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Staff Analytical Note/Note analytique du personnel—2024-21

Last updated: August 15, 2024

CORRA: Explaining the rise in volumes and resulting upward pressure

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DOI: https://doi.org/10.34989/san-2024-21 | **ISSN** 2369-9639

Acknowledgements

We would like to acknowledge indispensable guidance and feedback from Mark de Guzman. Special thanks to Deputy Governor Toni Gravelle for valuable comments. The authors also acknowledge Jon Goodwin, Danny Auger, Joshua Fernandes, Cassie Davies, Sharaf Ahsan, Michael Mueller, Harri Vikstedt, Philippe Muller, Marie-Élodie Gabreau, Carole Hubbard and Nicole van de Wolfshaar for their helpful views and input. The views expressed in this work belong to the authors and do not represent the official views of the Bank of Canada.

Abstract

The Canadian Overnight Repo Rate (CORRA) measures the cost of overnight general collateral Canadian-dollar repurchase agreements (repos). Since late May 2024, the volume of trades that make up CORRA has increased and remained elevated. At the same time, CORRA started being consistently above the Bank of Canada's policy interest rate. This upward pressure results entirely from industry-wide changes to the settlement period for cash bond trades on the secondary market, from two days to one. The change in the settlement period prompted a rise in volumes in the overnight repo market (which is CORRA-eligible) from the tomorrow-next repo market (which is not CORRA-eligible). In addition, this move has overwhelmingly been one way: demand from hedge funds to fund their long bond positions. This demand existed before but was always traded in the tomorrow-next market and thus activity in the tomorrow-next repo market has been decreasing by an amount comparable to the increase in the overnight market. We find this mechanical effect has accounted for up to 3 basis points of upward pressure on CORRA. We find no indications that any other factors are contributing to this pressure. Given the new dynamics since May, the Bank has amended the terms of its overnight repo operations. It has also subsequently conducted a series of operations to help reinforce the target for the overnight rate, which had deviated away from the Bank's policy rate due to this mechanical adjustment. Overnight repos are routine operations that are part of the Bank's operational framework for implementing monetary policy and reinforcing the policy interest rate.

Topics: Financial markets; Interest rates; Monetary policy implementation
JEL codes: D, D4, D5, D53, E, E4, E43, E44, E5, E52, G, G1, G12

Résumé

Le taux des opérations de pension à un jour (le taux CORRA) sert de mesure du coût du financement à un jour en dollars canadiens sur le marché général des pensions. Depuis la fin de mai 2024, le volume des opérations basées sur le taux CORRA a augmenté et est resté élevé. Parallèlement, le taux CORRA a commencé à se situer constamment au-dessus du taux directeur de la Banque du Canada. Cette pression à la hausse résulte entièrement de la modification de la période de règlement pour l'ensemble des opérations sur obligations au comptant effectuées sur le marché secondaire, qui est passée de deux à un jour. Cette modification a entraîné un déplacement du volume de négociation du marché des opérations à 24 h valeur lendemain (non admissibles pour le taux CORRA) vers celui des opérations de pension à un jour (admissibles pour le taux CORRA). De plus, ce mouvement a été essentiellement unidirectionnel : il s'explique par la demande des fonds de couverture pour financer leurs positions longues sur le marché obligataire. Cette demande existait déjà, mais elle était satisfaite sur le marché à jour lendemain. L'activité sur ce marché a donc diminué d'un montant comparable à l'augmentation de l'activité sur le marché des opérations à un jour. Nous constatons que cet effet mécanique a entraîné une hausse du taux CORRA pouvant aller

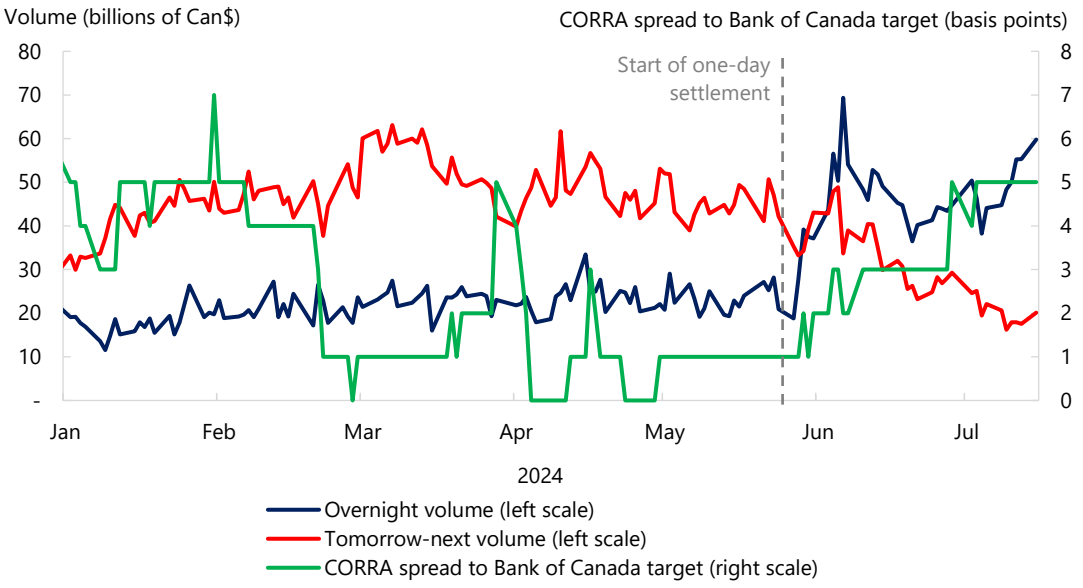
jusqu'à 3 points de base. Nous ne trouvons aucune indication que d'autres facteurs contribuent à cette pression à la hausse. Compte tenu de la nouvelle dynamique observée depuis mai, la Banque a modifié les modalités de ses opérations de pension à un jour. Par la suite, elle a aussi réalisé une série d'opérations pour aider à renforcer le taux cible du financement à un jour, qui s'était écarté du taux directeur en raison de cet ajustement mécanique. Menées couramment, les opérations de pension à un jour sont un élément intégral du cadre opérationnel de la Banque servant à mettre en œuvre la politique monétaire et à renforcer le taux directeur.

Sujets : Marchés financiers, Taux d'intérêt, Mise en œuvre de la politique monétaire
Codes JEL : D, D4, D5, D53, E, E4, E43, E44, E5, E52, G, G1, G12

Introduction

The Canadian Overnight Repo Rate Average (CORRA) measures the average cost of overnight funding in Government of Canada (GoC) treasury bills and bonds as collateral in Canadian-dollar repurchase agreements (repos).[1] Before June 2024, eligible repo trades (before trimming)[2] used to calculate CORRA averaged $21.6 billion, ranging from $11.6 billion to $33.5 billion for the period from January 1, 2024, to May 27, 2024. Since May 28, 2024, CORRA volumes have risen and have remained elevated. Alongside the increase in volumes, CORRA started to sit consistently above the Bank of Canada's policy target rate (**Chart 1**). As a result, on July 12, 2024, the Bank increased the total and individual limits for eligible overnight repo operations. On July 17, 2024, the Bank began conducting overnight repo operations to provide temporary liquidity to primary dealers in GoC securities in exchange for non-specific GoC marketable securities (i.e., general collateral).

Chart 1: As the volume of trades in the overnight market has grown, the level of CORRA has risen



Note: CORRA is the Canadian Overnight Repo Rate Average
Source: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: July 15, 2024

[1] Repos play a vital role in the functioning of any major developed bond market. A repo is the sale of an eligible security to a cash lender where the borrower of cash is required to repurchase the eligible security at a future date. For example, in the case of overnight repos, the repurchase takes place the next business day. The repo rate is the price quoted for a repo transaction. It is effectively the lending and borrowing rate for the cash portion of the repo transaction. Repos are the main funding tool that enables market participants to easily take long or short positions in GoC securities, which supports market liquidity and market-making activities.

[2] See Bank of Canada (n.d.).

Overnight repos are routine operations that are part of the Bank's operational framework for implementing monetary policy and reinforcing the policy rate.[3] Understanding the source of pressure in the overnight funding market is particularly important for implementing monetary policy, especially because the Bank has a floor system and is currently operating in an environment of ample settlement balances.

We identify and discuss factors behind the increase in CORRA volumes and the resulting upward pressure. First, we consider that, in May 2024, the settlement period for trading cash bonds in the secondary market shortened industry-wide from two days to one. We find that this shortened settlement time has resulted in sizable volumes of repo trades moving from the tomorrow-next repo market—which is excluded from the CORRA calculation—to the overnight repo market—which is included in the CORRA calculation.

Second, the positioning of such trades has been skewed[4] to clients who are funding more long positions (i.e., buying GoC bonds and funding the purchase through a repo by lending the collateral) rather than clients who are covering short positions (i.e., selling GoC bonds short and obtaining those bonds through a reverse repo by borrowing the collateral). To be clear, this skew in positioning existed before but its effect would have been felt more in the tomorrow-next market. Similar dynamics were at play during the period of upward pressure on CORRA in late 2023 early 2024, contributing indirectly to higher overnight repo rates.[5] Now with these trades moving to the overnight market, their impact is more direct.

Combined, these two factors have led to a significant increase in the trades that are used to calculate CORRA. At the same time, CORRA has been pushed up. This is due to the current skew toward demand for funding from clients, which has effectively increased the proportion of clients demanding liquidity relative to clients providing liquidity in the overnight repo market. To better understand these factors, we provide a quick review of the tomorrow-next and overnight repo markets and their eligibility for calculating CORRA. We also discuss why some clients might be better suited to trade in the overnight market rather than the tomorrow-next market under the one-day settlement regime.

Overnight versus tomorrow-next repo trades

Overnight repo trades are executed on the current day (t), with the transaction's opening leg settling on t and its closing leg settling on $t+1$. The overnight market is most active in the morning to allow sufficient time for settling trades later in the day.

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[3] See Bank of Canada (2024b).

[4] Skew refers to the balance between the amount of funding for longs that is required and the amount of short positions being covered in the repo market (i.e., total reverse repo less repo on these International Securities Identification Numbers ISINs).

[5] To learn more about the upward pressure on CORRA at the beginning of the year, see Plong and Maru (2024).

Tomorrow-next repo trades are executed on the current day (*t*) with the transaction's opening leg settling on *t*+1 and the transaction's closing leg settling on *t*+2. The tomorrow-next market is most active in the afternoon because settlement of the opening leg happens the following day, which allows for later afternoon trading to occur.

Both overnight and tomorrow-next trades have the same motivation: clients are raising or lending cash overnight (i.e., for one day). They also have the same execution date, but the movement of cash and collateral for both the opening and closing legs under tomorrow-next trades occurs one day later than it does in the overnight trade.

The Canadian Alternative Reference Rate Working Group (CARR) decided to exclude tomorrow-next trades when calculating CORRA because this market is generally considered to be where market participants trade specific, not general, collateral, given their propensity to use the tomorrow-next market to cover their short positions.[6]

Cash bond trading

In Canada, the settlement period for GoC bonds on the secondary market decreased from two days to one day (*t*+1) starting May 27, 2024. This industry-wide decision[7] to align North American standards was expected to reduce counterparty and settlement risks in the trading of financial securities. Since the move to one-day trading of GoC bonds, overnight repo volumes have risen, while tomorrow-next repo volumes have declined by a comparable amount (**Chart 1**).

The movement of volumes from the tomorrow-next market to the overnight market is a result of the shortened time period for settling bond trades. Since the transition to one-day settlement, market participants that rely on the repo market to fund their purchases and sales in the bond market are better suited to trade in the overnight market rather than in the tomorrow-next market (**Figure 1** and **Figure 2**).

Because liquidity in the cash bond market does not start to dry up until 4 p.m. eastern time, market participants will have a clearer picture of their net *t*+1 funding needs at the end of the day. Although they might choose to do a portion of this funding on the same day using the tomorrow-next market, they are better off to wait and use the next day's overnight market once they have a clear picture of the net funding they need for settlement (see the **Appendix**). In the United States, the overnight market has already been actively used to fund purchases of US Treasuries, which have been settling on a *t*+1 basis for quite some time.

[6] See Bank of Canada (2019).

[7] See Amsden (2024).

Figure 1: Overnight repos are counted while tomorrow-next is not

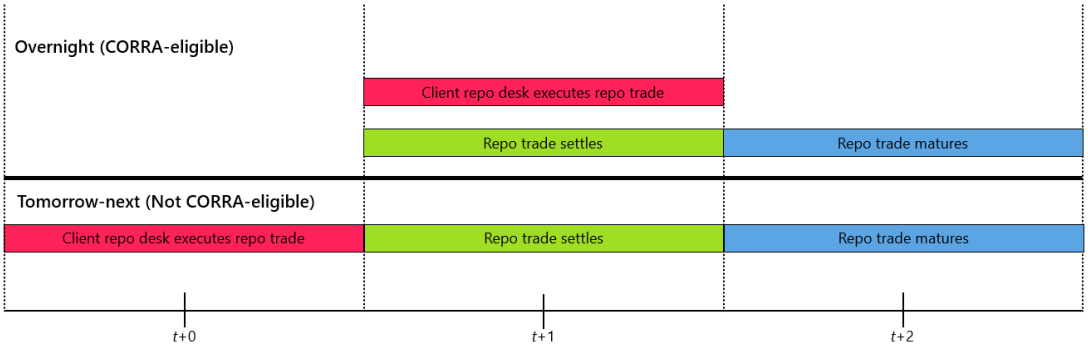
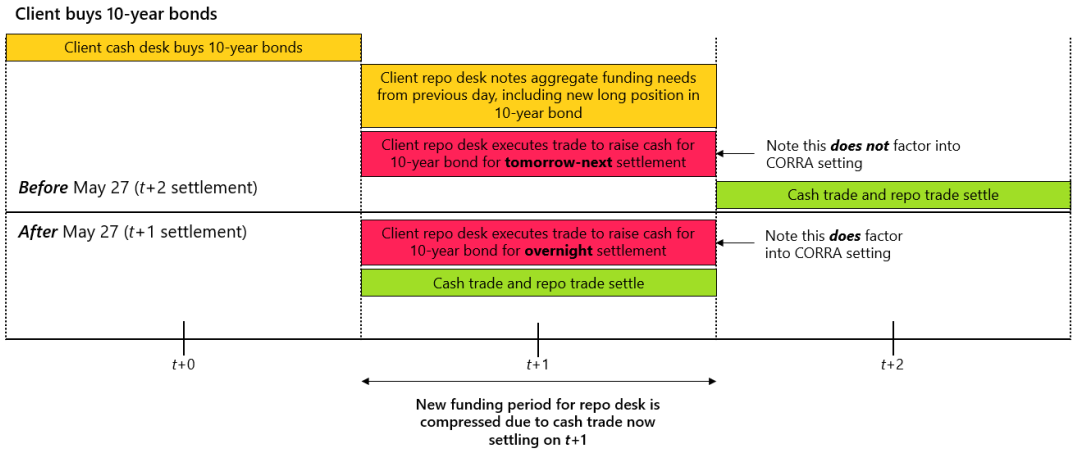


Figure 2: One day settlement makes overnight repo trading more practical



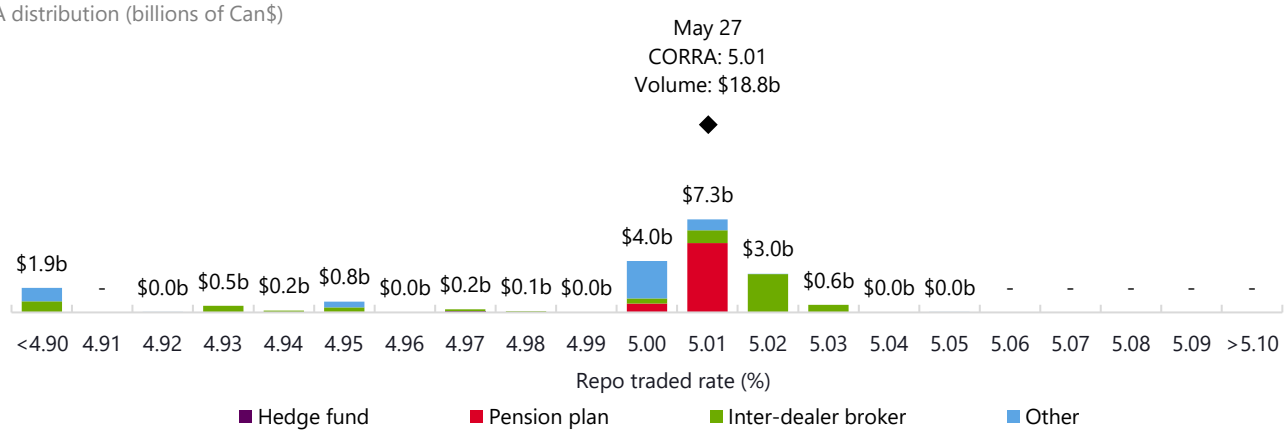
Upward pressure on CORRA

Chart 2 and **Chart 3** present a snapshot of the overnight repo market for GoC securities before and after the cash bond market transitioned from *t*+2 to *t*+1 settlement. Hedge fund activity in the overnight repo market picked up immediately after the settlement period changed. At the same time, hedge funds' trades were nearly all made at repo rates at the high end of the range of rates. This trend—both the increased volume of hedge funds' trades and the higher rates at which they trade—has remained consistent since the transition to *t*+1 and accounts for much of the increase in the overnight repo market and thus CORRA volumes. In fact, most recently, hedge fund trades can account for the largest volumes for the CORRA setting, which marks a new milestone for CORRA. The bulk of trades that have moved into the overnight market are trading at higher repo rates. This is because hedge funds are funding their long positions in the cash bond market (i.e., reverse repo from a primary dealer perspective). And while hedge funds have also started to cover their GoC short positions in the overnight market, these volumes are notably lower than those funding their long positions (**Chart 4**). Therefore, the increased volume of repo transactions that have transitioned to the overnight market because of the industry move to one-day settlement has overwhelmingly been made of up

more reverse repos (i.e., long positions being funded) than repos (i.e., short positions being covered). This has pushed CORRA up because it means a net increase in funding liquidity is being sought in the overnight market (i.e., more unbalanced activity toward liquidity demanded for funding long positions than liquidity supplied for covering short positions). The hedge fund trades that have not yet moved to the overnight market are now much more balanced between those used for long funding and those used for short covering, whereas before the move to one-day settlement, trades in the tomorrow-next market were skewed towards demand for funding (**Chart 5**).

Chart 2: Pension plans and inter-dealer broker trades determined where CORRA set before the transition to one-day settlement

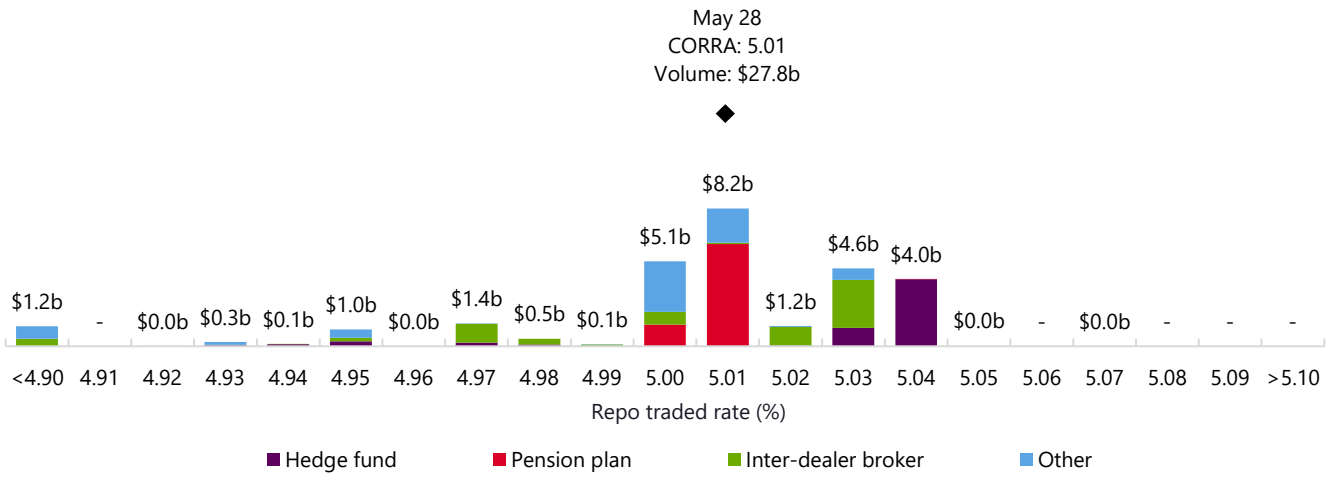
CORRA distribution (billions of Can$)



Note: CORRA is the Canadian Overnight Repo Rate Average
Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: May 27 2024

Chart 3: Hedge funds increasingly determine where CORRA sets after the transition to one-day settlement

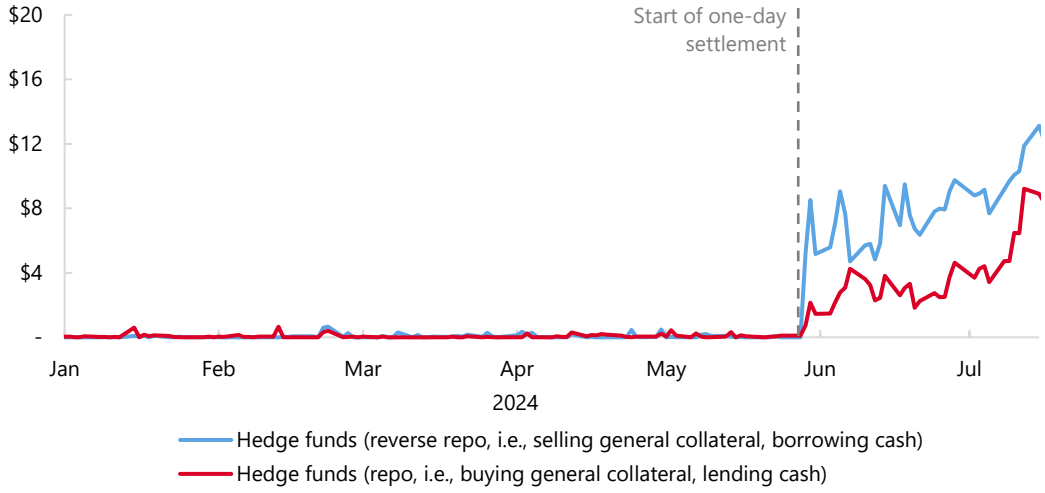
CORRA distribution (billions of Can$)



Note: CORRA is the Canadian Overnight Repo Rate Average
Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: May 28 2024

Chart 4: Hedge fund activity in overnight repo markets increased sharply after the transition to one-day settlement

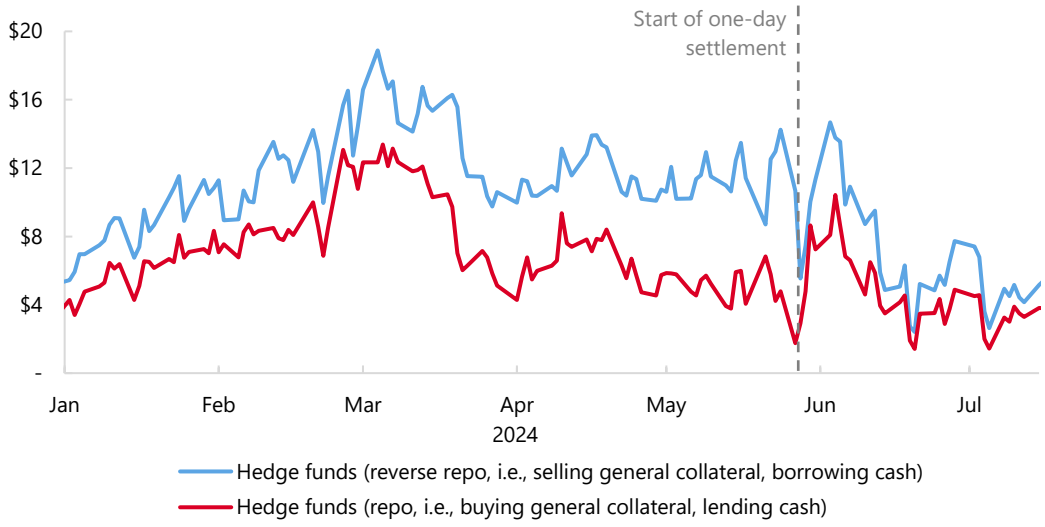
Overnight repo volumes, amount settled (billions of Can$)



Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: July 15, 2024

Chart 5: Hedge fund activity in tomorrow-next repo market dropped after the transition to one-day settlement

Tomorrow-next repo volumes, amount settled (billions of Can$)



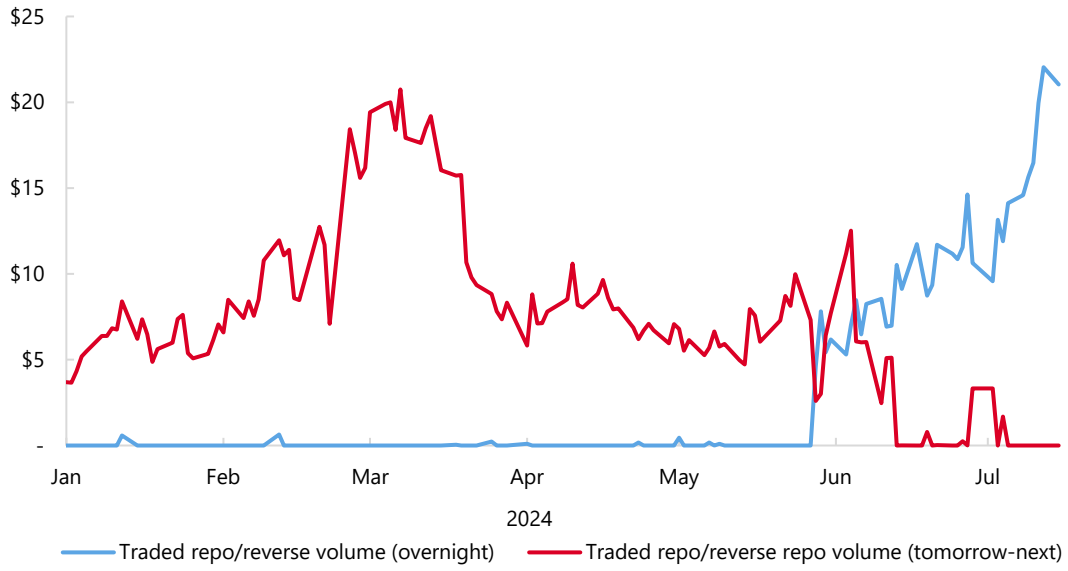
Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: July 15, 2024

The bulk of the increase in trading activity in the overnight market can be attributed to a handful of well-known international hedge funds. Before the transition to one-day settlement, the funding of their cash bond positions was nearly all executed in the tomorrow-next market. Since the transition, these hedge funds have moved their funding into the overnight market (**Chart 6**). Specifically, they are funding mainly a handful of bonds that make up the cheapest-

to-deliver bonds for the 2-year, 5-year and 10-year futures bond contracts. **Chart 7** illustrates the rates hedge funds have paid for cash to fund such long positions in the repo market.

Chart 6: A handful of hedge funds account for most of the increased activity in overnight repo markets

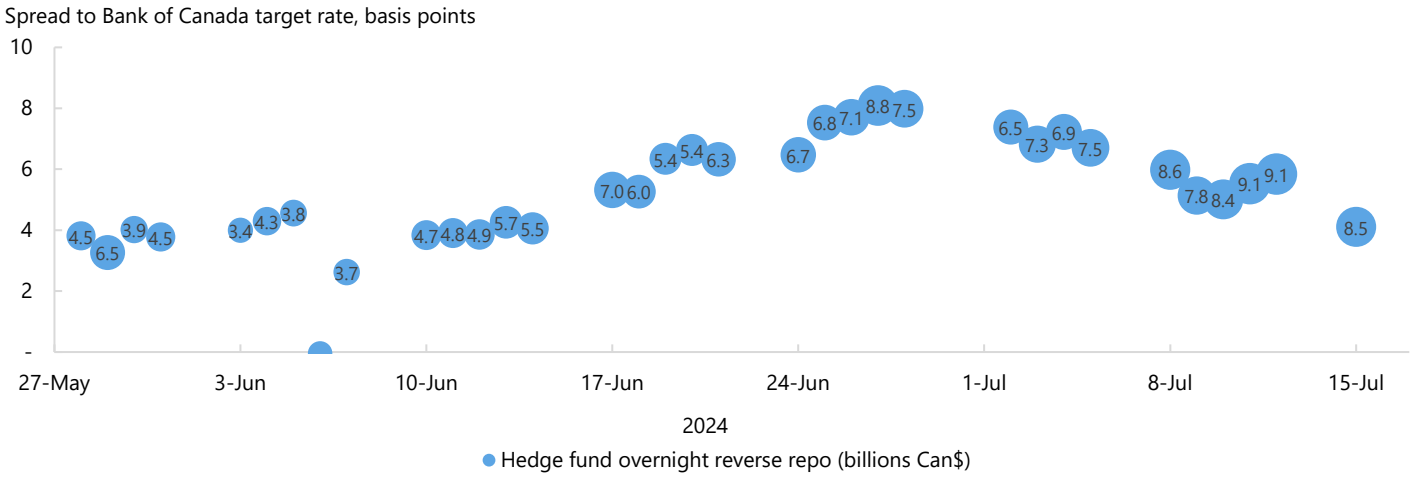
Volume (billions of Can$), per settlement day, overnight versus tomorrow next most "active" hedge funds



Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: July 15, 2024

Chart 7: Hedge fund long positions are being funded well over target

Top 5 ISINs average repo rate traded among most active hedge funds in overnight repo

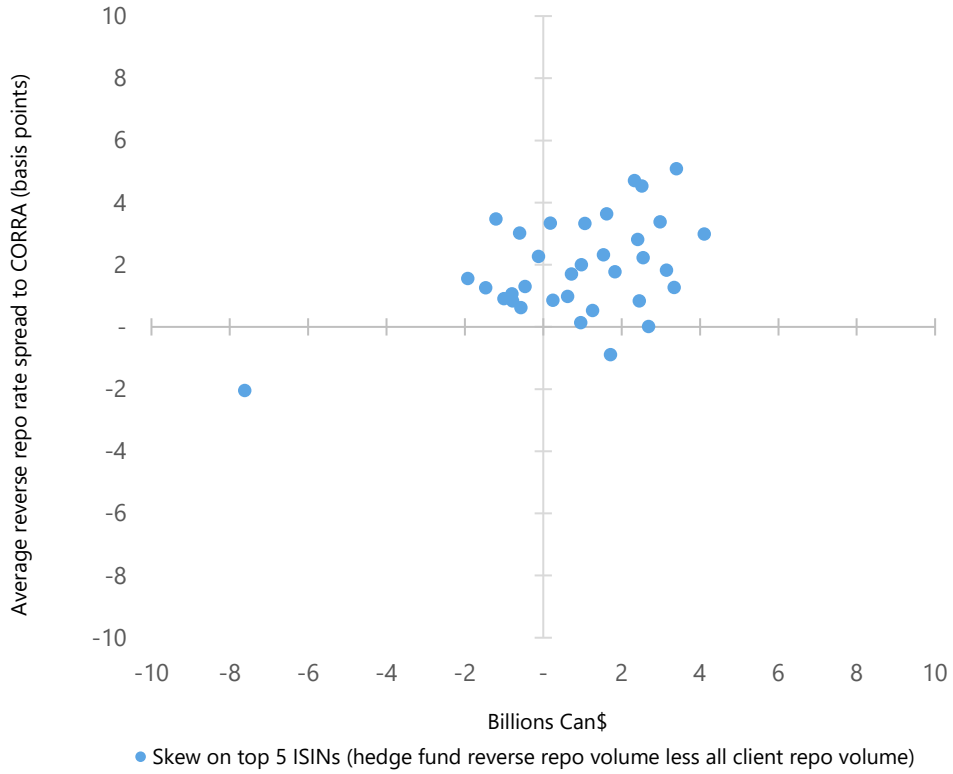


Note: ISIN is International Securities Identification Number. Bubble size and label indicate the amount in billions Can$ of overnight repo trades per day
Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: July 15, 2024

The skew[8] in positioning of these bonds in the overall market explains why such bonds are funded well over the Bank's target for the overnight rate (**Chart 7** and **Chart 8**). The long positions of hedge funds are not being offset by any short positions in those specific bonds from any other clients in the repo market. The positioning in these bonds is thus skewed one way (**Chart 8**). Thus, given that these bonds are readily available or bountiful in the repo market, they trade very cheaply on repo (i.e., they lack any degree of specialness). With no real demand from other participants for these specific bonds, primary dealer repo desks can sell them only as part of general collateral and not as specific collateral, which would warrant a lower repo rate.[9]

Chart 8: Hedge funds are long in ISINs while no other clients are short, leading to higher repo rates

Observation range: From May 28 onwards until July 15, 2024



Note: ISIN is International Securities Identification Number.
Sources: Market Trade Reporting System 2.0 and Bank of Canada

[8] *Skew* refers to the balance between the amount of funding for longs that is required and the amount of short positions being covered in the repo market (i.e., total reverse repo less repo on these International Securities Identification Numbers ISINs).

[9] The more demand there is for a specific bond (i.e., the greater the degree of specialness), the more a borrower must "pay" to borrow the bond in repo, in the sense that the borrower is compensated less than the general collateral rate on the cash they provide (i.e., a lower repo rate).

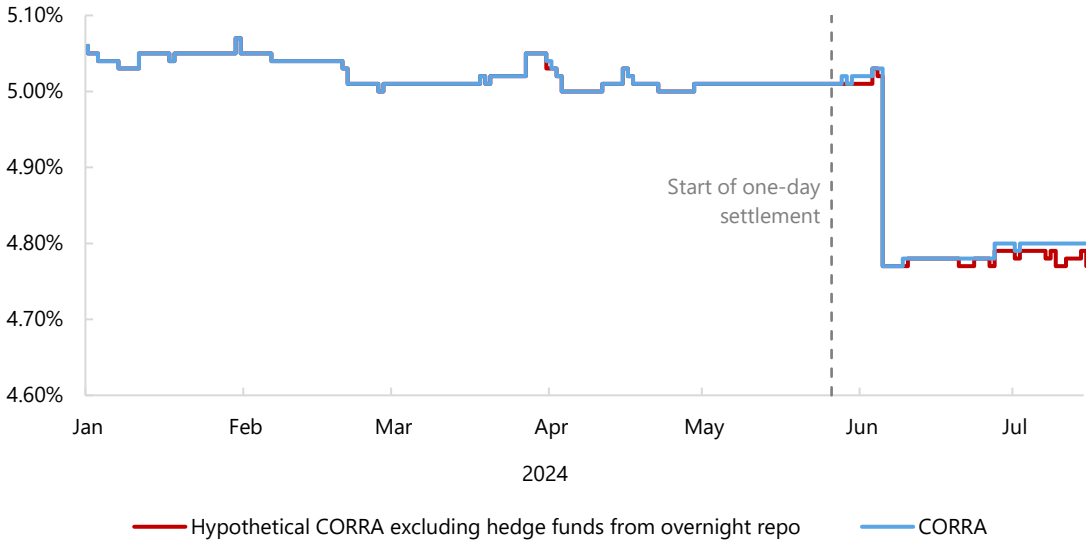
Movement of tomorrow-next volumes to the overnight market

The effects on CORRA stemming from the increase in volumes in the overnight market coming from the tomorrow-next market depend largely on the positioning of such trades (i.e., whether they are for funding long positions or covering short positions). Future potential effects on CORRA will ultimately depend on the volumes and skew of positions that would otherwise have been in the tomorrow-next market but are now in the overnight market.

Considering this most recent episode of upward pressure on CORRA, if in a counterfactual we remove the "new" hedge fund overnight trades (i.e., those that moved from the tomorrow-next market) from the CORRA calculation for the period since the transition to one-day settlement, we see that CORRA would have been up to 3 basis points lower than it is currently (**Chart 9**). However, this may underestimate some of the second-order effects that result from increased client trading in the overnight market. **Chart 10** illustrates the positive relationship between the volume of client trades and the volume of the trades done in the interdealer broker market (IDB), which are also used to calculate CORRA. The relationship has strengthened since the transition to one-day settlement, likely due to an adjustment period for primary dealer repo desks as clients have transitioned to the overnight market. This relationship is important to note because IDB trades tend to clear mainly at levels above the Bank's target for the overnight target rate (**Chart 11** and **Chart 12**), which then pushes CORRA above the Bank's target rate. Thus, greater volumes in the IDB market that are typically transacted at rates modestly above the Bank's target will increase the proportion of total trades above target that are included when calculating CORRA.

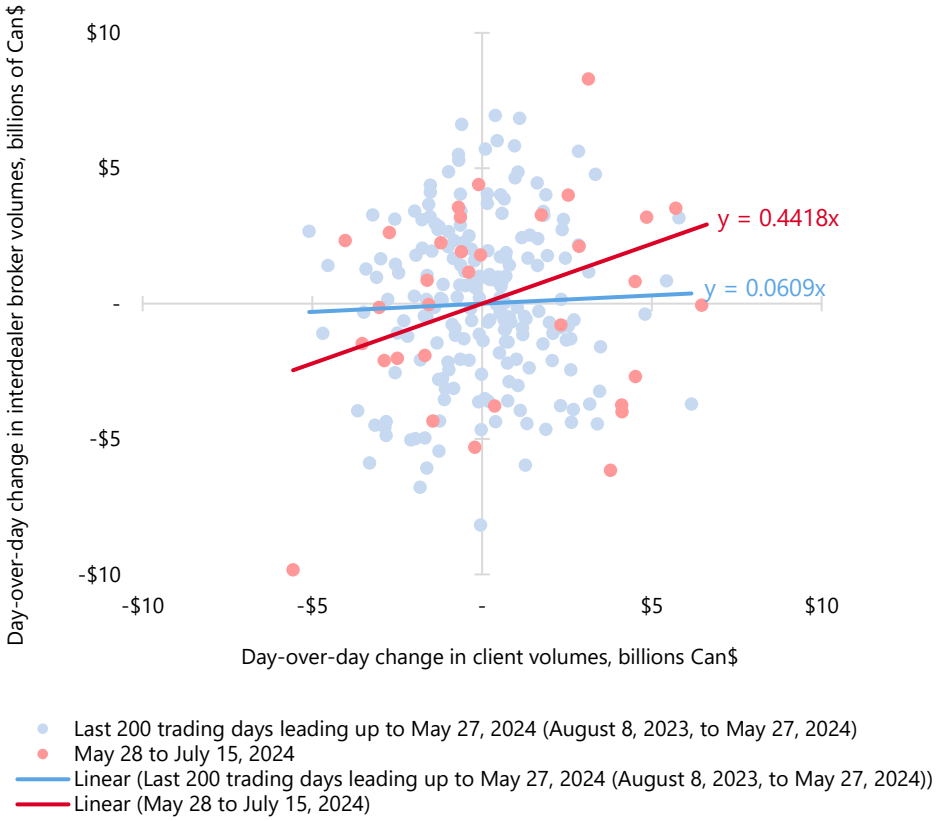
Chart 9: The "new" hedge fund overnight trades could add up to 3 basis points to CORRA

Hypothetical CORRA (excluding hedge funds from overnight repo) vs. CORRA



Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: July 15, 2024

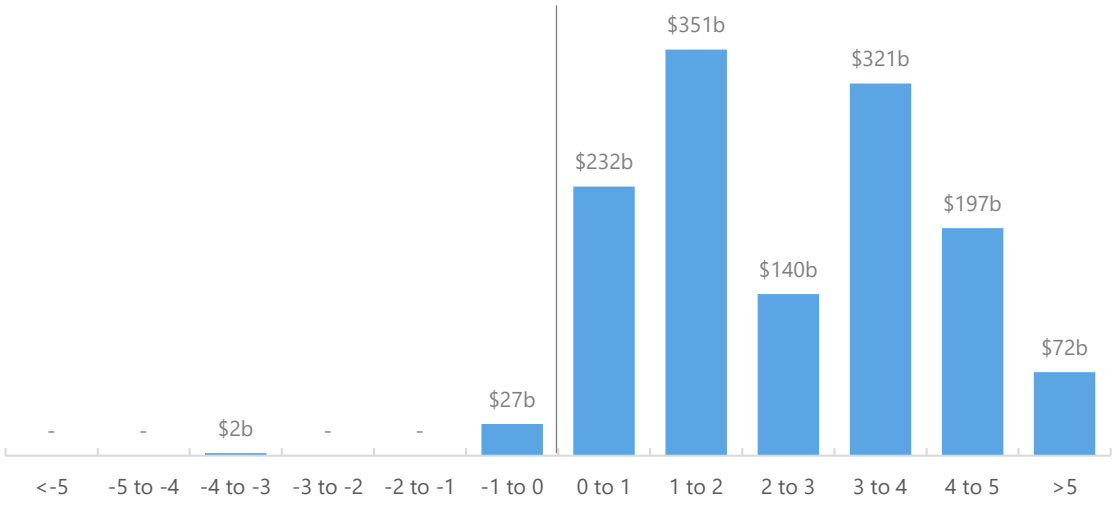
Chart 10: Interdealer broker volumes have increased by more than what history suggests



Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: July 15, 2024

Chart 11: Interdealer broker general collateral trades clear at above target

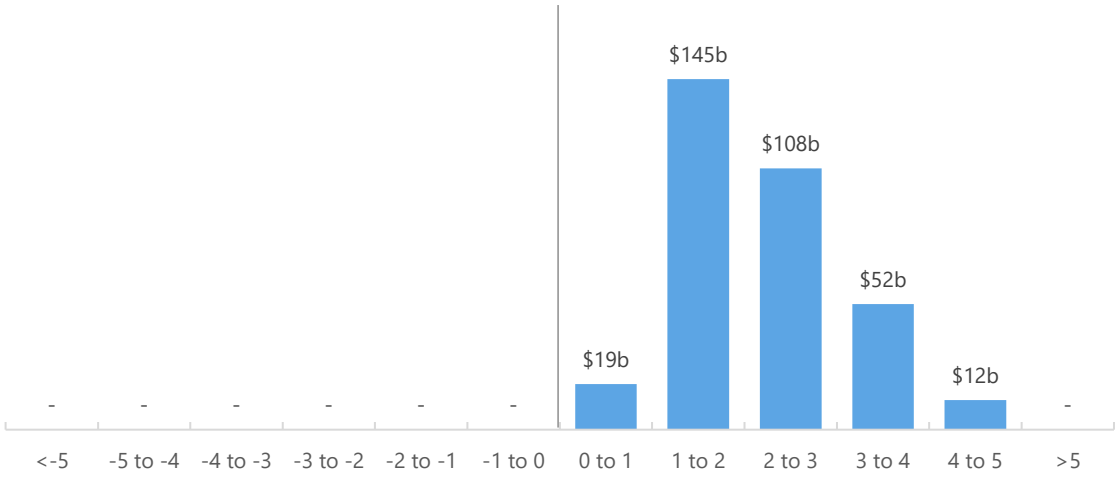
Last 200 trading days leading up to one-day settlement transition, August 8, 2023, to May 27, 2024, billions Can$



Sources: Market Trade Reporting System 2.0 and Bank of Canada

Chart 12: Interdealer broker general collateral trades still clear at above target

Last trading days after one-day settlement transition, May 28 to July 15, 2024, billions Can$



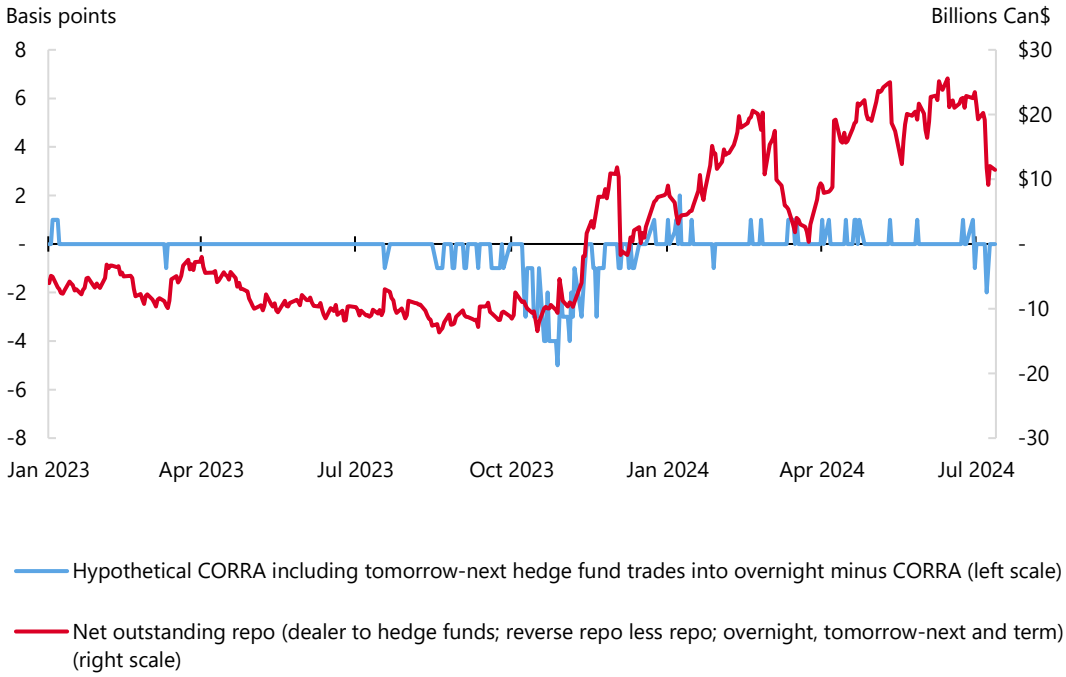
Sources: Market Trade Reporting System 2.0 and Bank of Canada

CORRA will likely be more volatile going forward

Its important to note that the transition date for one-day settlement of cash bonds is somewhat arbitrary in terms of its impact on CORRA. Had the transition date been last autumn, with the same effect of repo volumes moving to the overnight market from the tomorrow-next market, the results would have pushed CORRA down (**Chart 13**). This reflects the positioning by hedge funds that were net short in the autumn 2023. They had fewer long positions to fund than short positions to cover and thus were a provider of cash in the overall repo market.

As mentioned earlier, after the transition to one-day settlement, long positions needing funding moved into the overnight market. The skew of the remaining tomorrow-next volumes is much more balanced. If we posit a counterfactual moving the remaining tomorrow-next trades into the overnight market, the result is pressure in the opposite direction, reflecting the skew in rates for covering short positions rather than funding long positions. In other words, if the remaining tomorrow-next trades moved to the overnight market, it would push CORRA down (**Chart 13**). Thus, further shifts from tomorrow-next to overnight along with the skew will likely make CORRA more volatile than it was in the past.

Chart 13: **One-day settlement effect would have pulled CORRA down in the autumn of 2023**



Sources: Market Trade Reporting System 2.0 and Bank of Canada
Last observation: July 15, 2024

Persistence in CORRA

As highlighted in previous research, a persistence effect tends to take hold once the CORRA rate settles into a new regime. As CORRA was pushed higher by the movement of funding long positions from the tomorrow-next to the overnight market, bank treasuries and some large real money clients that naturally hold a long position in cash used the CORRA rate published in the morning as an indication of prevailing funding costs.[10] Some large real money clients have informal agreements with some dealers to lend funds at the previous day's CORRA. Similarly, bank treasuries will fund their respective repo desks at CORRA. Thus, higher published CORRA on any one day—due to the previous day's large imbalance of new long positions needing funding now making their way into the overnight market—may mean that dealers have fewer incentives to lower funding rates at the start of the day. This in turn leads to higher rates over the remainder of the day, all things being equal. This effect of ratcheting up interest rates is hard to undo without a more marked and likely relatively persistent decline in funding needs across the market. This persistence effect and the higher volumes were factors leading the Bank to amend the terms and conditions[11] of the overnight repo operations. Namely, the Bank increased the aggregate size and individual dealer limits to maintain the effectiveness of such operations to help address the imbalance in the market stemming from a technical effect due to the transition to one-day settlement.

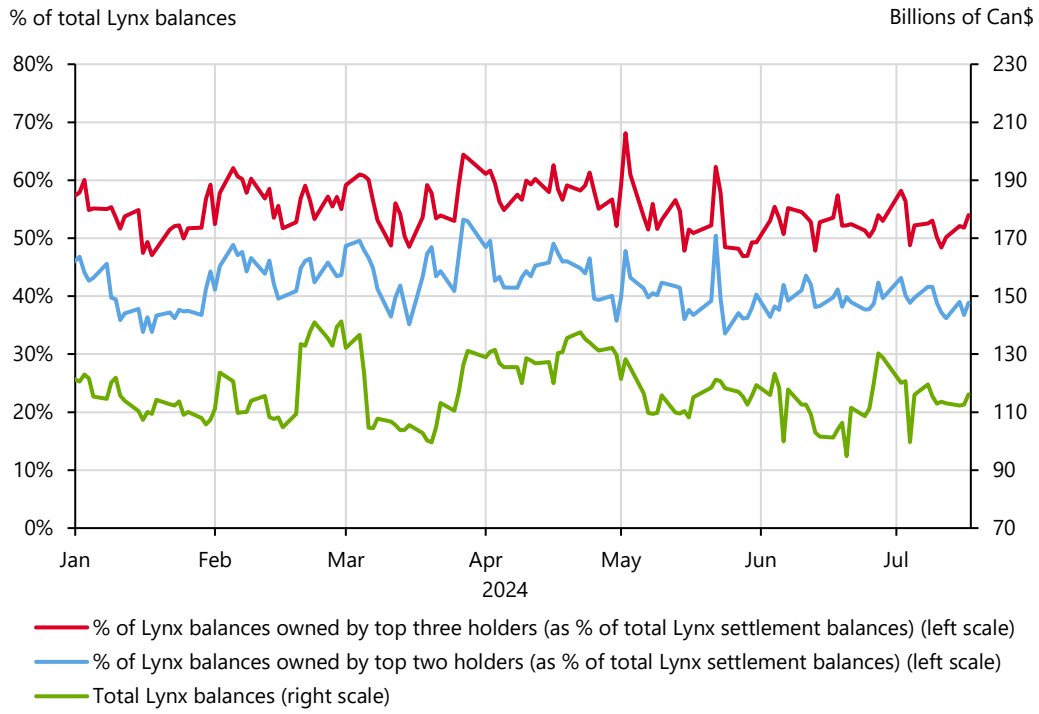
Settlement balances

Quantitative tightening continues in the background, and, as it continues, the level of settlement balances will continue to decline. This will likely put upward pressure on CORRA at some point. However, during this most recent period of upward pressure beginning in late May, settlement balances remained relatively stable. In addition, the concentration of settlement balances among Lynx participants has also largely remained unchanged for quite some time (**Chart 14**). We therefore do not believe that quantitative tightening has been an important factor behind the upward pressure in CORRA since early June 2024.

[10] To learn more, see Plong and Maru (2024).

[11] See Bank of Canada (2024a).

Chart 14: Lynx balances and concentration of balances remain stable



Sources: Payments Canada and Bank of Canada
Last observation: July 15, 2024

Conclusion

We are likely in a new equilibrium for CORRA volumes. The pressures pushing CORRA up are due to the new regime of settling cash bond trades in one day and the associated volumes in the tomorrow-next repo market moving to the overnight repo market. Combined with positioning by hedge funds that are currently skewed to more long positions needing funding, this has added to the equation more volume of trades with higher rates that are eligible for calculating CORRA.

However, this pressure on CORRA could have been to the downside if the transition to one-day settlement had occurred in autumn 2023, when hedge fund positioning was net short. As such, the transition to one-day settlement appears to have resulted in greater volatility in CORRA relative to the target for the overnight rate. In addition, given that sizable tomorrow-next hedge fund volumes remain, the current level could potentially move higher or lower depending on whether these volumes move into the overnight market, their skew and whether the skew of the volumes of trades that have already migrated to the overnight market change. Given these new dynamics in CORRA, the Bank implemented amendments to the terms and conditions of its overnight repo operations (e.g., total limits, individual limits and earlier potential time) that were necessary to ensure that such operations could effectively reinforce

the policy rate. However, these most recent operations have been only partially successful in reinforcing the overnight rate. Going forward, further amendments to existing tools or new tools may need to be considered to reinforce the policy rate given the new equilibrium and dynamics of CORRA.

Appendix: Tomorrow-next versus overnight under *t*+1

Consider an example where a hedge fund goes long, or buys, the current 10-year bond today (*t*) and needs to fund the purchase using a repo. That is, the hedge fund needs to raise cash to settle the purchase tomorrow (*t*+1) by pledging the bond as collateral. For the repo, the hedge fund has two options: it can either transact the same day (*t*) using the tomorrow-next market, or it can wait until tomorrow (*t*+1) when the cash is needed for settlement and use the overnight market (**Figure 3** and **Figure 4)**.

The main difference between these two options is that the hedge fund's net funding needs could continue to change over the afternoon in period *t* because the bond market remains active until around 4 p.m. eastern time. The hedge fund could end up selling some of the same bonds later on in the day on day *t*, which could result in its receiving cash on *t*+1. This reduces the hedge fund's net funding needs on *t*+1. Hence, using the tomorrow-next market to raise funds to settle the day *t* purchases could result in overfunding from some unnecessary tomorrow-next repo transactions. In this situation, the hedge fund would not have sufficient collateral to settle the unnecessary tomorrow-next repos and would therefore need to unwind them by transacting reverse repos, introducing bid-offer costs and increased settlement risk. This increased cost and risk could be avoided if, instead, the hedge fund uses the overnight market on *t*+1 (option 2 above). This is because the hedge fund will have certainty over its net funding needs from all *t* trading on *t*+1 and can effectively use the overnight market to raise the correct amount of cash it needs for settlement that day.

Figure 3: Tomorrow-next under one-day settlement, option 1

Client goes long (i.e., buys) 10-year bond

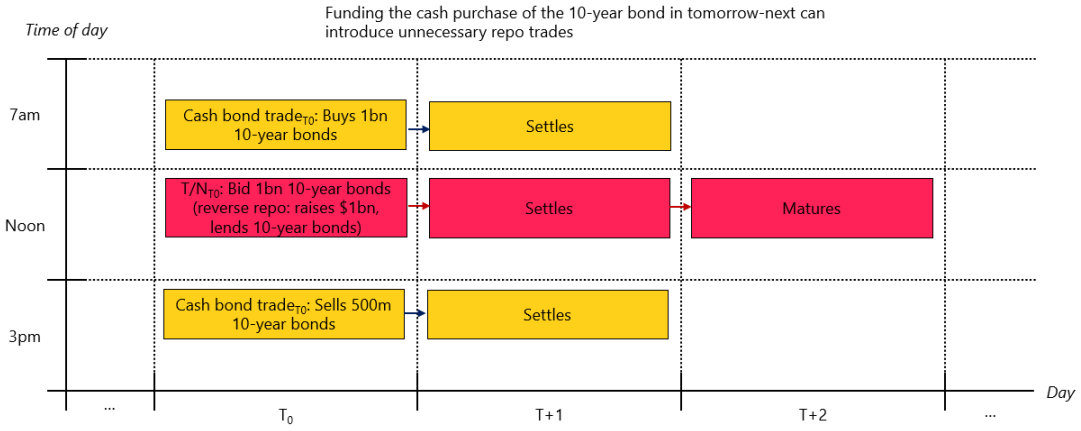
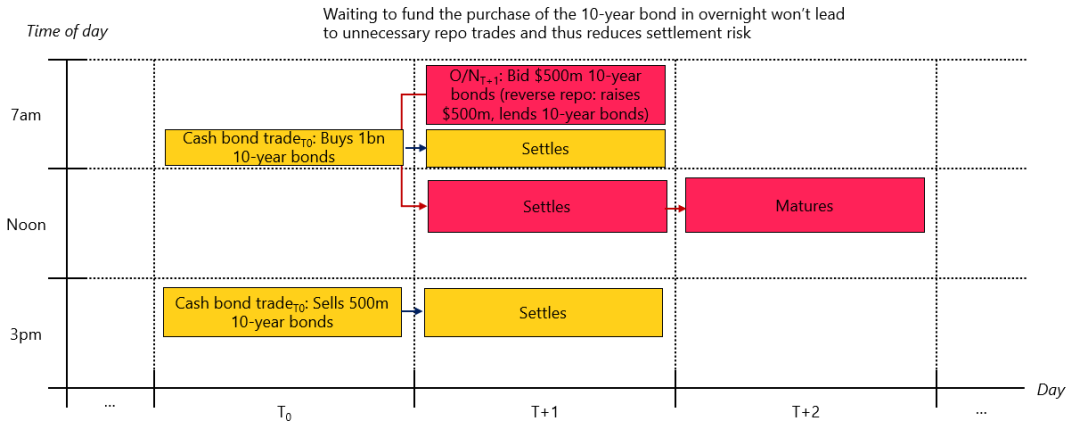


Figure 4: Overnight under one-day settlement, option 2

Client goes long (i.e., buys) 10-year bond



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