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The new repo tri-party Canadian Collateral Management Service: Benefits to the financial system and to the Bank of Canada

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Introduction

Collateral plays a crucial role in the modern financial system, both in Canada and globally. Financial transactions secured by collateral help reduce credit risk for lenders while enabling borrowers to access lower interest rates.

In 2021, the Bank of Canada held a workshop on securities financing with a group of market participants.[1] They highlighted that there were bottlenecks and operational inefficiencies in collateral mobility. To address these challenges, TMX Group Limited and Clearstream Banking S.A. have launched a major new financial infrastructure initiative: the Canadian Collateral Management Service, or CCMS (TMX Group Limited 2024). The Bank has decided to join the CCMS for its market operations (Canadian Fixed Income Forum 2025).

This paper describes the benefits of the CCMS for participants in Canadian financial markets and for the Bank of Canada. We explain how the CCMS is expected to enhance the functioning of the repurchase (repo) market, a core market for short-term funding. We also outline how the Bank stands to benefit from the new service.

The basics of a repo

Repo is a core funding market in Canada that a wide range of participants use daily to obtain secured funding, invest cash and find specific securities. Repo acts as a collateralized loan where a cash borrower obtains funds by selling a financial asset, such as a government bond, to a lender and repays the loan by repurchasing the asset at a later date. The transaction is considered a repo for the borrower, who provides collateral, and a reverse repo for the lender, who provides the cash. For simplicity, we use the term repo to refer to both perspectives unless otherwise noted.

Unlike a standard collateralized loan, a repo transaction transfers full ownership of the asset to the cash lender before returning the title to the borrower at maturity (**Figure 1**). This structure provides strong legal protection for the cash lender if a borrower defaults. Additionally, the cash lender can typically reuse the purchased asset for other transactions.

- A lender that uses a tri-party repo agent to facilitate the transaction can reuse the asset as collateral for another tri-party trade.
- A lender that receives an asset directly from the borrower in a bilateral repo can reuse the asset for other trading strategies, collateral needs and settlement obligations. This practice is often referred to as rehypothecation.

[1] For a summary of the workshop, see Bank of Canada (2021).

Figure 1: Stylized depiction of a repo trade

Securities used in a repo contract can be identified during trade negotiations or selected later from a broader list of assets, such as government-issued securities.

A repo contract involving a particular security is known as a special repo. Usually, a cash lender initiates a special repo to obtain a specific security for hedging, trading or meeting settlement obligations.

In contrast, a repo contract that allows a cash lender to receive any security from a broader category, such as Government of Canada (GoC) securities, is called a general collateral (GC) repo. In a GC repo, the cash lender agrees to accept any security from the predefined list of eligible collateral. Securities providers, or cash borrowers, use a GC repo to obtain cash using whatever collateral they may have available at the time of the transaction, and lenders use it to earn interest on their cash, secured against a portfolio of securities.

Users of repo markets in Canada

The repo market offers numerous uses and benefits for participants.[2] For instance, it enables quick collateralized funding; facilitates market-making for investment dealers and principal trading for asset managers; allows leveraged investors to finance their security holdings; and provides cash investors with a source of income.

The largest players in the Canadian market are:

- the Big Six Canadian banks
- primary dealers in GoC securities
- smaller banks and investment dealers
- pension funds
- hedge funds

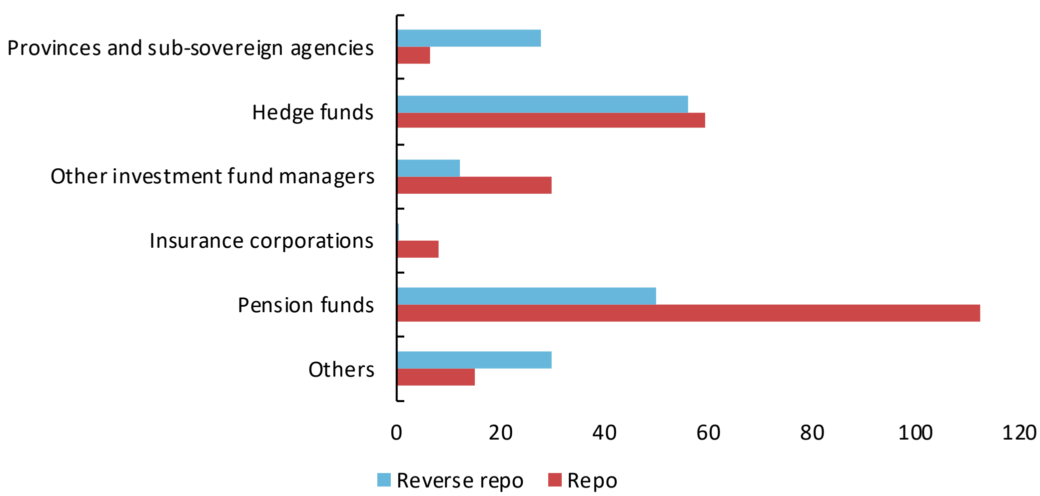
Banks actively use repos to borrow cash and reverse repos to invest cash. But, as a group, they are typically net cash lenders to their clients, including asset managers and hedge funds. The cash they provide to the market through repos makes up over 10% of Canadian banks' total assets (OFSI 2024), representing one of their largest asset categories (**Chart 1**).

[2] For a broader discussion of the repo market, see Garriot and Gray (2016).

Pension funds are generally net cash borrowers that often use repos to obtain leverage and enhance returns. They do this by using their GoC and provincial bonds in repo transactions and reinvesting the cash in other high-yielding assets. For Canada's eight largest pension funds, repos represent about 8% of the total assets under management and a significant share of the funds' liabilities (Bédard-Pagé et al. 2021). Hedge funds are also large users of repo markets, both to obtain leverage and to finance positions in specific securities (Plong and Maru 2024).

The repo market also provides critical support for liquidity in GoC bond markets by allowing securities dealers to efficiently finance their trading inventories of bonds and treasury bills. According to the Canadian Investment Regulatory Organization (2024), the repo trading volume for GoC bonds in 2024 was $43 trillion, almost three times greater than the $16 trillion value of GoC bond trading in the secondary market. On average, the volume of GoC repo trading is about $170 billion per day.

Chart 1: Average dealer client repo and reverse repo outstanding, May 2023–May 2024
Can$ billions



Note: *Others* includes foreign central banks, credit unions, mortgage finance companies, non-financial corporations, trusts, sovereign wealth funds and transactions with missing counterparty information. See the repo market factsheet available on the Bank's website for more information.

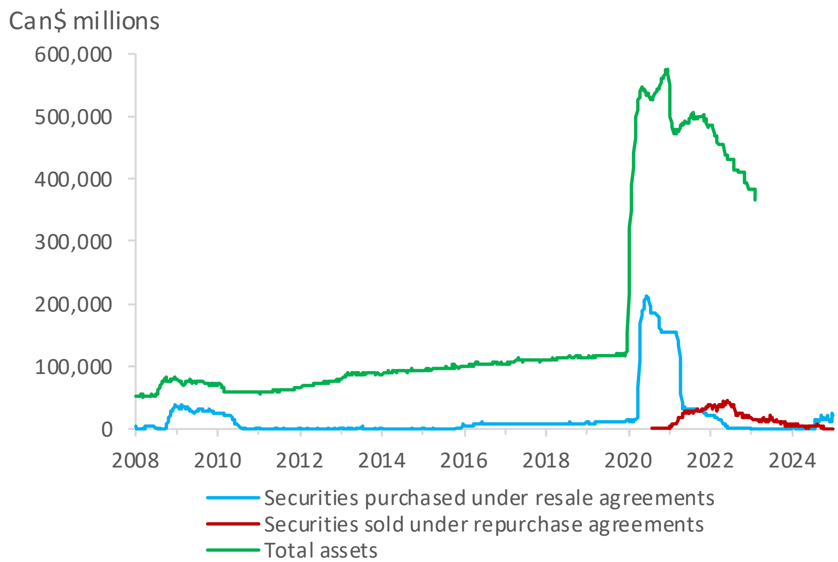
Source: Bank of Canada and Bank of Canada calculations

The Bank is also an important participant in the Canadian repo market. In normal times, term repos are the second-largest asset on the Bank's balance sheet after GoC securities (Gravelle 2024). The Bank also uses overnight and reverse repos to reinforce the target for the overnight rate.[3] Further, during a financial crisis and periods of severe market stress, the Bank

[3] More details about overnight repo and reverse repo operations can be found on the Bank's website.

uses repos to provide liquidity to the financial system from its emergency facilities.[4] Repos reached between 40% and 50% of the Bank's assets during the 2008–09 global financial crisis and in 2020 during the COVID-19 crisis, with the maximum dollar value over $210 billion (**Chart 2**).

Chart 2: Repos and reverse repos held by the Bank of Canada, 2008–24
Can$ millions, weekly data



Source: Bank of Canada Last observation: December 25, 2024

Mechanics of a repo transaction

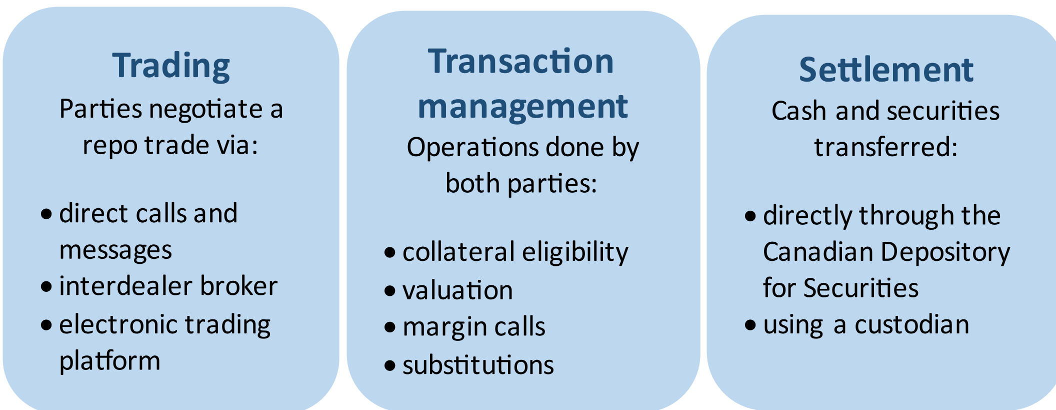
A repo transaction can be broken into three stages: trading, transaction management and settlement (**Figure 2**).

The activities in each stage can be operationally intensive depending on how much of the transaction is automated. Transactions are managed by either of the following:

- internal systems and operational groups of both counterparties for bilateral transactions
- a tri-party agent, or centralized utility, that handles transaction management and settlement instructions

[4] See the Bank's webpage "Market operations and liquidity provision" for more information.

Figure 2: Life cycle of a repo trade



Before CCMS, the Canadian repo market relied heavily on bilateral transactions because of the absence of a tri-party infrastructure. The Canadian Derivatives Clearing Corporation (CDCC) runs Canada's central counterparty for repos, but central clearing plays a different role and is not a substitute for a tri-party service. And while some institutions may have automated their internal processes, full end-to-end automation across counterparties is challenging because of disparate systems and processes. Standard processes rely on manual collateral selection, margining and settlement, which increases operational risk and adds to an operational team's workload. Relying on bilateral arrangements has created several inefficiencies in the Canadian repo market:

- the absence of standardized GC baskets of eligible securities, for example any government-issued bond, resulting in operationally burdensome trading and collateral substitutions
- barriers to entry such as high operational costs for new market participants, including corporate treasuries and foreign investors
- limited longer-term repo trades, in part because of the complexity of managing these trades in a bilateral environment, particularly for collateral substitutions
- limited acceptance of lower-quality collateral such as corporate bonds because determining collateral eligibility and pricing is burdensome
- less efficient (manual, longer and more expensive) processes for collateral substitutions and margin calls across repo trades, reducing collateral mobility
- reduced capacity to optimize collateral and efficiently utilize balance sheets

Currently, the Canadian repo market is experiencing a period of transformation (Bankers' Acceptance Transition Virtual Network 2024). This is due to implementing T+1 settlement, ceasing trading in bankers' acceptances—which was a large asset class in the money market—and launching the CCMS.

About the Canadian Collateral Management Service

The CCMS is a new tri-party repo and collateral management service that launched in 2024. The two groups behind it are TMX Group, Canada's exchange and market infrastructure provider, and Clearstream, one of the world's largest international central securities depositories.

The CCMS provides infrastructure designed to connect repo market participants in a highly automatic and efficient manner. Participants can outsource the life-cycle management of their repo transactions, including settlements; optimize collateral allocations; and benefit from real-time, unlimited collateral substitution. Traditionally complex tasks such as collateral valuation, margin calls and settlement monitoring are fully automated for all counterparties on the platform—whether the counterparty is a large bank that regularly executes transactions or a corporate treasury occasionally using term repos. After initially focusing on repo, the CCMS is expected in the future to link to the central clearing of repos by CDCC and support securities lending as well as other types of collateralized transactions.[5]

The CCMS is operational and available to market participants. As part of a broad adoption of the service, approximately 35 institutions are expected to join the CCMS in 2025, including primary dealers, banks, custodians, pension funds and asset managers. TMX Group is engaging with a wide range of market participants to drive adoption of and facilitate onboarding to the CCMS. As well, the recently established Collateral Infrastructure and Market Practices Advisory Group, co-chaired by the industry and the Bank, has made the widespread adoption of the CCMS a priority.[6] The advisory group has formed several subgroups to support this goal and address any remaining implementation challenges.

Benefits for market participants

The automation and new functionalities that the CCMS offers are poised to deliver substantive benefits to Canadian securities financing and secured lending markets, particularly with broad participation in the CCMS. These benefits include:

- **improving operational efficiency** and reducing trading costs by automating operationally intensive post-trade collateral processes. See **Figure 3** for a detailed illustration of the benefits of outsourcing.
- **simplifying trading with GC baskets** to facilitate management of transaction life cycles and efficient tailoring of financing activities to specific collateral pools, such as GoC securities or other asset classes, including equities. GC baskets could foster the development of a new wholesale funding based on cash-driven GC repo.

[5] Please see the TMX Group's website for more details about the CCMS.

[6] More information about the group's mandate and activities can be found on the Bank's website.

- **attracting new cash investors** such as foreign asset managers and corporate treasurers to the Canadian repo market by lowering costs of entry and reducing required systems investments. This is particularly relevant given that bankers' acceptances were discontinued after the end of the Canadian Dollar Offered Rate in 2024.
- **enhancing fixed-income market liquidity** by facilitating the use of less liquid and harder-to-price securities, such as National Housing Act Mortgage-Backed Securities and corporate bonds. Standardized, transparent eligibility assessment and valuation processes will simplify management of repo trades.
- **encouraging growth of the term repo** market by lowering operational and trade management costs, especially for substitutions. Unlike overnight repos, term repos require the ability to process margin calls and substitute collateral, making them more operationally burdensome. The efficiency gains from the CCMS are therefore more significant for term repos. A larger share of term repos relative to overnight repos could reduce refinancing risks during periods of funding stress, enhancing the stability of the financial system and potentially reducing the need for the Bank to intervene.
- **reducing intra-day credit risk** by accelerating the collateralization of new repo transactions and the margining of existing ones through automated settlement. This automation enables the rapid delivery of securities without the manual processes required for bilateral transactions.
- **minimizing the probability of settlement fails** by using CCMS functions to easily recall and substitute securities sold in a repo. The tri-party structure itself minimizes fails because securities stay in the system. The CCMS is designed to finalize all settlements by automatically substituting securities across transactions and counterparties.
- **creating technological foundations for new opportunities**, such as:
    - facilitating the growth of centrally cleared repo transactions by integrating tri-party transaction management with central clearing infrastructure. This integration addresses various operational challenges. For example, by automating collateral pledging for initial margin through tri-party arrangements, financial institutions would eliminate outdated manual processes and optimize the use of their securities inventory for collateral purposes. Increased use of central clearing benefits the financial system by reducing counterparty credit risk and thereby enhancing the resilience of repo markets during periods of stress. More central clearing can enhance the efficiency of the financial system and reduce participants' use of balance sheet by netting of repo transactions and by creating cross-margining opportunities between repo and futures markets (Chen et al. 2022).
    - connecting the system to foreign markets

- constructing new asset classes that repo underpins[7]
- supporting growth in equity repo and securities lending volumes
- creating a blind tri-party cleared repo market with the help of a repo trading platform

Critically, the CCMS will not alter existing custody and settlement arrangements in the Canadian market, thereby avoiding any increase in custody risk, or the possibility of losing assets due to a custodian's insolvency or poor risk management. Assets used as collateral are appropriately segregated in the participant's existing settlement accounts and cannot leave the tri-party ecosystem unless there is a default or substitution. The CCMS does not introduce additional credit or counterparty risk for participants because it is neither a legal counterparty nor a central counterparty to a repo trade.

By leveraging existing custody and settlement arrangements, the CCMS can streamline settlement processes. For instance, with access to both tri-party and bilateral settlement accounts, the CCMS can automatically recall a security from the tri-party network, return it to a participant's account and make it available for bilateral settlement for a cash sale or bilateral repo.

However, the impact of these benefits depends crucially on the number of participants in the CCMS—this is known as the network effects. The benefits of CCMS will be better realized if a large share of diverse participants in the Canadian market—both collateral providers and cash providers—join the service. Because the Bank is a major participant in the repo market, its participation in the CCMS will significantly enhance system-wide benefits.

Benefits to the Bank of Canada

The Bank currently executes transactions through a bilateral structure. As described previously, bilateral repo requires multiple internal systems and personnel across front, middle and back offices to enter, manage and settle transactions. Many aspects of bilateral repo—such as capturing trade details, communicating security prices and eligibility, conducting margining and managing substitutions—must be done manually and are time-consuming.

As a result, expanding repo operations to provide liquidity during a financial crisis would require an organization to significantly increase its internal resources to conduct bilateral transactions outside the CCMS. For example, during the COVID-19 crisis, the Bank rapidly scaled up its repo operations by reallocating existing staff and hiring additional personnel.

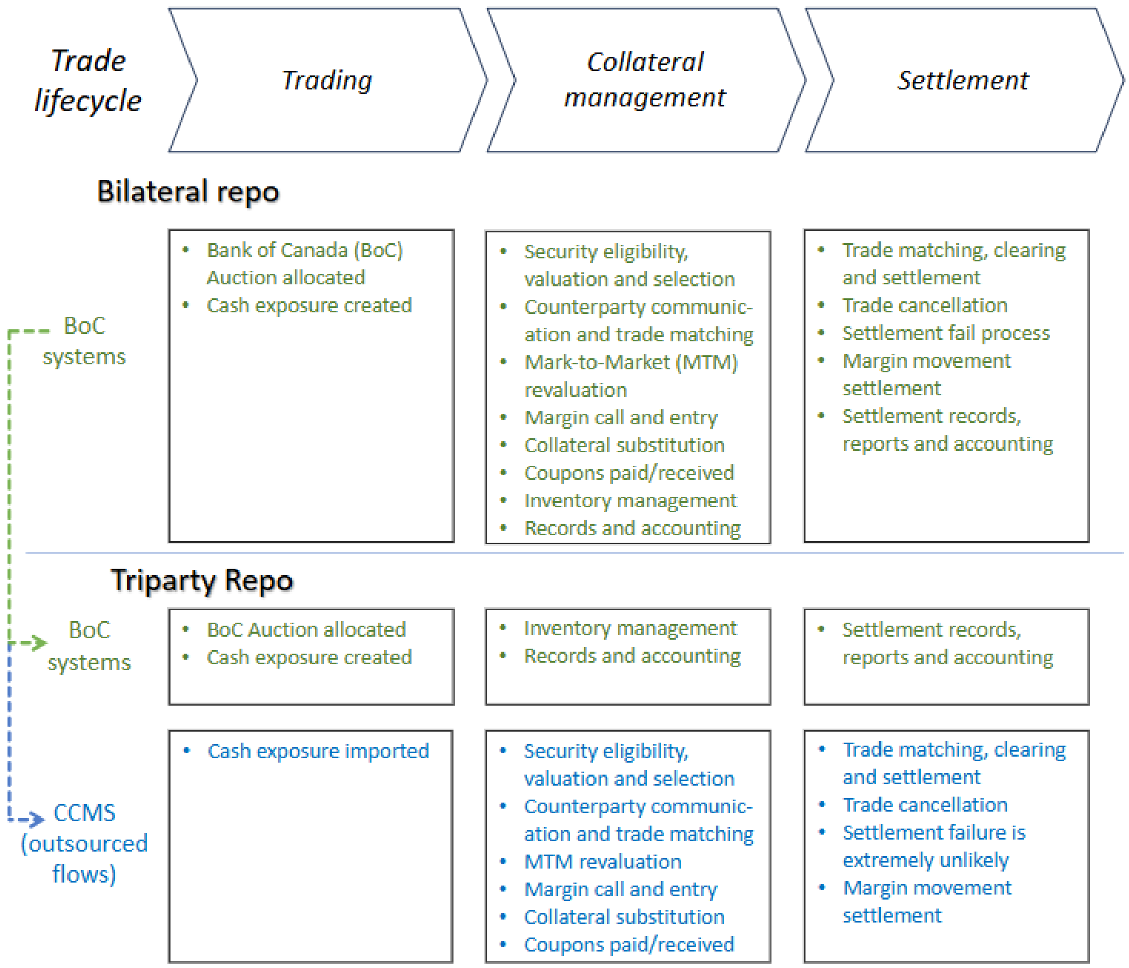
In contrast, a tri-party system automates, centralizes and standardizes the management of repo trades, significantly enhancing operational efficiency. The Bank will be able to streamline

[7] For example, CDCC recently structured Secured General Collateral Notes as an alternative to bankers' acceptance securities.

its operations and reduce the amount of manual work by leveraging GC baskets and having CCMS manage transactions.

Figure 3 illustrates how the CCMS would handle various bilateral repo processes for the Bank and other participants.

Figure 3: Operational benefits from outsourcing to a repo tri-party service



The Bank stands to gain substantial operational efficiencies from the CCMS by automating the management of collateral within a tri-party system. This automation offers advantages for both routine operational activities and emergency liquidity facilities. When market conditions are normal, the CCMS will streamline and optimize the Bank's repo operations. This will help the Bank in managing its balance sheet and in fine-tuning monetary policy, which can involve significant transaction volumes.[8]

Critically, the CCMS will enhance the Bank's ability to rapidly scale up its operations during a crisis, accommodating increases in transaction volumes, in the types of eligible collateral and

[8] For details about recent transactions, please visit the Bank's webpage about overnight repos.

in counterparty participation. This scalability will empower the Bank to provide emergency liquidity more quickly and efficiently than previously possible, should severe market stress warrant such intervention.

The Bank carefully structures its liquidity provision operations to reduce moral hazard (Gravelle 2023). Once these operations are launched, their impact would be enhanced by the Bank's ability to quickly scale up or expand sets of eligible collateral. According to TMX Group, the results of system tests show that once repo exposure is agreed on, the CCMS can allocate eligible securities, conduct valuations and settle 200 securities in several minutes. A similar bilateral transaction would take a couple of hours to process [on a manual basis/manually]. Extensive evidence shows that tri-party repo has allowed central banks in other countries to achieve a very high level of scalability in their operations. For example, with the help of a tri-party service, the US Federal Reserve traded US$2.5 trillion of reverse repos in one day in 2022 across dozens of counterparties. However, the Bank would gain these benefits only if all its counterparties and every major Canadian market participant joined the CCMS.

The ability of the CCMS to make unlimited real-time substitutions allows the Bank's counterparties to efficiently manage their inventories of securities. This means counterparties can reallocate securities for trading activities as needed, reducing shortages of specific securities. It also lessens the Bank's need to recirculate its holdings through securities lending.

The GC baskets for GoC securities, facilitated by the CCMS, should significantly improve the efficiency of monetary policy operations. GC baskets enable the Bank to conduct overnight repo operations using a broad range of government securities. The CCMS then handles post-trade management and settlement of specific securities within the basket. This contrasts with the current process, where counterparties select and submit securities, agree on pricing and finalize each transaction individually. GC baskets will improve the operational efficiency and scalability of these interventions, allowing the Bank to execute larger operations, if necessary, without straining internal resources.

From a counterparty perspective, transacting with the Bank through a tri-party structure allows primary dealers to:

- automate their transactions with the Bank
- optimize securities allocation across various collateral obligations
- efficiently manage their securities inventory through same-day substitutions and GC functionalities

These improvements are expected to lower transaction costs for the Bank's counterparties, incentivizing them to participate in the Bank's repo operations. This, in turn, will enhance the Bank's management of its balance sheet and reinforce the overnight rate, thus supporting the Bank's mandate.

Finally, creating a true GC repo basket for GoC securities benefits both the Bank and market participants by improving the accuracy of the Canadian Overnight Repo Rate Average (CORRA). By distinguishing GC repo trades from special repo transactions—which are influenced by factors beyond GC overnight funding—CORRA's calculation could be adjusted to more accurately reflect the true cost in Canadian dollars of GoC secured overnight funding. This would also enhance the reliability and representativeness of the CORRA benchmark.

Conclusion

The new tri-party repo infrastructure launched by TMX Group and Clearstream offers substantial benefits to the Canadian financial system, including:

- development of a new wholesale funding market based on cash-driven, general collateral repo
- a new money market investment for treasury managers and cash investors
- growth in the term repo market
- improved liquidity in the secondary market across a range of fixed-income products
- improved collateral mobility and greater risk reduction from the more efficient collateralization of credit exposures

The CCMS's ability to automate substitution provides sellers in repo transactions with flexible, same-day substitution rights, allowing them to exchange securities if they meet eligibility criteria. This unlimited substitution functionality facilitates trading across different collateral types. It also enhances the mobility and availability of collateral.

The Bank of Canada also stands to gain significantly, particularly in terms of the ability to scale market operations to provide liquidity and reinforce monetary policy. These improvements would help the Bank achieve its monetary policy and financial system mandates and would thus benefit Canadians more broadly.

The significant benefits for both the financial system and the Bank provide a compelling rationale for the Bank's participation in the CCMS.

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