MBS = mortgage-backed securities, NOK = Norwegian krone, SEK = Sweden krona, STRIPS = Separate Trading of Registered Interest and Principal of Securities, US = United States, USD = US dollar.
Source: Various CCPs.

In terms of issuers of assets, the ECB basket includes assets such as government bonds, central bank bills, and even high-quality corporate bonds and covered bonds with a credit rating of A–/A3 credit or above. The €GCPlus basket 1 (LCR equivalent), which is also the narrow basket operated by LCH SA as a CCP, includes a restrictive range of securities issued by governments, central banks, agencies, and supranationals, and covered bonds with a rating higher than A– for government bonds and AA– or above for other bonds that meet the Basel III LCR requirement.

The Fixed Income Clearing Corporation as a CCP in the US market also operates the similar repo basket, GCF repo. The basket includes a narrow set of public sector securities of high quality.

As for the currency of the three baskets above (i.e., ECB basket, €GCPlus basket 1, and GCF repo), the currency denomination of eligible collateral is domestic only.

With respect to the INT MXQ basket operated by Eurex Clearing, it contains only FCY-denominated assets issued by central governments, credit institutions and agencies (only covered bonds allowed), and supranationals meeting certain requirements such as a high credit rating (at least AA). Therefore, this basket may be suitable for cross-border repo transactions.

Overall, the narrow collateral baskets have common features in terms of the underlying collateral pool for CCP-cleared repos. They include the most liquid collateral and high credit standards (e.g., minimum combined credit rating of A–).

Besides the narrow baskets, CCPs in European markets also provide the broad baskets such as the ECB extended basket and €GCPlus basket 2. The broad baskets contain a wider range of collateral with lower credit standards than the narrow baskets.

In relation to the ECB extended basket of Eurex Clearing, it includes the same range of assets as the ECB basket. However, the credit standard requirement is less conservative than that of the ECB basket. For instance, the minimum credit rating requirement of the basket needs to be BBB–/Baa3. Accordingly, while the ECB basket only includes approximately 3,000 securities as collateral, the

Table 5: Eligible Collateral for Central Counterparty Repo Transactions in ASEAN+3

Markets	CN	HK	JP	KR	MY	TH
CCP	**CSDC**	**HKSCC**	**JSCC**	**KRX**	**Bursa Malaysia**	**TCH**
Issuer of Asset						
Central governments	✓	✓	✓	✓	✓	✓
Central banks	✓	✓		✓	✓	✓
Public sector institutions (Other than central governments)	✓			✓	✓	
Supranationals	✓			✓	✓	
Credit institutions (Covered bonds)	✓			✓	✓	
Corporates (Other than credit institutions)	✓		✓	✓	✓	

ASEAN+3 = 10 members of the Association of Southeast Asian Nations (ASEAN) plus the People's Republic of China, Japan, and the Republic of Korea; CN = People's Republic of China; CSDC = China Securities Depository & Clearing Co., Ltd.; HK = Hong Kong, China; HKSCC = Hong Kong Securities Clearing Company Limited; JP = Japan; JSCC = Japan Securities Clearing Corporation; KR = Republic of Korea; KRX = Korea Exchange; MY = Malaysia; TCH = Thai Clearing House; TH = Thailand.
Source: Various central counterparties.

ECB extended basket contains approximately 10,000 securities as collateral.

The €GCPlus basket 2 of LCH SA contains a broader-based set of securities including debt instruments issued by credit institutions and uncovered bonds (including bank certificates of deposit), in addition to the collateral range of basket 1 with lower credit standards (current minimum rating of the assets is BBB−).

As a result, assets in the broad baskets are subject to additional restrictions (i.e., haircuts and concentration limits) because of risk management considerations.

Contrary to the CCPs in major global markets, regional CCPs typically do not provide GC baskets for repo transactions. This is partly because, unlike developed markets, regional bond markets are not integrated with one another and the linkages among FMIs are also less developed.

As shown in **Table 5**, each regional CCP provides a specific range of assets as underlying collateral for centrally cleared repo transactions.

Basically, repo collateral, the terms of which are subject to negotiation between the two parties, includes any assets traded in the markets. In other words, restrictions or limitations on eligible securities may be minimal in regional repo markets.

Nonetheless, the main underlying assets used as collateral in the region are government bonds, central bank bills, and government-guaranteed bonds. And the use of other securities (e.g., corporate bonds or asset-backed securities) is generally less common as these securities are either less liquid, have lower credit quality, or are subject to more volatile price movements.

Specifically, even though market participants are allowed to use other collateral issued by the private sector, these repo transactions are rare in the region. This is because regional private sector securities generally do not qualify in terms of liquidity and credit standards.

Initial Margin Collateral
As for CCP-cleared repos and OTC derivatives, CCPs accept collateral in the context of margin requirements.

There are two types of margins: initial margin and variation margin. This section focuses on covering initial margins collected by selected CCPs in European markets.

CCPs apply a number of restrictions to the collateral accepted as initial margin, which is collected to cover potential losses in the event of a clearing member's default. Moreover, it acts to cover any costs of liquidation that CCPs bear in the event of the default of a clearing member.[10]

Acceptance of securities and types of assets as initial margin varies across CCPs. For instance, Eurex Clearing accepts a wider range of collateral including private sector bonds. On the other hand, LCH SA accepts only government bonds and cash as the initial margin collateral.

In addition to the requirements aforementioned, CCPs establish risk management requirements to manage the collateral using haircuts and concentration limits.

3. Global Regulatory Collateral Frameworks

As part of the response to the global financial crisis, a number of financial regulatory reforms have been proposed by international standard setting bodies such as the Bank for International Settlements (BIS), Financial Stability Board, and International Organization of Securities Commissions (IOSCO). Major reforms for collateral criteria include the PFMI set by the Committee on Payments and Market Infrastructures and IOSCO; Basel III LCR established by the BIS Basel Committee on Banking Supervision (BCBS); and margin requirements for NCCDs set by the BCBS and IOSCO.

An overview of the collateral eligibility criteria under the main financial regulatory reforms is explained below.

Principles for Financial Market Infrastructures

In relation to collateral criteria, the PFMI specify that FMIs should limit the use of assets with a low credit rating, insufficient liquidity, or market risks. The PFMI also recommend that FMIs set and enforce appropriately conservative haircuts and concentration limits.[11]

An FMI is also allowed to accept foreign collateral. In such cases, an FMI should identify and mitigate any additional risks associated with its use and ensure that it can be used in a timely manner.[12] Specifically, Principle No. 5 of the PFMI stipulates that FMIs using foreign collateral should consider (i) legal and operational safeguards, (ii) significant liquidity effects, (iii) foreign exchange risk, and (iv) haircuts.

However, since the PFMI are the comprehensive high-level standard for collateral, they do not directly specify the type of collateral and other requirements.

Basel III Liquidity Coverage Ratio Requirement

Basel III covers liquidity risk measurement, standards, and monitoring for banks. Particularly, it involves criteria for high-quality liquid assets (HQLA) for the LCR, which is an essential component of the Basel III reform.

According to the LCR requirements, a bank should have sufficient HQLA to survive a significant stress scenario lasting 30 calendar days, and these assets should be immediately and easily convertible into cash at little or no less of value.[13]

When it comes to the eligible collateral, as shown in **Table 6**, there are two categories of HQLA: Level 1 and Level 2.

Level 1 assets only consist of securities issued by governments, central banks, public sector entities, and multilateral development banks rated AA– or above. Accordingly, haircuts and concentration limits are not applied to Level 1 assets.

Level 2 assets consist of a broader range of assets including corporate bonds, mortgage-backed securities (MBS), and covered bonds with a credit rating of A– or higher. Level 2 assets are divided into two sublevels: Level 2A and 2B.[14]

Level 2A assets (maximum of 85% of HQLA) include (i) securities issued by governments, central banks, multilateral development banks, and public sector entities rated between A– and A+; (ii) corporate bonds rated AA– or above; and (iii) covered bonds rated AA–

[10] Footnote 6, pp. 28–29.
[11] BIS CPMI and IOSCO. 2012. *Principles of Financial Market Infrastructures.* Basel. p. 46.
[12] Footnote 11, p. 48.
[13] BIS BCBS. 2023. *Liquidity Coverage Ratio.* Basel. p. 6.
[14] Footnote 13, p. 15.

Table 6: Eligible Collateral for Liquidity Coverage Ratio under Basel III

	Level 1 (without limit)	Level 2 (up to 40% of eligible collateral)	
		Level 2A (maximum of 85% of HQLA)	**Level 2B (maximum of 15% of HQLA)**
Qualifying Assets	(i) Securities from governments, central banks, public sector entities, and multilateral development banks (AA– or above) (ii) Cash (iii) Central bank reserves	(i) Securities from governments, central banks, public sector entities, and multilateral development banks (from A– to A+) (ii) Corporate bonds (AA– or above) (iii) Covered bonds (AA– or above)	(i) MBS (AA or above) (ii) Corporate bonds (from A+ to BBB–) (iii) Equity shares
Haircuts	0%	15%	MBS: 25%, Others: 50%

CBs = central banks, HQLA = high-quality liquid assets, LCR = liquidity coverage ratio, MBS = mortgage-backed securities.
Note: In the case of foreign-currency-denominated HQLA, it must be subject to an additional haircut.
Source: Bank for International Settlements' Basel Committee on Banking Supervision. 2023. *Liquidity Coverage Ratio*. Basel.

or above. Consequently, these assets are subject to a 15% haircut.[15]

Level 2B assets (maximum of 15% of HQLA) include (i) MBS rated at least AA, subject to a 25% haircut; (ii) corporate bonds rated between A+ and BBB–, subject to a 50% haircut; and (iii) equity shares, subject to a 50% haircut.[16]

Lastly, concerning the asset composition, Level 1 assets can be included without a limit, while Level 2 assets can only comprise up to 40% of the eligible collateral.[17]

Margin Requirements for Non-Centrally Cleared Derivatives

A set of requirements on margins for NCCDs have been introduced by the BCBS and IOSCO. Concerning the collateral criteria, the regulation stipulates that assets collected as margin should

(i) be eligible collateral with the most liquidity and highest quality;
(ii) ensure the value of collateral;
(iii) not be exposed to excessive credit, market, and foreign exchange risks; and
(iv) apply appropriate risk-sensitive haircuts.

As for eligible collateral criteria, the regulation provides examples of the types of eligible collateral that satisfy the key principle as a guide. Collateral securities generally include high-quality government and central bank securities, as well as high-quality corporate bonds and covered bonds.[18]

IV. Collateral Risk Management

The eligible collateral is subject to several restrictions—such as those related to issuers of assets, credit standards, haircuts, and concentration limits—because of risk management considerations.

Issuers of Assets

Debt instruments issued by public sector entities are broadly accepted in all collateral frameworks. However, the acceptance of private sector securities by central

[15] Footnote 13, p. 18.
[16] Footnote 13, p. 77.
[17] Footnote 13, p. 15.
[18] BIS BCBS and IOSCO. 2015. Margin Requirements for Non-Centrally Cleared Derivatives. pp. 17–18.

banks and CCPs is uncommon because of their relatively low liquidity and credit standards.

Credit Standards
To secure the quality of eligible assets, minimum credit ratings are required in almost all collateral criteria. For instance, credit standards are an explicit set of rules that can help determine the degree of creditworthiness of the asset itself. Accordingly, central banks and CCPs set minimum credit rating thresholds for issuers.[19]

Haircuts
The haircut is applied to the eligible collateral criteria of central banks, CCPs, and financial regulatory frameworks. It is generally determined by the relevant factors including type of asset, level of credit quality, maturity, price volatility, and foreign exchange risk. Furthermore, haircut practices differ across collateral frameworks and the practices also tend to change in times of market stress.[20]

Central banks and CCPs use haircuts to take into account liquidity and market risks. For instance, in the case of central bank collateral criteria, haircuts are applied to eligible assets according to asset categories, maturities, and credit ratings.

Similar to the central banks, some CCPs (e.g., Eurex Clearing and LCH SA) accept a broader set of debt instruments. Correspondingly, a wider range of haircuts is applied. In other words, CCPs address the potential volatility in valuation of the broader set of assets through the application of appropriate haircuts.[21]

In relation to the global regulatory frameworks shown in Table 6, Basel III LCR Level 1 assets are not subject to the haircut. On the other hand, a 15% haircut applies to each Level 2A asset's current market value and a larger haircut of 25%–50% applies to each Level 2B asset's current market value.

Concentration Limits
To limit risk exposure, all collateral frameworks selected in this study introduce concentration limits as a risk management tool. Central banks restrict the use of collateral in certain ways. For example, the Eurosystem has a concentration limit in place, which curbs the use of unsecured bonds issued by a credit institution or by any other entities.[22]

CCPs also impose limits to prevent undue concentration from certain collateral assets in order to protect against adverse price movements affecting their collateral holdings. For instance, in the CCP GC repo baskets, covered bonds can only comprise up to 20% of the total collateral.[23]

In the case of global regulatory frameworks, to avoid concentration risk, limits are imposed on the collateral. For instance, Basel III LCR Level 2 assets can only comprise up to 40% of the total collateral.[24]

V. Comparative Analysis across Key Collateral Frameworks

This section provides comparative analysis of the eligible collateral criteria among key collateral frameworks of central banks, CCPs, and global financial regulatory frameworks.

1. Collateral Criteria of Central Banks

When comparing collateral criteria across central banks, a number of similarities and differences can be observed. First, central banks basically choose their own collateral criteria, especially related to (i) type of assets, (ii) credit standards, (iii) place of establishment of the issuers, and (iv) FCY-denominated assets.

Collateral Criteria for Open Market Operation Repo
Concerning the type of assets for OMO repo, almost all central banks mainly accept bonds as collateral issued by governments, central banks, and public sector institutions with a high level of credit ratings.

However, debt instruments issued by the private sector entities, such as credit institutions and corporations, are not accepted in all cases. For instance, the Federal Reserve and the BOE, as well as most regional central banks, accept a narrow set of assets as OMO repo collateral. In other words, the eligible collateral is mainly limited to government bonds, government-guaranteed bonds, and central bank bills. By contrast, among central banks in major economies, the Eurosystem, Riksbank,

[19] Footnote 6, p. 11.
[20] Footnote 6, p. 44.
[21] BIS BCBS and IOSCO. 2015. Margin Requirements for Non-Centrally Cleared Derivatives. p. 17.
[22] Footnote 6, pp. 12–13.
[23] Japan Securities Clearing Corporation. Collateral. https://www.jpx.co.jp/jscc/en/risk/collateral/collateral.html.
[24] Footnote 13, p. 15.

and BOJ accept a broad range of assets including debt instruments issued by the private sector.

In terms of credit standards, there are strong similarities among the central banks referenced in this brief, most of which require that these standards be high. Specifically, almost all of the central banks set minimum rating requirements for issuers for OMO repo collateral.

In relation to FCY-denominated assets, the BOE, BOJ, and Riksbank accept collateral denominated in a wide range of foreign currencies. On the contrary, all regional central banks, with the exception of the Bangko Sentral ng Pilipinas, only accept LCY-denominated collateral.

Overall, eligible collateral for OMO repo differs across central banks. The diversity in collateral criteria reflects differences in factors such as central bank legislation, financial market structures, and the level of market development.

Collateral Criteria for the Cross-Border Collateral Arrangement or Standing Facilities

There are also strong similarities in terms of the type of collateral for the CBCA or standing facilities. As shown in Table 3, the most common FCY-denominated collateral includes government bonds, government-guaranteed bonds, and central bank bills.

However, when it comes to foreign currency, each central bank has different criteria based on its monetary policy operation.

Central banks in developed economies (i.e., the BOE, BOJ, Federal Reserve, Eurosystem, and Riksbank) accept FCY-denominated bonds for the operation of the CBCA or standing facility schemes. On the other hand, only a few central banks in the ASEAN+2 (ASEAN plus the People's Republic of China and the Republic of Korea) region (e.g., Bank Indonesia, the BNM, the BOT, and MAS) that have introduced the CBCA accept FCY-denominated bonds as collateral.

2. Underlying Collateral Baskets for Central Counterparty-Cleared Repo

This section analyzes the similarities and differences of underlying collateral baskets for CCP-cleared repos.

A CCP concentrates on risk exposure in the markets that it clears. Therefore, in order to manage the credit and liquidity risks of member institutions, a CCP establishes various measures such as eligibility criteria, prudent valuation practices, and haircuts. Eligible collateral of CCP-cleared repos is limited to those assets with low risk, ample liquidity, and a broad investor base such as government bonds and central bank bills.

Regarding similarities, in the case of the narrow basket, the scope of collateral is limited to the level of OMO repo collateral criteria of the central banks. All collateral baskets selected include only LCY-denominated assets—except for the INT MXQ basket, which may be suitable for cross-border repo transactions. Furthermore, the valuation of collateral, haircuts, and concentration limits are commonly set for all the CCP-cleared repo baskets.

As for differences, in relation to the type of asset, there are not many similarities, and collateral criteria vary widely by market, type of basket, and CCP. In major global markets, while the narrow baskets only accept public sector bonds and covered bonds, the broad baskets accept other debt instruments issued by credit institutions or corporations.[25]

In the region, as shown in Table 5, the type of collateral is also very different for each CCP. For example, some CCPs (i.e., Bursa Malaysia; China Securities Depository & Clearing Co., Ltd.; and Korea Exchange) actively accept a wide range of collateral including debt instruments issued by credit institutions and corporations. On the other hand, even though market participants are allowed to accept other assets issued by private sectors, other CCPs only use a narrow range of high-quality collateral in practice.

In terms of credit standards, the narrow baskets apply higher credit ratings, while the broad baskets apply lower credit ratings.

3. Global Regulatory Collateral Frameworks

As for similarities, regarding type of assets, a specific range of highly liquid assets with low credit and market risks are eligible as collateral. For example, assets issued by governments or central banks are eligible as collateral under all of the regulatory frameworks considered. Debt securities issued by supranational institutions are also accepted. In addition, selected global regulatory

[25] Footnote 6, p. 39.

frameworks set and enforce appropriately conservative haircuts and concentration limits.[26]

As for differences, in terms of credit standards, only the Basel III LCR sets minimum credit standards for certain assets.[27] By contrast, the PFMI and margin requirements of NCCDs broadly indicate collateral as HQLA with low credit and market risks. In particular, because the PFMI make up the high-level framework for collateral, they do not present specific collateral criteria.

With respect to FCY-denominated assets, the PFMI state that FMIs should take foreign exchange risk into account. By contrast, the Basel III LCR includes a narrow definition of eligible HQLA denominated in foreign currencies.

VI. Conclusion and Policy Implications

1. Conclusion

This section concludes the comparative analysis of collateral eligibility criteria within key frameworks.

First, central banks determine collateral eligibility based mainly on the type of assets, credit ratings, and currencies. And the observation suggests that central banks generally set collateral criteria in a more conservative manner than other collateral frameworks. However, in some cases, central banks in major economies (e.g., the BOJ, Eurosystem, Riksbank) accept a broader range of assets as collateral.

Regional central banks typically establish narrower eligibility criteria for collateral than central banks in developed economies, given the various restrictions imposed by individual central banks in accordance with relevant laws and regulations.

In the case of FCY-denominated collateral for OMO repo transactions, central banks in major economies accept a wider range of FCY-denominated collateral, while regional central banks limit collateral to domestic assets.

Second, CCPs in major global markets provide underlying collateral baskets for CCP-cleared repo transactions. Collateral baskets are composed of (i) the narrow basket, which is limited to public sector bonds and covered bonds; and (ii) the broad basket, which additionally includes uncovered bank bonds and debt instruments issued by private sector entities with lower credit standards.[28]

And the narrow basket is consistent with the collateral criteria of central banks to enable the collateral to be used for transactions with the central banks.

However, contrary to CCPs in major global markets, regional CCPs do not provide general collateral baskets for CCP-cleared repo transactions.

Third, in response to the global financial crisis, several global financial regulatory frameworks were introduced by international-standard-setting bodies. These requirements affect CCPs and financial institutions in conducting secured financial transactions and collateral risk management in practice. For instance, the Basel III LCR requirement includes a narrow definition of eligible HQLA with high credit ratings.

Finally, the eligible collateral criteria are subject to several restrictions such as issuer of assets, credit standards, currencies, haircuts, and concentration limits because of risk management considerations.

2. Policy Implications

Collateral eligibility criteria have gained more attention due mainly to financial regulatory reforms after the global financial crisis. For instance, both CCPs and financial institutions have responded to these extensive reforms, and these movements have led to changes in their financial transactions and risk management practices. Furthermore, these frameworks result in strong demand for HQLA as collateral and effective collateral management.

Appropriate collateral criteria and active cross-border transactions could contribute to regional bond market development and financial stability in the region. Therefore, it is crucial to study specific measures for establishing the collateral eligibility criteria and promoting the use of collateral at the regional level.

[26] BIS and IOSCO. 2012. Principles of Financial Market Infrastructures. p. 46.
[27] Footnote 6, p. 38.
[28] Footnote 6, p. 43.

In order to facilitate the development of LCY bond markets in the region, various tasks need to be implemented. They include (i) expanding eligible collateral criteria, (ii) revamping market infrastructures, (iii) revising market regulations, and (iv) conducting further study.

Expanding Collateral Eligibility Criteria

With respect to expanding eligible collateral criteria, specific measures would be strengthening the leading role in establishing the collateral criteria and expanding eligible collateral pools, including FCY-denominated assets, for central banks.

In the case of regional government bonds, although their credit ratings are higher than the government bonds of some advanced countries (with the latter currently recognized as eligible collateral), the use of regional government bonds in collateral transactions is still limited.[29] Therefore, regional government bonds exceeding a certain credit rating need to be recognized as global- or cross-border-eligible collateral.

In this regard, it is worth discussing the establishment of collateral basket pools so that regional government bonds with high credit ratings can actively be used as collateral. This can be one way to revitalize LCY collateral transactions in the region.

Revamping Market Infrastructures

The operational design of market infrastructures can have a significant impact on eligible collateral transactions. Therefore, well-functioning central securities depositories and securities settlement systems and strengthened linkages between market infrastructures would be essential.

In particular, the expansion of linkages and interoperability arrangements between FMIs could provide market participants with major opportunities to resolve the mismatches across regional markets in terms of collateral locations and currencies.[30]

Revising Market Regulations

Crucial measures to facilitate the smooth functioning of market regulations include (i) developing Asian common legal and market practices, (ii) harmonizing with global financial regulations, and (iii) adopting standardized legal documents for collateral transactions.

Conducting Further Study

The CSIF survey from member central banks and central securities depositories suggested that collateral eligibility criteria are an important factor in developing LCY collateral markets in the region.[31] Given these implications regarding collateral markets, follow-up study is necessary to delve into the regional collateral eligibility pool and the CBCA in relation to collateral transactions.

[29] Footnote 7, pp. 30–33.
[30] Footnote 6, p. 43.
[31] The survey was conducted by the CSIF in 2021.

About the Asian Development Bank

ADB is committed to achieving a prosperous, inclusive, resilient, and sustainable Asia and the Pacific, while sustaining its efforts to eradicate extreme poverty. Established in 1966, it is owned by 68 members—49 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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