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Going back to normal: The Bank of Canada's balance sheet after quantitative tightening

Introduction

Good morning. And thank you, Fred, for the kind introduction.

I last spoke here, *virtually*, almost three years ago. At that time, I updated you on the actions the Bank of Canada had taken to help financial markets and the economy get through the COVID-19 crisis.[1]

I expect you all remember all too vividly the overwhelming panic that engulfed financial markets when the pandemic hit. The resulting dash-for-cash mindset caused widespread dysfunction across key debt markets, including the market for Government of Canada (GoC) bonds. So we stepped in quickly and forcefully with several programs to make sure these markets could work properly.

Our actions did the job.[2] Market functioning was restored. But in restoring market functioning—and, later, in supporting the economic recovery—we ended up substantially growing our balance sheet.

A lot has happened since then. As pandemic restrictions eased, inflation increased. In response, we rapidly raised our policy rate—our main tool for controlling inflation. And because of the progress that we have made on inflation, our monetary policy discussions have shifted from whether our policy rate is restrictive enough to how long it needs to stay at the current level.

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[1] See T. Gravelle, "Market stress relief: The role of the Bank of Canada's balance sheet," (speech delivered virtually to CFA Society Toronto, Toronto, Ontario, March 23, 2021).

[2] See, for example, G. Johnson, "A Review of the Bank of Canada's Market Operations Related to COVID-19," Bank of Canada Staff Discussion Paper No. 2023-6 (March 2023).

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We have also been shrinking our balance sheet through quantitative tightening (QT) since April 2022. Under QT, we let the bonds we hold roll off our balance sheet as they mature, without replacing them. So far, our asset holdings have declined by roughly $180 billion, or almost 40%, to about $300 billion.

After two years, we are getting closer to the end of that balance sheet normalization. So today I'm going to talk about how we plan to manage things after QT has ended. Though there will be some modest changes in the details, the main message is we will be back to normal balance sheet management. That is, we will buy assets simply to match the amount of liabilities on our balance sheet, the main liability being cash in circulation.

Before I explain the changes, I'll remind you how our balance sheet evolves in normal times. And then I'll talk about how we'll know that balance sheet normalization has run its course.

What normal balance sheet management looks like

Let's start with a refresher on how we manage our balance sheet in normal times. By *normal* I mean when there isn't something exceptional going on, such as significant stress in the financial system or an economic crisis.

The first thing to understand is that the size and composition of our balance sheet reflect the unique role we play as Canada's central bank. Our assets and liabilities are designed to support our core policy functions. That separates us from commercial banks and other financial institutions.

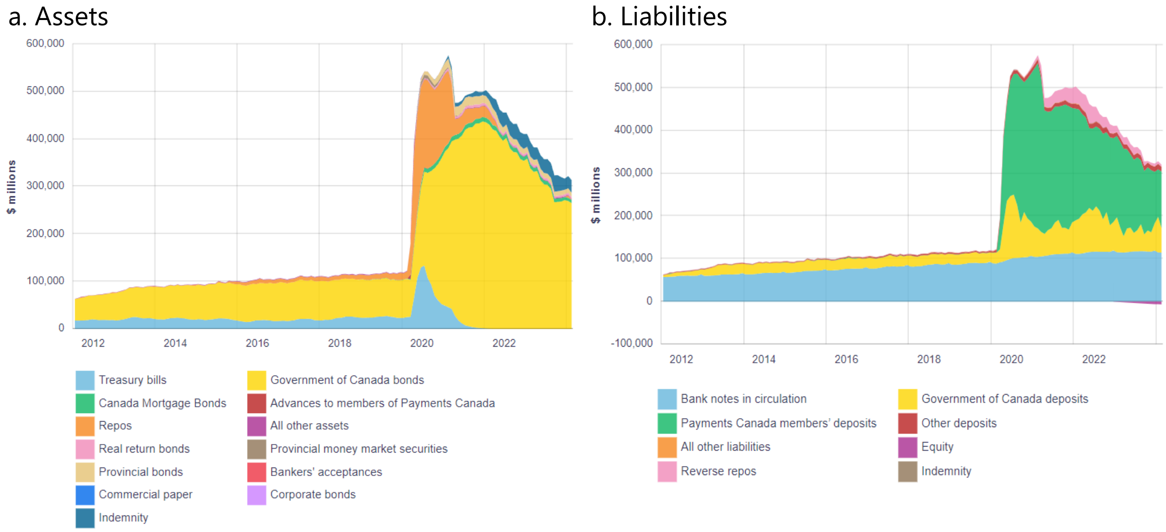
In periods of stress, we can use our balance sheet to support financial system stability and the economy, as we did during the pandemic. But in normal times, our asset purchases and the size of the asset side of the balance sheet simply reflect what is happening on the liability side. That is, our holdings of financial assets grow passively to reflect the growth of our main balance sheet liability—the cash in your wallets. When households and businesses want more bank notes for their day-to-day activities, we accommodate this by creating and circulating more notes via the banking sector. That increases the size of the bank note liability on our balance sheet.

The amount of cash in circulation tends to track the trend rate of nominal economic growth. So we can usually forecast how much cash will grow, even if we cannot control that growth.

When the balance sheet is normal, cash in circulation is our biggest liability (see the pre-pandemic period in **Chart** 1, panel b). Deposits by the Government of Canada are typically our second biggest. The other important liability is settlement balances, which I'll talk more about shortly.

We must hold a like amount of assets on our balance sheet as liabilities so that the balance sheet, well, balances (**Chart** 1, panels a and b).

Chart 1: Bank of Canada assets and liabilities (month end)



To offset the ongoing growth of cash in circulation in normal times, we routinely buy assets and hold them to maturity. These are mainly GoC bonds, which are essentially risk-free. But remember: the key difference between buying assets in normal versus exceptional times is that in normal times, the aim is to hold just enough assets to correspond with our liabilities.

So what does that mean for balance sheet normalization? As QT ends, we will start buying GoC bonds and other assets again as part of our normal balance sheet management. Those purchases will not be quantitative easing (QE), just as our asset purchases before the pandemic were not QE.

That's the broad overview of how our balance sheet normally evolves.

Settlement balances and the floor system

Now let's turn to our settlement balances, also known as central bank reserves. Banks and other members of Canada's high-value payment system known as Lynx have accounts at the Bank of Canada in which settlement balances reside. They use these accounts to settle payments with each other. For example, suppose one bank owes another bank $1 million. To settle this transaction, the first bank will transfer $1 million of settlement balances from its account to the second bank's account.

I mentioned that our balance sheet supports our policy functions. The interest rate we pay on settlement balances is equal to our target policy rate. Paying our target rate on settlement balances helps to ensure that the one-day or "overnight" market rate used by financial institutions is at or close to our target rate. This is because competitive and arbitrage pressures drive the market rate toward our target. Changes in the level of the overnight rate, in turn, influence longer-term interest rates. This is how we implement monetary policy.

There are different frameworks the Bank can use to get overnight market rates to trade at or close to our policy rate. Before the pandemic, we used an approach called a corridor system, which minimizes the amount of settlement balances held by banks. Since the pandemic, we've shifted to operating in a floor system, which uses a larger amount of settlement balances. Let me explain why.[3]

In exceptional times, such as during the pandemic, our balance sheet grows as we use settlement balances to fund our active, policy-driven asset purchases. Think of this as the Bank of Canada buying assets from financial institutions and paying for them by adding funds to their accounts with us. In the early days of the pandemic, we shifted to a floor system because we were buying a lot of financial assets to restore market functioning. Banks were left with large amounts of settlement balances in their accounts, so the rate of interest we paid on these balances served as the "floor" for the overnight interest rate.

In April 2022, when we started normalizing our balance sheet, we said we'd be sticking with a floor system on a permanent basis.[4] Once normalization of our balance sheet is done—and outside periods of crisis—we will ensure we supply just enough settlement balances to fully satisfy the demand for these from the financial system.

We switched to a floor system because Canada's financial system was growing and evolving, making a corridor system less tenable as a framework for effectively implementing our monetary policy. Specifically, we felt it would become increasingly difficult in the corridor system to fine-tune the aggregate amount of settlement balances in the Lynx system at the end of each day to maintain tight control over the benchmark overnight repo rate observed in markets. A floor system makes it easier to keep that market rate close to our target rate.[5] Moreover, a floor system provides the necessary flexibility to implement monetary policy effectively in both normal and exceptional circumstances.

So how has the financial system evolved? Changes across the payment landscape have meant that payment flows are larger and more volatile than in the past. As a result, there is more demand for settlement balances from the financial system to support payment-related activities.[6] There is also greater volatility in settlement balances, driven by our other liabilities such as GoC cash deposits and deposits by systemic financial market infrastructures and financial

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[3] For more information about the differences between the two systems, see the Bank's website.

[4] See Bank of Canada, "Bank of Canada provides operational details for quantitative tightening and announces that it will continue to implement monetary policy using a floor system," (market notice, April 13, 2022).

[5] The Bank's policy interest rate is our target for the overnight collateralized repurchase agreement (repo) rate at which financial institutions lend each other funds for a day. Such trades are used to calculate the reference rate called CORRA—the Canadian Overnight Repo Rate Average—which measures the cost of overnight general collateral funding in Canadian dollars using Government of Canada treasury bills and bonds as collateral for repurchase transactions. Making sure overnight rates remain at or close to the target for the overnight rate that we set for monetary policy is how we make sure borrowing and lending conditions in the economy reflect our policy stance.

[6] See T. Gravelle, R. Morrow and J. Witmer, "Reviewing Canada's Monetary Policy Implementation System: Does the Evolving Environment Support Maintaining a Floor System?" Bank of Canada Staff Discussion Paper No. 2023-10 (May 2023).

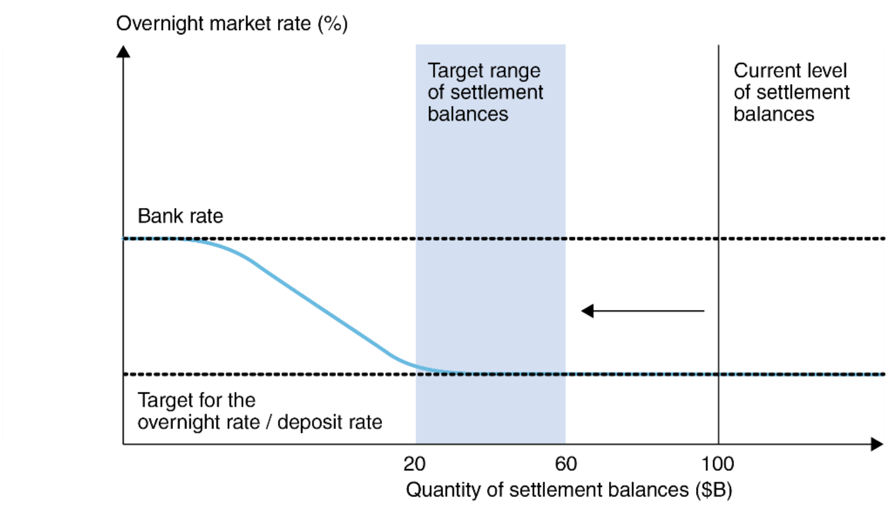
Crown corporations.[7] All of that makes it harder to keep the overnight rate on target in a corridor system.

It is also likely that there is more precautionary demand across the financial system for risk-free assets, including settlement balances. Precautionary demand is where risk-free assets are held as a buffer against the unexpected, like cash stashed under a mattress for a rainy day.

New regulatory requirements have increased demand for liquid assets. At the same time, recent financial-system stress events have made risk managers at major banks more likely to use settlement balances as part of their pool of liquid assets. Two events that come to mind are the market functioning breakdown related to the dash for cash early in the pandemic, and the liability-driven investment fund issues that disrupted the UK government bond market in 2022. Both events showed that even debt instruments that are typically expected to be easy to convert to cash, such as government bonds, may not be as liquid if markets aren't working well. Settlement balances, on the other hand, are basically wholesale digital cash holdings and thus are perfectly liquid. So demand for them from Lynx participants has likely gone up.

Going forward, our aim is to supply enough settlement balances to satisfy the needs of Lynx participants. But we don't want to supply more than is needed to operate in a floor system. **Chart 2** shows conceptually where settlement balances are now and what we are aiming for, which is our lowest comfortable level of settlement balances.

Chart 2: Conceptual view of where we expect settlement balances to land



Why? Because we want to maintain market discipline and encourage participants to manage their liquidity risks appropriately.

For the most part, the opportunity cost associated with holding settlement balances instead of similar assets should limit precautionary demand—

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[7] Financial market infrastructures, such as the Canadian Depository for Securities and the Canadian Derivatives Clearing Corporation, and financial Crown corporations often place deposits at the Bank of Canada to limit their exposure to private banks.

particularly when other liquid and safe assets earn a better return. Demand may also be limited if financial institutions feel confident in their ability to access central bank liquidity facilities, both in normal times and in times of stress. If that access is certain and easy, financial institutions will have less need for settlement balances.

Nevertheless, the right amount of settlement balances to supply the system is uncertain. The bottom line is we will lean toward holding them at the minimum level needed to effectively implement monetary policy in a floor system.

How we will know we are back to normal

Let's turn to how we will know when our balance sheet is back to normal.

As our pandemic-related asset purchases continue to roll off our balance sheet and settlement balances continue to fall, we expect settlement balances to land in a range of $20 billion to $60 billion.[8] Based on the maturity profile of our assets, we should get to this range sometime in 2025.[9] Right now, we have roughly $100 billion in settlement balances.

Lately, though, we've all seen a lot of speculation about whether QT may need to end before we get to those levels. What's driving that speculation is the upward pressure we saw in overnight repurchase agreement (repo) markets over an extended period, starting late in 2023 and continuing into the early part of this year. We don't think the decline in settlement balances linked to our normalization process has been much of a factor behind that tightness in overnight markets. Nor do we see any signs of stress in the financial system that can be tied to those pressures.

Our assessment is that the surge in demand for repo funding in Canada came from growing market expectations that interest rates are going to fall.[10] Late in 2023, market participants around the world became increasingly convinced that major central banks would pivot to aggressive policy rate cuts this year. Because of this conviction, many participants in Canada and elsewhere took leveraged long positions in government bonds to get ahead of the expected shift in policy. The more policy rates fall, the more those bonds will be worth. And the promise of big gains led many to borrow in repo markets to fund the trades. Starting in December 2023, high demand for repo funding caused a wider-than-usual spread between our target overnight rate and the benchmark overnight interest rate, which is calculated from transacted overnight repo rates (**Chart 3**).

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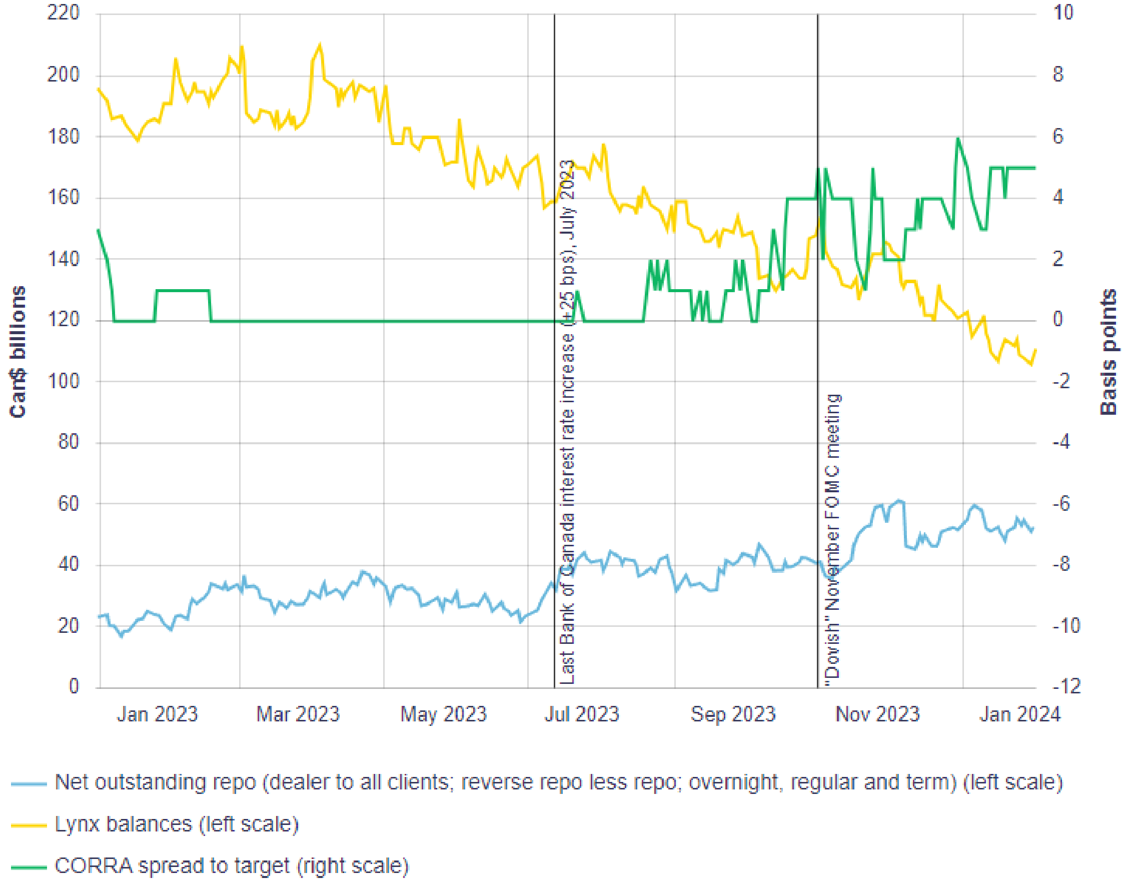
[8] See T. Gravelle, "The Bank of Canada's market liquidity programs: Lessons from a pandemic," (speech delivered to the National Bank Financial Services Conference, Montréal, Quebec, March 29, 2023).

[9] The timing of when this happens has shifted slightly because of changes to our assumption for the level of future GoC deposits.

[10] See B. Plong and N. Maru, "What has been putting upward pressure on CORRA?" Bank of Canada Staff Analytical Note No. 2024-4 (March 2024).

Chart 3: Increased demand for repo funding put upward pressure on CORRA



Note: Repo is repurchase agreement; CORRA is the Canadian Overnight Repo Rate Average; FOMC is Federal Open Market Committee

Sources: Market Trade Reporting System 2.0 and Bank of Canada

Last observation: January 31, 2024

In addition to leveraged long positions, the "basis trade" that is common in the US Treasury market has recently become more popular in Canada.

This is an arbitrage strategy used to exploit gaps between prices for government bonds and the futures that are tied to them.[11] The basis trade also boosted demand for repo funding, particularly from the growing presence of active hedge funds in Canadian fixed-income markets (**Chart 4**).

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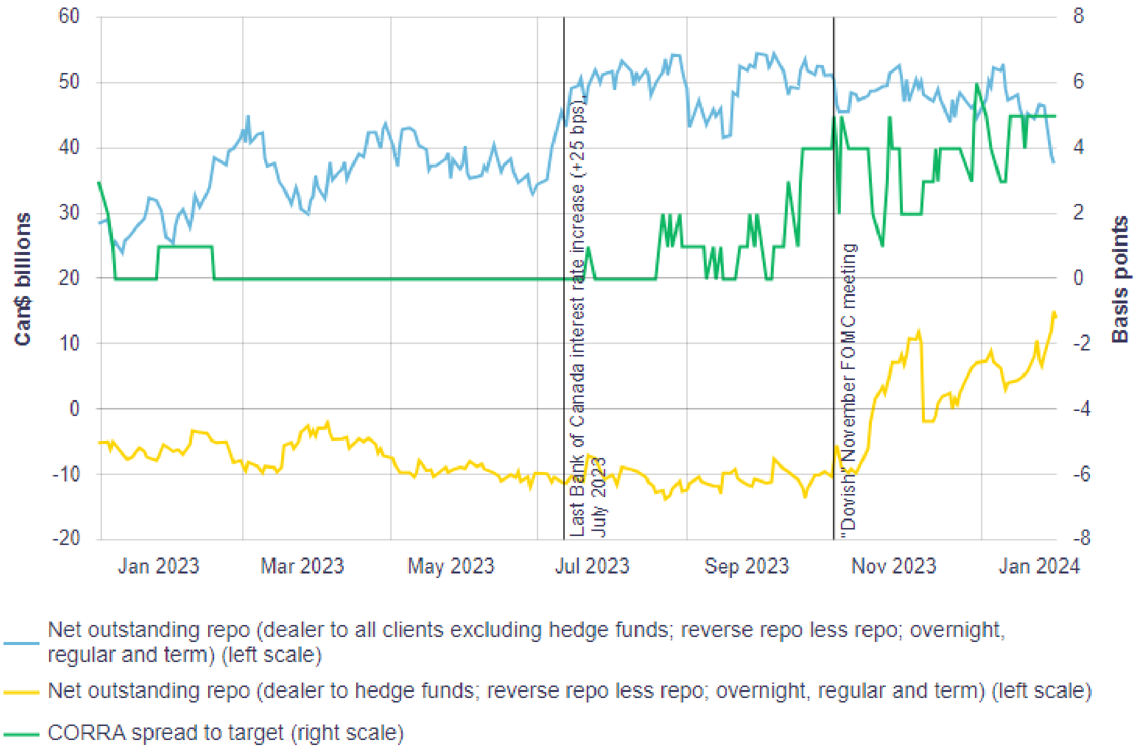
[11] For example, see F. Avalos and V. Sushko, "Margin leverage and vulnerabilities in US Treasury futures," (*BIS Quarterly Review*, Bank for International Settlements, September 2023).

Chart 4: The increased demand in repo funding came from hedge funds



Note: Repo is repurchase agreement; FOMC is Federal Open Market Committee; CORRA is the Canadian Overnight Repo Rate Average.

Sources: Market Trade Reporting System 2.0 and Bank of Canada

Last observation: January 31, 2024

When the pressures in repo markets became evident earlier this year, we used our routine policy implementation operations to reinforce our policy rate. This is something we've done for decades, whenever it was needed. Let me explain.

When temporary periods of higher demand for overnight funding put upward pressure on the overnight interest rate, we supply additional liquidity to offset that pressure. In doing so, we are acting to keep the rate close to our target for the overnight rate. Our main tool for this is our overnight repo operations.[12] We will continue to use these routine operations as needed to make sure the market rate doesn't drift too far from our target rate. If it did, other interest rates could drift away from it too. That could mean that borrowing costs on a range of loans that matter to businesses and households don't reflect our monetary policy stance.

The pressures have already waned. That's partly because upward pressure on overnight funding rates tends to attract new cash providers to supply repo funding to the market. Indeed, the recent launch of daily auctions to lend out a portion of excess cash that the government holds in deposits with us has helped push the overnight market rate closer to our target rate. The appeal of leveraged

[12] Our market operations are symmetric in nature. If the overnight interest rate starts to move too far below our target policy rate, we do an overnight reverse repo, which takes liquidity out of the system for a day which puts upward pressure on the overnight rate, pushing it up toward the target. We were doing these regularly during the pandemic, right up until the autumn of 2023.

long bond positions that gave rise to upward pressure also appears to have waned, as market participants no longer expect that central banks will ease policy aggressively.

Nevertheless, we will be monitoring short-term funding conditions and speaking with market participants to assess whether anything is going on that could be more significant or longer lasting than what we have seen so far.

Could QT end before we get to the $20 billion to $60 billion range?

The recent pressures didn’t change our view of the level of settlement balances needed in a floor system. But we are aware there is a risk that we could be wrong about the $20 billion to $60 billion range. There is uncertainty because it is fundamentally difficult to assess the demand for settlement balances.

While we have confidence that daily auctions of excess government cash and our overnight repo operations can counteract temporary funding pressures, you may be wondering what would drive us to decide to end QT early.

We would base such a decision on multiple indicators and a thorough assessment of system-wide funding pressures, focused on:

- persistent upward pressure on the overnight repo rate plus widespread take-up (across many counterparties) in overnight repo operations, or the need for multiple rounds per day
- broad-based funding pressures that go beyond the overnight repo market
- Lynx participants needing advances from our Standing Liquidity Facility for end-of-day funding
- market intelligence from market and payment system participants that indicates concern about a lack of liquidity that could be due to longer-lasting factors instead of temporary ones

I want to emphasize that we would announce any action involving the normalization of our balance sheet very clearly and ahead of time.

We have also said that balance sheet normalization will likely continue once inflation is on a sustainable path to 2% and we have started cutting our policy rate. This, of course, applies only while our policy rate remains in what we view to be restrictive territory.

On the other hand, if the economy slowed sharply, we would likely need to be adding monetary stimulus. In that situation, we would probably be cutting rates quickly, likely into stimulative territory and, as such, we’d stop QT, at least temporarily.

The bottom line is the balance sheet normalization process is continuing as we laid out last year, and we have tools to manage any temporary funding pressures that might come up along the way.

Managing a new normal for our balance sheet

Before I conclude, I want to explain how we will manage the balance sheet once we’re back to normal and routinely buying assets to offset the autonomous growth of our liabilities.

Going into the pandemic, our balance sheet was almost totally Government of Canada securities: roughly 70% was GoC bonds and a little over 20% was GoC treasury bills (t-bills). Another roughly 10% was term repos, and less than 1% was Canada Mortgage Bonds (CMBs).

Currently, our asset portfolio is entirely bonds—a legacy of our pandemic response—and the maturity profile of these bonds skews longer than it did before the pandemic.

After QT ends, we want to restore a more balanced mix of assets with a broader range of maturities, including more short-term assets than we hold now. GoC bonds will still be our biggest asset type and we will also hold GoC t-bills and term repos, just like before the pandemic. We will no longer buy CMBs.

While our term repos will still be auction-based operations, we are considering two purchase options for our other assets. Do we buy GoC t-bills and bonds in the secondary market via reverse auctions like we did during the pandemic for GoC bonds? Or purchase these in primary GoC debt auctions like we did before the pandemic? There are pros and cons to each approach.

Regardless of where we land, we will be guided by the core principles that govern how we manage the balance sheet in both normal and exceptional times. We will acquire assets in a way that doesn't harm market functioning, but rather—whenever possible—improves it. We will also ensure we manage the Bank's financial risks. Finally, we are committed to transparency. We'll announce our intentions ahead of time so that market participants understand our decisions and are prepared for our operations.

Before we get to our steady-state balance sheet, there will be a multi-year transition period as we replenish our stock of money market instruments—t-bills and term repos. So we expect that our purchases will tilt toward shorter-term assets for some time. Once QT ends and we start acquiring assets again, the sequence will likely be term repos at first, then after some time we will add t-bills, with bond purchases coming later still.

After this transition period, our plan is to roughly match floating-rate liabilities with floating-rate assets, so term repos and t-bills. Cash in circulation is assumed to be a permanent liability, so we will continue to roughly match our bond holdings to the size of this liability. As long as our bond holdings are *equal to* or *smaller than* our bank note liabilities, the Bank will be protected against losses.[13]

A key question is whether it makes sense for the composition of our asset holdings in steady state to tilt shorter-term relative to our pre-pandemic portfolio. We will consider this question as we near our steady-state portfolio of assets.

Conclusion

It's time for me to wrap up and recap my key messages.

We have come a long way in normalizing the Bank of Canada's balance sheet. We are getting close to the new normal. But we're not there yet.

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[13] See "About the Bank's interest earnings" for an explanation of seigniorage.

Normalization of our balance sheet will carry on as we work toward the $20 billion to $60 billion range for settlement balances.

We are also confident that QT was not a main driver of the pressures we saw in overnight repo markets earlier this year. But we recognize there is a risk that QT may need to end earlier than expected.

Meanwhile, the Bank has standard operating procedures for any temporary funding pressures that come up. And we will be watching funding markets closely for any pressures that could be longer lasting and that, as such, could warrant a rethink of our balance sheet normalization.

Once QT is done and we have resumed our routine balance sheet management, including asset purchases, there will be a few small differences compared with how we did things before the pandemic. And, during the transition for the first number of years, we will work to replenish our money market instruments and restore a greater mix of assets and maturities on our balance sheet.

Market participants can count on us to clearly communicate any changes in QT or in our balance sheet management policy more broadly. And all Canadians can count on us to manage our balance sheet in a way that lets us achieve our policy mandate as intended and promote a stable and efficient financial system.

Thank you.