

Balancing the Canadian Repo Market through QT: The Diminishing Role of Settlement Balances

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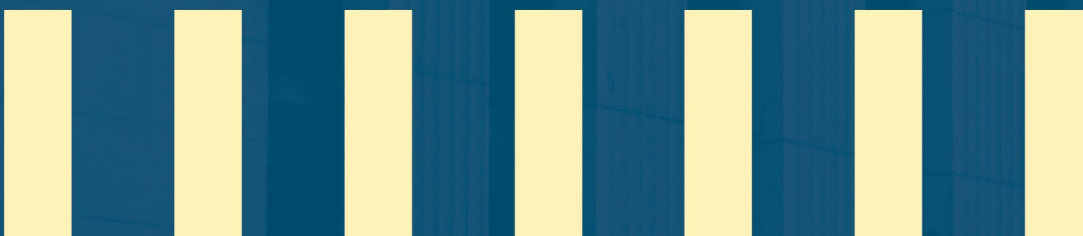
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Abstract

Banks and their dealers' arms play a key role in balancing Canada's clients' demand in the repo market. Repo market imbalances can be large and persistent, at times putting upward pressure on the cost of short-term funding in Canada, including the CORRA benchmark. This note examines the main funding sources that banks use to absorb these imbalances. We show that banks' holdings of settlement balances were the main buffer to absorb clients' net repo demand during QE and early during quantitative tightening, but by the end of QT they had become far less central to balancing the repo market. Despite this, we find that throughout QT, bank-held dealers accommodate increasingly volatile shifts in their clients' repo demand through a more active redistribution among them, a somewhat more active use of foreign currency markets and a more active use of the Receiver General (RG) and Bank of Canada (BoC) facilities.

Introduction

Repo markets are where much of the financial system's day-to-day funding quietly gets done. In Canada, banks and dealers sit at the center of this activity, borrowing from some clients and lending to others, and in the process, keeping short-term funding flowing. When these client flows line up, dealers simply match borrowers with lenders. But when they do not—as is often the case—banks may step in and absorb the imbalance on their own balance sheets (if they can). At times, these imbalances can be large and persistent, putting upward pressure on short-term funding costs, including the CORRA benchmark.

This note asks a simple but important question: how are these repo-market imbalances funded? We study this question for the six large Canadian banks since they account for most intermediation activity in the Canadian repo market. First, these banks own the main domestic dealers. Second, and more important for our purpose, the relevant funding margins extend beyond the dealer legal entity. Bank-owned dealers can draw on resources and liquidity-management decisions made at the broader banking-group level, whereas non-bank dealers have a more limited set of balance-sheet margins. Our empirical analysis therefore takes the bank, rather than the individual dealer, as the unit of observation.

Operationally, we implement this bank-level perspective by aggregating repo activity across each bank's dealer and affiliated entities involved in funding the repo book. Together, the six large Canadian banks account for 89% of daily volume in the interdealer repo market and 82% of daily volume in the client-facing repo market. We then ask: when a bank's repo clients collectively want to borrow more than they lend, how does the bank fund the resulting positions? Banks can draw on settlement balances at the Bank of Canada, borrow from other banks or dealers with offsetting client positions in the interdealer repo market, raise foreign-currency funding and swap the proceeds into Canadian dollars, or access public-sector sources such as Receiver General deposits or Bank of Canada facilities when these are active.

In practice, all these channels play a role—but their relative importance can change over time. The answer becomes especially interesting in the context of quantitative tightening (QT). As the Bank of Canada let its balance sheet shrink, the total quantity of settlement balances declined. Early in this process, settlement balances are abundant and inexpensive to use. Banks can readily draw them down to meet client demand in the repo market. But as QT progresses, these balances become scarcer and increasingly valued as a buffer against banks' own payment needs. This raises a natural question: does the repo

market continue to function in the same way when its primary liquidity buffer is being drained?

We answer this question using holding and transactions data for the six largest Canadian banks from April 2022 to early 2026, soon after the end of QT. The data allows us to track how banks adjust in intermediating the repo market across distinct phases of QT. We compare the roles of internal liquidity (settlement balances), market-based funding (interdealer repo and foreign-currency markets), and public-sector sources, and how these roles have changed throughout QT.

Three broad findings emerge.

First, banks' holdings of settlement balances are the primary means of satisfying net client demand for cash in the repo market early in QT, but their role in meeting this demand declines materially as QT progresses. When balances are abundant, banks routinely draw down their holdings to accommodate client demand in the repo markets. As balances become scarcer, banks use them less.

Second, settlement balances become a shorter-lived funding source toward the end of QT, when used. Early in the sample, drawdowns by banks persist for days or weeks. Later, they are quickly reversed within a day or so. These two results suggest that banks increasingly treated their settlement balances holdings as something to be used sparingly and replenished quickly as QT progressed.

Third, other funding channels step in to fill the gap. The interdealer repo market becomes increasingly important, allowing dealers to match offsetting positions among themselves. To a lesser extent, foreign-currency funding also becomes more active. At the same time, banks become increasingly reliant on Receiver General deposits and Bank of Canada operations. Overall, the system shifts from relying on internal balance-sheet buffers to relying more on active funding.

Fourth, these adaptations do not come with a suppression of clients' repo demand. We find that banks continue to accommodate repo demand throughout QT. We show that changes in net client repos became increasingly volatile through QT, suggesting that shifts in funding demand from clients also became more volatile. Banks appears to have accommodated these more frequent shifts through a more active redistribution of liquidity across dealers, a more active use of foreign currency markets and a more active use of RG and BoC facilities.

These findings point to a broader implication for the implementation of monetary policy. Evidence of scarce settlement balances does not imply that a central bank response is required for the repo market to function smoothly. Instead, the evidence suggests that intermediaries can adapt by matching repo flows, and by re-optimizing across available

funding channels, increasing their reliance on market-based mechanisms and alternative sources of liquidity.

Taken together, the results point to a broader change in how the repo market operates as settlement balances declined. Lower balances did not prevent dealers from intermediating client demand. But they did change the architecture of that intermediation—from one anchored in abundant internal liquidity to one that depends more heavily on the depth, flexibility, and speed of funding markets.

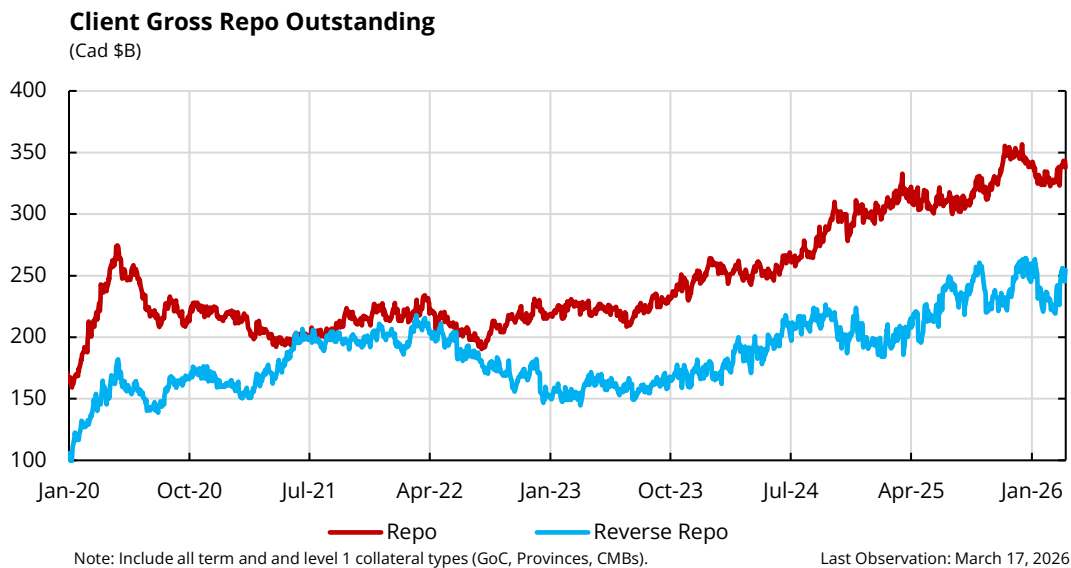
Looking forward, the evidence raises questions as to whether there may be scope for further adaptation by banks and dealers and whether a lower level of SBs can discipline repo market participants' liquidity management practices.

Clients' Repo Demand During QE and QT

Canadian banks play a central role in (repo) money market as intermediaries between client short-term borrowing and client short-term lending. They act in the repo market mostly through their dealer arm (i.e., their affiliated dealer) or, for several of these banks, through a distinct Treasury desk as well.

This role has become increasingly important as the repo market's size and activity increased over the last few years. Clients' outstanding repo and reverse repo positions have gradually increased since 2023. Overall, the sum of all clients' repo positions backed by GoC, CMB, provincial bonds amounts to around \$350B at the end of our sample (Chart 1), and the sum of clients' reverse repo positions amounts to around \$250B. As a result, the clients' *net* repo positions across a broad set of collateral have also gradually increased since 2023 and now amount to around \$100B.

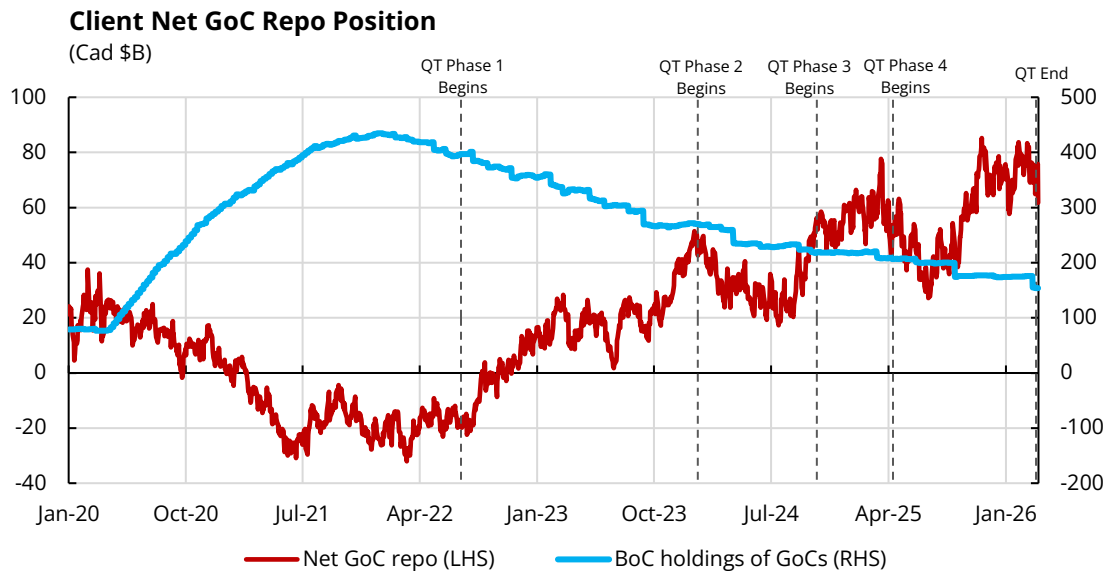
Chart 1: Outstanding client repo and reverse repo positions are growing



It is noteworthy that this significant increase in clients' leverage occurred at the same time as the Bank of Canada's Quantitative Tightening policy (QT) was progressing. The size of Bank of Canada holdings of GoC bonds peaked at \$435B in December of 2021 but has since declined to \$154B by the end of our sample. (Chart 2). In comparison, the sum of clients' net repos backed with GoC bonds increased by roughly \$48B during this period. But it should not come as a surprise that the rise and decline in the stock of bonds held by the Bank correlated with the fall and subsequent rise in the clients' net repo positions. This relationship could be indirect, since both trends are likely to reflect responses to the same background macroeconomic conditions. For instance, exactly the opposite circumstances unfolded after COVID. The economic disruptions and uncertainty led to both increased savings in short-term instruments and to the implementation of Quantitative Easing (QE) by the Bank of Canada. The relationship may also be direct, since QT decreases the available quantity of settlement balances (SBs) and add to the stock of publicly outstanding GoC bonds. Some fraction of these bonds can end up being funded in the repo market.¹

¹ Note that the path of QT was determined by the schedule of maturity dates for GoC bonds held by the Bank and we can exclude the case in which QT was responding to clients' growing positions or to conditions in the funding market.

Chart 2: Clients' Net GoC Repo Demand Evolves in Tandem with QT



Note: Includes all terms and GoC collateral. Net repo is the difference between repo and reverse repo. BoC Holdings of GoC bonds represents the amount of GoCs on the BoCs balance sheet.

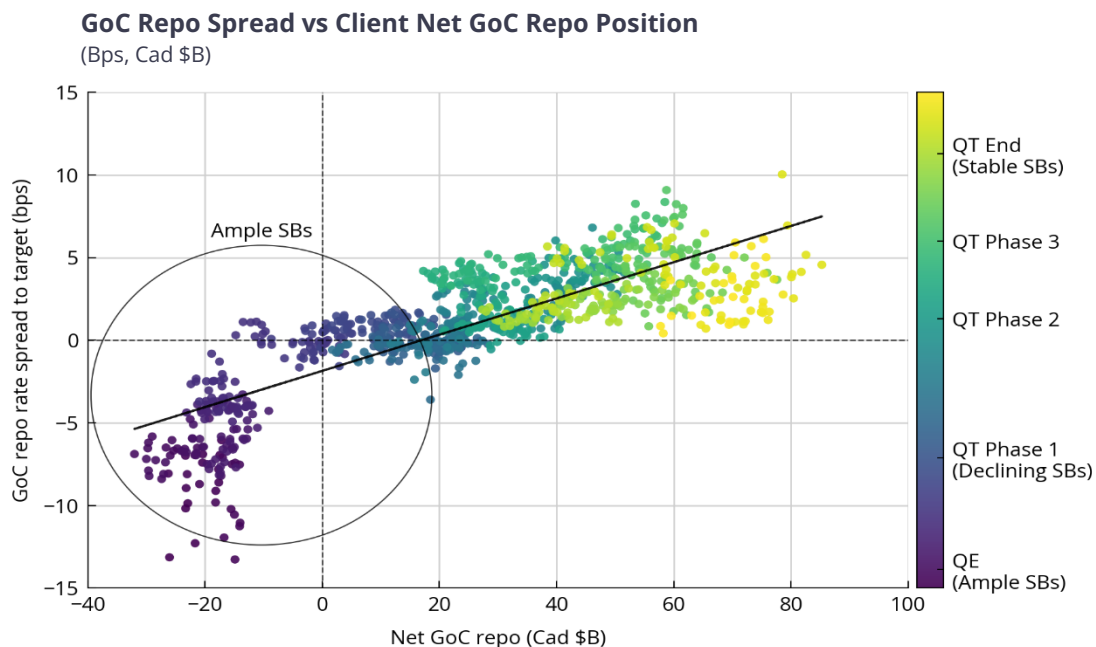
Last Observation: March 17, 2026

Given clients' net demand for funding bond positions, one way the repo market can "clear" is that repo rates rise to balance demand and supply of funds from clients. Ultimately, we find that QT and the growth in clients' net repo have led to higher repo rates in funding markets, on average (Chart 3). At the peak of the BoC holdings of GoC bonds, which coincides with the peak in settlement balances (SBs), clients' net repo positions are negative in aggregate. Clients are lending more than they are borrowing from banks, which help push average GoC repo rate below the target rate.² Then, as clients' net repo positions turn and grow throughout QT, average GoC repo rates also turn and slowly increase above the target rate. There was occasional periods of more intense funding pressures along the way. For example, net client repo positions quickly rise during the fall of 2024, this was absorbed by the banks, at relatively higher rates, pushing the CORRA benchmark above the Bank of target rate (Chart 3).³ A similar pattern occurs in the fall of 2025.

² A significant share of GoC bonds were also trading "special" in the repo market, which also helped pushed average repo rates below target.

³ CORRA is a weighted median of trimmed repo rates between dealers and clients and between dealers.

Chart 3: Clients' Net GoC Repo Demand Drives Repo Spreads Through QT



Note: Net GoC repo is the difference between daily repo and reverse repo outstanding across GoC collateral. GoC repo spreads are the daily weighted average repo and reverse repo rates less the BoC policy rate. Observation Period: Jan 2022–2026.

Repo Market Funding Sources

We focus on the main ways that banks use to fund the imbalance between clients lending and borrowing on their repo book. Below is a short description of some of the main sources of funds with a brief discussion of the trade-offs that are involved in each case.⁴

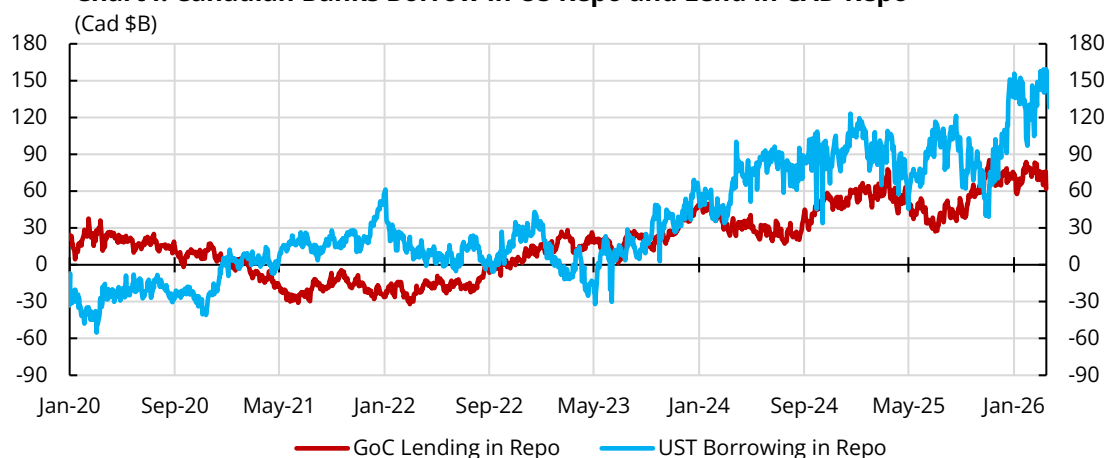
1. **Settlement balances (SB):** Settlement balances consist of balances held with the Bank of Canada that can be drawn down to meet payment obligations, including obligations that are created when a bank lends funds in the repo market. The aggregate level of SBs is set by the Bank of Canada, but the amounts kept by individual banks vary. Settlement balances earn the deposit rate at the Bank of Canada, which is the pecuniary opportunity cost of drawing down settlement balances (it is currently set 5 bps below the target overnight rate). However, the overall opportunity costs may be greater if banks hold SBs for pre-cautionary

⁴ To conduct their business of intermediation, banks rely on equity, external sources and internal sources of funding. In the context of the repo market, internal sources are available through matched-book intermediation and trade internalization between customers (Kirk et al., 2014). These sources can reduce the cost of balance sheet financing and bank regulatory ratio compliance, but they can also increase funding liquidity risks for the dealer. A discussion of these trade-offs is outside the scope of this staff discussion paper.

motives. If the opportunity costs are sufficiently large, banks will look for substitutes when intermediating the repo market.

3. **The interdealer repo market (D2D):** Banks, or their dealer arm, can fund the imbalance between clients' repo lending and borrowing using offsetting transactions in the interdealer repo market. Borrowing in the interdealer repo market implies regulatory costs (Chen et al., 2022), similar to transactions with clients, but counterparty netting combined with central clearing can reduce this cost.⁵ As SBs become scarcer, we expect banks to source a greater portion of funds from the inter-dealer market. However, there is a limit to this mechanism. Banks as a group can still face an imbalance even after matching all offsetting clients' positions among themselves and other dealers that are not bank affiliated.
4. **U.S. dollar funding (USD repos):** The large Canadian banks have a presence in international markets. In recent years, Canadian banks tended to borrow funds in the US repo market but tended to lend funds in the Canadian repo market, on net (**Chart 4**). This opens the possibility of borrowing USD and obtaining CAD when the repo rate implied by a combination of transactions is below the comparable rate for lending funds in the CAD repo market.⁶ When this occurs, banks can effectively earn a basis by funding their clients' CAD repo demand with US dollars (see Appendix). However, this source faces relatively higher regulatory costs and is a poor substitute unless the implied basis becomes profitable.

Chart4: Canadian Banks Borrow in US Repo and Lend in CAD Repo



Note: GoC net repo position are calculated from MTRS 2.0 and data from the banks treasuries held by the Bank of Canada. UST net positions are taken from OSFI H4 return and assume that sovereign repo collateral not issued in Canada is UST. Both include all terms. Last Observation: March 17, 2026

⁵ The cost of regulatory capital is determined by equity markets and equals the borrowing institution's cost of equity capital. These two features, leverage constraint and cost of equity capital, combine to determine the shadow cost of borrowing in the D2D market. This shadow cost of accessing funds in the D2D market is high when the borrowing institution is close to its leverage constraint.

⁶ These transactions involve (i) swapping Canadian and US dollar in the exchange rate markets, and (ii) borrowing funds in US triparty repo market

4. **Receiver General (RG) Auction:** RG deposits are allocated in a morning auction in which bidder rates are ordered in descending order, with a pro-rata share of bid amounts allocated to bids at the lowest rate. The minimum bid lies a few basis points below the target rate, providing a slightly cheaper source of funds. The auction is daily, but the amounts offered are only known at 5pm the day prior. For example, funds available at the RG auction decline sharply on Government of Canada bond maturity dates, when these funds must be paid out to owners of the maturing bonds. RG utilization rates also vary over time (see Exhibit 5 below). On net, amounts outstanding can vary substantially, between \$20B in the Fall of 2025 and \$40B CAD in February 2025. The RG deposits imply regulatory costs similar to clients' repos as repos with the RG do not benefit from netting or clearing.
5. **Bank of Canada O/N repo and reverse repo facility:** The Bank of Canada's overnight repo (OR) and overnight reverse repo (ORR) operations are used at the Bank's discretion to support the effective implementation of monetary policy.⁷ The minimum bid rate at the OR operation is the Bank's target rate, providing a floor on the rate paid by borrowing institutions.
6. **Bank of Canada term repo (TR) operations:** The Bank of Canada's term repo (TR) operations provide funds against collateral for terms between 2 weeks and 3 months in exchange for collateral. Since the end of 2025, this facility allows a broader set of collateral than the OR, including bonds issued by Canadian provinces and National Housing Association Mortgage-Backed Securities (NHA MBS). The minimum bid rate is based on the equivalent overnight index (OIS) swap rate, which reflects market expectations of the policy rate over the term of the repo.⁸

Settlement Balance Regimes

Banks' relative preferences across different sources of funds are likely to have changed throughout the evolution of QT. With abundant SBs early in our sample, banks could fund imbalances between aggregate client repo demand and supply by drawing down SBs as needed. However, as outstanding SBs decline, pre-cautionary savings motives raised the opportunity cost of drawing down these balances and pushed banks to seek alternative sources of funds.

We trace changes across four different "regimes" throughout QT, which we identify using announcements by the Bank of Canada in response to the effect of growing funding

⁷ See Bank's description of market operations programs and facilities at <https://www.bankofcanada.ca/markets/market-operations-liquidity-provision/market-operations-programs-and-facilities/overnight-repos/#program-details>.

⁸ The Bank reserves the right to set the minimum bid a few basis points higher or lower than the matched-maturity OIS rate. See [Term repos: Terms and conditions - Bank of Canada](#).

pressures on CORRA. We use these announcements to define four sub-periods that we can use to assess changes in the role of different funding sources. However, we think of QT as a longer period when changes occurred gradually; these announcements are simply markers along the way.

QT Phase 1 - April 25, 2022, to October 28, 2023: starts when the BoC announced that maturing GoC bonds on its balance sheet would stop being replaced, resulting in a shrinking balance sheet.⁹

QT Phase 2 - October 28, 2023, to July 30, 2024: starts when BoC discontinued daily reverse repo operations and eventually restarted regular overnight repos and re-introduced the RG morning auction.¹⁰

QT Phase 3 - July 30, 2024, to Jan 30, 2025: starts with the increase in bidding limits from \$1B to \$ 3B at the Bank's OR facility.¹¹

QT End - Jan 30th, 2025, January 31st, 2026 (stable SB regime): starts with the reduction in the deposit rate on SBs by 5 bps.¹²

Balancing Clients' Net Repo Demand

To quantify how banks fund daily changes in clients' net repo demand across phases of QT, we obtain information on the net repo balances outstanding of the six largest Canadian banks for every business day between April 2022 and January 2026. We aggregate transactions between each bank and clients in the repo market, transacted either through its treasury desk or dealer arm; these transactions are classified as dealer-to-client (D2C) repo transactions. Similarly, we aggregate repo and reverse repo transactions between each bank and other banks or non-bank affiliated dealers; these transactions are classified as D2D repo transactions. We also separately collect repo transactions with the RG or the Bank of Canada. We also obtain daily holdings of SBs and the daily foreign currency repo borrowing for each bank. The combined data cover the

⁹ Official announcement: [The end of quantitative tightening and what comes next - Bank of Canada](#).

¹⁰ Official announcement: [Bank of Canada announces changes to Overnight Reverse Repo operations](#)

¹¹ Official announcement: <https://www.bankofcanada.ca/2024/07/bank-canada-announces-increases-dealer-and-round-limits-overnight-repo-operations>

¹² Official announcement: <https://www.bankofcanada.ca/2025/01/bank-canada-adjustment-deposit-rate-terms-overnight-reverse-repo-operations>

main relevant sources of funds for the repo market: SBs, the D2C and D2D repo market, RG repos, Bank of Canada term and ON repo facilities, and USD repos.¹³

We use univariate regressions to estimate how each bank uses different sources of funds in response to daily changes in their clients' net repo demand, denominated in \$CAD billion.¹⁴ This regression measures the average daily change in each source of funds given a daily change in net repos transacted by the banks' clients. Intuitively, the regression asks how much funds come from each source, on average across banks, given a \$1 increase in net client repos. We then estimate the regressions separately for each QT sub-period to assess if the average role of each source of funds changed throughout QT.

Table 1: Contemporary Responses to Client Net Repo Demand.

This table presents OLS estimates from regressions of daily *bank-level* changes in net CAD dealer-to-dealer (D2D) repo outstanding, reductions in settlement balances holdings (-SB), net USD repo (USD), net repos with the Bank of Canada (BoC), and Receiver General (RG) auction repos in response to the daily change in net CAD dealer-to-client (D2C) repo outstanding. Bank of Canada repos include activity through the Bank's overnight repo and reverse repo facilities (ON Repos), securities repo (SRO), and term repo facility (TR). The sample tracks CAD repos volumes involving Level 1 collateral—including Government of Canada, provincial, and mortgage bonds—for the "Big Six" banks. Banks' CAD repo positions are constructed using data from the Market Trade Reporting System (MTRS), supplementary reporting from the treasury desks of three Canadian banks, Bank of Canada repo facilities, and Receiver General (RG) auctions. Banks' USD repo positions are proxied using foreign-currency repo positions, computed as the difference between a bank's total Level 1 collateral repo positions reported in the Office of the Superintendent of Financial Institutions (OSFI) H4 filings and its total CAD repo positions computed from MTRS data. Banks' daily settlement balances are obtained from Bank of Canada. Robust standard errors are reported in parentheses, with *, **, and *** representing significance at the 10%, 5%, and 1% levels, respectively.

Panel A: QT1—Apr 2022 - Oct 2023

Dependent Variable-->	-ΔSB	ΔD2D	Δ USD	Δ BoC
Δ D2C	0.635*** (0.092)	0.156** (0.071)	0.194*** (0.060)	0.046* (0.026)
N Obs	2262	2262	2259	1968
R-squared	0.038	0.01	0.007	0.008

¹³ Banks don't explicitly single out US repos from foreign repos in their regulatory filings. Because most foreign currency repo volume by the big-six banks is denominated in US dollars, we use foreign repos as reported as a proxy of US-denominated repo volume.

¹⁴ We interpret these daily position changes as changes in clients' demand for repo funding or reverse repos, however that we cannot rule out that some of these changes are motivated by clients' supplying scarce collateral (client repos) or funds (client reverse repos).

Panel B: QT2—Oct 2023 - Jul 2024

Dependent Variable	- ΔSB	Δ D2D	Δ USD	Δ BoC
Δ D2C	0.577*** (0.136)	0.258*** (0.069)	0.059 (0.098)	0.026* (0.014)
N Obs	1128	1128	1128	923
R-squared	0.051	0.036	0.001	0.006

Panel C: QT3—Jul 2024-Jan 2025

Dependent Variable	- Δ SB	Δ D2D	Δ USD	Δ BoC	Δ RG
Δ D2C	0.465*** (0.169)	0.231* (0.123)	-0.081 (0.060)	0.100** (0.046)	0.116 (0.110)
N Obs	744	744	744	482	233
R-squared	0.033	0.031	0.001	0.022	0.017

Panel D: QT4—Jan 2025 - Feb 2026

Dependent Variable	- Δ SB	Δ D2D	Δ USD	Δ BoC	Δ RG
Δ D2C	0.269*** (0.094)	0.365*** (0.083)	0.058*** (0.021)	0.018 (0.017)	0.231*** (0.067)
N Obs	1614	1614	1608	1296	898
R-squared	0.019	0.047	0.000	0.003	0.038

Table 1 shows a clear reallocation in how banks absorb client repo demand over the course of QT. Early in QT, when settlement balances were still abundant, banks primarily accommodated new client net borrowing by drawing down their own settlement balances. During QT1, a \$1 increase in net D2C repo demand is associated with a \$0.64 reduction in settlement balances, making SBs by far the dominant funding source. The interdealer market played a much smaller role: D2D repo balances change by only \$0.16 per dollar of client demand. In this regime, a bank's own liquidity buffer is doing most of the work.

The central message of the table is that this pattern changes materially as QT progresses. By the final regime, the settlement-balance response has fallen to \$0.27, less than half its QT1 value, while the D2D response has risen to \$0.37. The ordering of the two main funding sources therefore reverses: settlement balances move from being the dominant marginal buffer to being less important than interdealer repo. Banks substitute away from internal liquidity buffers and toward a market-based redistribution of net client repo demand.

Economically, this is consistent with rising opportunity costs of using settlement balances. When SBs are plentiful, using them to meet new clients' repo has a low opportunity cost: dealers can run down balances without materially affecting their liquidity position. But as

QT drains aggregate SBs, the same drawdown becomes more expensive because banks increasingly value the SBs for precautionary reasons. The lower coefficient on $-\Delta SB$ in later regimes should therefore not be read as a reduced need to fund client demand, but rather as evidence that settlement balances become a more protected balance-sheet resource.

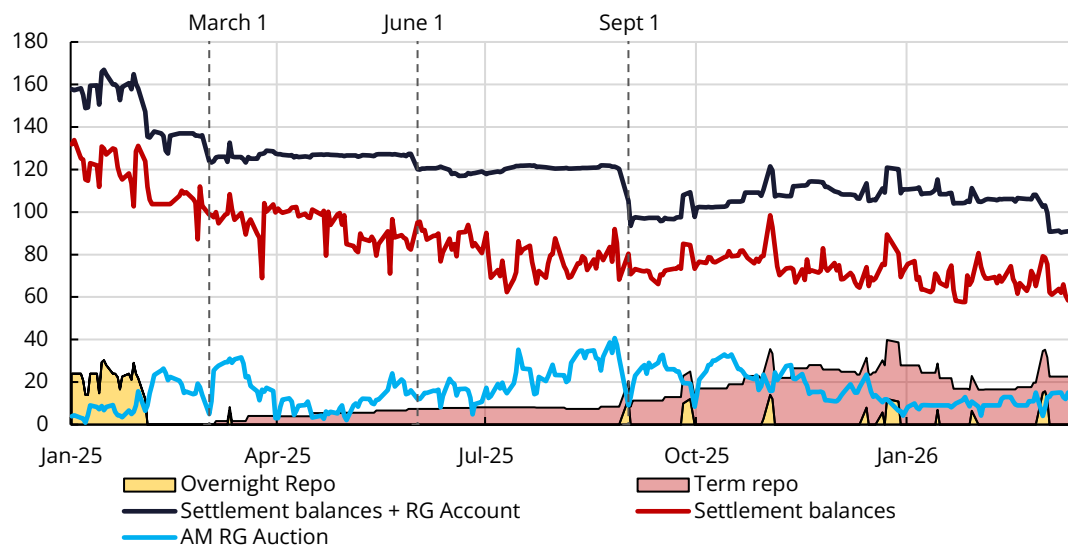
The rise in D2D funding is the natural adaptation to the new scarcity. The interdealer market allows banks to offset transactions or to reallocate SBs between banks. Some dealers face stronger client borrowing demand; others may have offsetting client lending or more available liquidity. As SBs become scarce, the system relies more heavily on this cross-dealer matching mechanism. The increase in the D2D coefficient from 0.16 in QT1 to 0.37 in QT4 suggests that the interdealer market becomes a more important margin of adjustment, not merely a residual funding channel.

D2D funding can only help when offsetting positions between banks. Despite the efficiency gain, D2D funding cannot absorb aggregate clients funding imbalance. Therefore, public-sector cash management also becomes part of banks' adjustment mechanism once SBs are lower. The Receiver General auction becomes economically meaningful in the final regime, with a coefficient of 0.23 in QT4. However, RG funding has its own limitations: its availability varies with government cash flows and carries balance-sheet costs like other repo borrowing.

USD repo funding is statistically significant in QT1 and QT4, but its economic role is smaller and unstable across regimes. This is intuitive: USD funding is only attractive when the FX-implied CAD funding cost is favorable, so it is better interpreted as an opportunistic margin than as a structural replacement for settlement balances.

BoC repo facilities were re-started during QT (Chart 5). However, Bank of Canada repo facilities are not the main funding source *on average*. Their coefficients are small, and their statistical significance is episodic. One reason is that overnight transactions only play a role in stressed conditions when the BoC intervenes. While they are essential to the stability of the system, they by design capture a relatively small fraction of the imbalance volume in our regressions. They function as backstops or pressure-release mechanisms instead of acting as the marginal source of funding of client net repo demand. Similarly, term repo transactions are relatively infrequent (despite following a regular schedule). Again, the term repo transactions are a central tool that the Bank uses to manage the overall level of SBs. Like overnight operations, they are an essential ingredient in the stability of the system and are used to manage the overall level of SBs.

Chart 5: As SBs decline, RG and Bank of Canada operations become more important



Note: Vertical lines mark dates of GoC Bond maturities over the observation period

Last Observation: March 17, 2026

One useful way to summarize the table is that the “funding stack” becomes more market-intensive over time. In QT1, one additional dollar of net client repo demand is met by drawing down the banks’ settlement balances. By QT4, this dollar of net repo demand is met with a combination of D2D repo, RG funding, and a smaller SB drawdown. The spreading of client demand across multiple funding sources is important for the broader argument of the paper: lower aggregate settlement balances do not mechanically prevent banks and their dealer arms from intermediating client repo demand, but they change the architecture of intermediation. The system becomes less dependent on passive sources of liquidity and more dependent on the speed, depth, and reliability of active funding markets.

A caveat is that the coefficients should not be interpreted as a complete adding-up decomposition of each dollar of client demand. The regressions are univariate and contemporaneous, and the low R-squared values indicate substantial idiosyncratic variation in daily balance-sheet management. The coefficient estimates should not lead to causal interpretations. Instead, the estimates are at best read as marginal correlations: when a bank accommodates new net repo demand from clients, which funding sources tend to move with it on that day? On that interpretation, the evidence is quite strong. The marginal role of SBs declines, the marginal role of D2D repo rises, and the repo market’s adjustment to QT increasingly takes place through interdealer redistribution rather than direct absorption by settlement balances.

SB balance replenishment sped up during QT

The contemporaneous estimates in Table 1 show that banks rely less on settlement balances as QT progresses. But the table only captures the immediate response: how much SBs are drawn down on the same day that client net repo demand rises. A natural follow-up question is whether the nature of SB use also changes over time? In other words, when banks do draw down settlement balances, do they allow those drawdowns to persist, or do they replenish them quickly?

The cumulative-response estimates in Table 2 answer this question and sharpen the interpretation of Table 1. In the early QT regime, the one-day SB response is large and persistent. A \$1 increase in client net repo demand is associated with a \$0.64 same-day reduction in SBs, and the cumulative response remains elevated over subsequent horizons, standing at \$0.44 after ten days. This suggests that when settlement balances were abundant, banks were willing to use them not only as an intraday or overnight buffer, but also as a relatively persistent source of balance-sheet accommodation.

Table 2: Cumulative Responses to Client Net Repo Demand. This table presents the cumulated responses of bank-level changes in settlement balance reductions (-SB) and net CAD dealer-to-dealer (D2D) repo outstanding over 1, 2, 3, 5, and 10-day horizons following a daily change in net CAD dealer-to-client (D2C) reverse repo demand. We estimate the following regression: $\Delta Y_{i,t \rightarrow t+n} = \alpha + \beta \cdot \Delta D2C_{i,t \rightarrow t+1} + \varepsilon_{i,t}$, where $Y \in \{-SB, D2D\}$ and $n \in \{1, 2, 3, 5, 10\}$. The sample tracks CAD repos involving Level 1 collateral volumes—including Government of Canada, provincial, and mortgage bonds—across the "Big Six" banks. Positions are derived from the Market Trade Reporting System (MTRS) and supplemental reporting from the treasury desks of three Canadian banks. The table reports the coefficient estimates for β across different sample periods, with *, **, and *** representing significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Reductions in Settlement Balances (- Δ SB)

Horizon	QT1	QT2	QT3	QT4
1-day	0.636***	0.577***	0.465***	0.269***
2-day	0.697***	0.447***	0.182	0.039
3-day	0.614***	0.318***	0.290***	0.090*
5-day	0.504***	0.272**	0.117	0.063
10-day	0.437***	0.237**	0.309***	0.084**

Panel B: Net D2D Repos (Δ D2D)

Horizon	QT1	QT2	QT3	QT4
1-day	0.156**	0.258***	0.231*	0.365***
2-day	0.209***	0.309***	0.263***	0.293***
3-day	0.246***	0.244***	0.197***	0.366***
5-day	0.236***	0.370***	0.220***	0.315***
10-day	0.225***	0.339***	0.162**	0.217

By contrast, in the final QT regime, the same-day SB response is much smaller and far less persistent. Table 1 shows that the contemporaneous SB drawdown falls to \$0.27 per dollar of client demand. Table 2 then shows that this drawdown is largely reversed within a few days: the cumulative SB response falls to \$0.04 after two days, \$0.06 after five days, and only \$0.08 after ten days. Thus, not only do banks draw less heavily on SBs in the low-SB regime; when they do draw on them, they replenish them much more quickly.

This dynamic evidence is important because it helps distinguish between two interpretations of the declining SB coefficient in Table 1. One interpretation is mechanical: banks use fewer SBs simply because fewer SBs are available. The stronger interpretation is economic: as aggregate SBs decline, banks treat their remaining balances as a more valuable liquidity resource. The rapid reversal of SB drawdowns in the later regime supports the second interpretation. Settlement balances become less like a routine funding source and more like a protected liquidity buffer that banks are willing to tap temporarily, but reluctant to leave depleted.

The D2D responses reinforce this interpretation. While SB drawdowns become smaller and more transitory, D2D repo funding becomes larger and remain persistent. In the final QT regime, the one-day D2D response is \$0.37 per dollar of client demand, which persists over the following days. This suggests that the interdealer market increasingly absorbs the more durable component of a dealer's clients funding shocks, while SBs are now used as a source of "bridge" (i.e., short-term) financing. In this sense, Table 2 provides the dynamic counterpart to Table 1: the average dealer funding adjustment does not merely shift away from SBs on impact; it also shifts toward faster SB replenishment and more sustained reliance on interdealer funding.

Taken together, Table 1 and Table 2 point to a change in the role of settlement balances during QT. Early in the sample, SBs functioned as the primary and relatively persistent marginal source of funds for meeting for client repo imbalances. Later in the sample, they became a smaller and more temporary source of funds, with banks relying more on D2D repo and other sources to maintain the funding of their client books. This pattern is consistent with a rising shadow cost of settlement balances as QT reduced their aggregate supply.

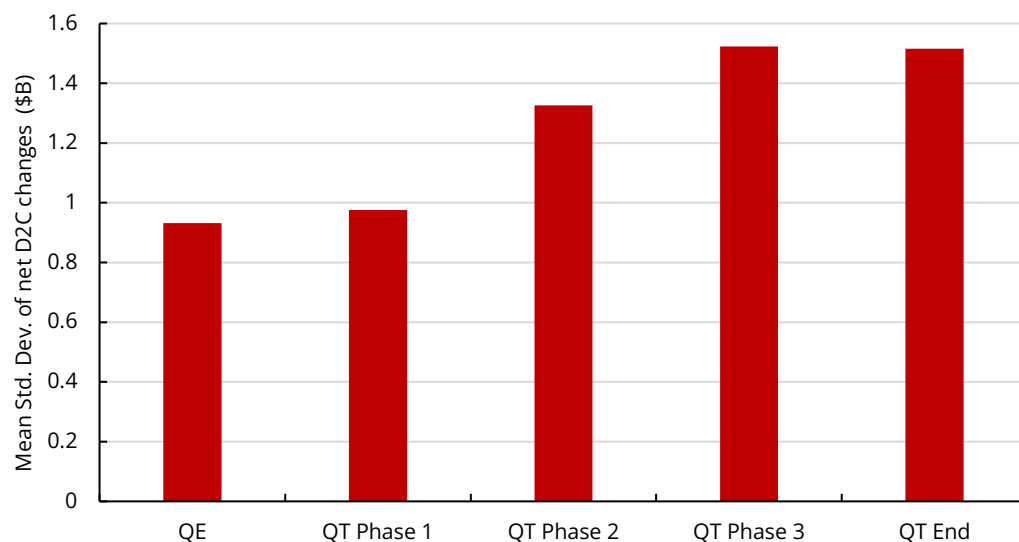
Repo Market Growing More Active During QT

The repo market became more active over the course of QT. As settlement balances declined, banks did not respond by simply compressing their client-facing repo books. Instead, they continued to accommodate larger and more variable client repo demand, while adjusting a broader set of funding sources more actively from day to day.

To quantify this shift, we measure the average day-to-day variability of each funding source using bank-level standard deviations of daily position changes, calculated within each regime and then averaged across banks. This metric captures how much a given funding source moves from one day to the next: higher values indicate greater day to day variability, which may reflect more frequent and larger adjustments. As such, it provides a simple proxy for the operational intensity of balance sheet management over time.

Chart 6 shows that client-facing repo flows became more volatile after the start of QT. The standard deviation of daily changes in D2C positions for the average bank was \$0.94 billion in the QE reference period and \$0.98 billion in QT Phase 1. It then rose to \$1.33 billion in QT Phase 2 and remained around \$1.5 billion in QT Phase 3 until the end of QT. This pattern suggests that dealers accommodated increasingly large day-to-day fluctuations in client repo demand during the later stages of QT, rather than offsetting the decline in settlement balances by reducing the variability of their client-facing activity.

Chart 6: D2C flow volatility increased across QT phases



Note: This chart reports the average across banks of the standard deviation of daily changes in net CAD dealer-to-client (D2C) repo outstanding over each sample period for the Big Six Canadian banks. Bank-level standard deviations are calculated using daily changes in net D2C CAD repo outstanding within each period and then averaged across banks. Banks' net CAD repo positions are constructed using Level 1 collateral volumes, including Government of Canada, provincial and mortgage bonds, sourced from the Market Trade Reporting System (MTRS) and supplemented with reporting from Canadian bank treasury desks.

Taken together, the results suggest that banks accommodate increasingly volatile client funding demand through more active redistribution of liquidity across dealers, alongside greater use of alternative funding sources, including foreign currency markets as well as RG and Bank of Canada facilities. Chart 6 shows that as dealer repo funding shifted away

from SBs toward the D2D market, dealers engaged in more active balance sheet management and met increasingly volatile client repo market funding demand.

Conclusion

This note studies how Canadian banks and their dealer arms fund imbalances in client repo demand as the Canadian monetary system transitioned from abundant to scarce settlement balances under quantitative tightening. The evidence points to a clear shift in the structure of intermediation. Early in the period, banks relied heavily on their own settlement balances to absorb client funding pressures. As those balances declined, they were used less intensively and more temporarily, while market-based funding—especially through the interdealer repo market—took on a larger and more persistent role.

This adjustment highlights an important feature of the system: the capacity to intermediate repo demand does not rest solely on the aggregate level of settlement balances, but also on the ability of market participants to reallocate liquidity efficiently. As internal liquidity buffers become more limited, the burden of adjustment shifts toward mechanisms that match surplus and deficit positions across institutions. In this sense, the interdealer market, along with complementary funding channels such as foreign-currency markets, becomes increasingly central to the system’s functioning.

Looking ahead, these findings suggest that further declines in settlement balances need not, on their own, impair the functioning of the repo market. Instead, the system may continue to adapt through greater reliance on active funding markets and more dynamic balance-sheet management. This is consistent with the broader view that well-functioning financial markets can substitute, at least in part, for large central bank balance sheets in facilitating the flow of short-term funding.

At the same time, this transition is not without limits. Greater reliance on market-based funding implies a system that is more sensitive to frictions in liquidity redistribution—such as balance-sheet constraints, changes in risk appetite, or disruptions in key funding channels. In such an environment, price signals (including repo rate spreads) may play a more prominent role in equilibrating supply and demand, and volatility in funding conditions may increase. Monitoring the resilience and depth of these markets therefore becomes more important as settlement balances decline.

For these reasons, public-sector tools will continue to play a central role in this evolving landscape. Facilities provided by the Bank of Canada can support market functioning during periods of stress or dislocation, and their presence is essential to guard the stability of the system, even if they capture a smaller share of the day-to-day volume of transactions.

A natural direction for future research is to better understand the conditions under which market-based adjustment may become impaired. This includes examining how banks' balance-sheet constraints interact with funding market liquidity, how cross-currency funding conditions influence domestic repo dynamics, and how quickly liquidity can be redistributed across participants during periods of stress. More broadly, assessing the joint evolution of settlement balances, market structure, and client funding demand will be key to understanding the steady-state configuration of the monetary system after QT.

In sum, the transition to lower settlement balances appears to be less about a loss of intermediation capacity and more about a reconfiguration of how that capacity is delivered. The Canadian repo market is adapting—from a system anchored in abundant central bank liquidity to one that relies more heavily on the depth and efficiency of private funding markets.

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Appendix – Covered Interest Parity

The Covered Interest Rate Parity (CIP) relation is given by

$$y_{t,t+n}^{CAD} = \left(\frac{S_t}{F_{t,t_m}} \right) r_{t,t+n}^{USD} - \left(\frac{F_{t,t_m} - S_t}{F_{t,t_m}} \right) \frac{360}{ACT(t_s, t_m)} \quad (1)$$

where $r_{t,t+n}^{USD}$ is the USD repo rate for an n-day term repo, S_t is the spot rate (USD/CAD), F_{t,t_m} is the forward rate (USD/CAD) with settlement in t_m days, and $ACT(t_s, t_m)$ equals the number of days between the spot settlement date t_s and the forward settlement date. The cost of USD source CAD repo funding is captured by deviations from covered interest rate parity, measured as,

$$x_{t,t+n} = r_{t,t+n}^{CAD} - y_{t,t+n}^{CAD} \quad (2)$$

Where $r_{t,t+n}^{CAD}$ is the rate on CAD repos. CIP deviation is defined as the difference between the actual CAD funding cost and the implied CAD funding cost. When $x_{t,t+n}$ is positive, and assuming dealers are price-takers in the FX swap market, dealers earn the positive CIP basis by accessing USD funding markets to meet CAD repo demand. That is, dealers borrow in USD, convert into CAD and lend out in the repo market while simultaneously selling CAD forward in the futures or forward market.¹⁵

Both repos and FX swaps involve balanced sheet costs. Repos remain on balance sheet and affect dealer's capital ratios. FX swaps, while off-balance sheet, may affect other risk indicators (Du et al., 2025), and thus also require (costly) equity capital to support the transaction. The extent to which off-balance sheet liabilities are priced by investors is unknown. However, when information asymmetries between investors and insiders arise (as they might when the extent of off-balance sheet transactions is unknown or less-well understood), we know from extensive theoretical and empirical evidence that investors require compensation in the form of a higher cost of capital.⁴ These information costs are higher, the more information sensitive the claim (in this case equity) being sold to investors.

¹⁵ A positive value of x implies the forward price is greater than what is implied by interest-rate parity. Dealers profit by selling CAD dollars forward and borrowing in USD.

Appendix – [extra chart]

Chart A1 —Historical covered interest rate parity deviations. This figure reports the daily 3-month (3M) covered interest parity (CIP) basis relative to the 3M overnight index swap (OIS). The basis is defined as the 3M-OIS rate minus the 3M CAD repo rate implied by CIP (see Appendix). The point is to show that this spread varies significantly over time, and we should expect a predictable pattern for the USD funding source coefficient in our regressions, since it depends on the combination of elevated CAD pressures, benign USD pressures and a favorable exchange rate forward rate.

