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A Review of the Bank of Canada’s Support of Key Financial Markets During the COVID-19 Crisis

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Abstract

The COVID-19 pandemic placed unprecedented strain on the global financial system. We describe how the Bank of Canada responded to the rapidly deteriorating liquidity in core Canadian fixed-income markets. We also describe how market functioning improved after the Bank intervened. The Bank implemented several emergency facilities to ease market-wide liquidity strains, restore market functioning and support the stabilization and recovery of the Canadian economy. Over time, market functioning improved, and liquidity returned to pre-pandemic levels. The Bank's facilities helped resolve market dysfunction and ensured that credit continued to be extended to households and businesses.

Topics: Coronavirus disease (COVID-19); Financial markets; Market structure and pricing; Monetary policy and uncertainty
JEL codes: E44, E58, G01

Résumé

La pandémie de COVID-19 a exercé des tensions sans précédent sur le système financier mondial. Nous décrivons la manière dont la Banque du Canada a réagi à la détérioration rapide de la liquidité des principaux marchés canadiens des titres à revenu fixe. Nous examinons aussi comment le fonctionnement des marchés s'est amélioré après l'intervention de la banque centrale. La Banque a mis en place plusieurs mécanismes d'urgence dans le but de réduire les tensions sur la liquidité dans l'ensemble des marchés, de rétablir le fonctionnement des marchés et de soutenir la stabilisation et la reprise de l'économie canadienne. Au fil du temps, le fonctionnement des marchés s'est amélioré et la liquidité est revenue aux niveaux prépandémiques. Les mécanismes de la Banque ont contribué à corriger le dysfonctionnement des marchés et à garantir l'octroi de crédit aux ménages et aux entreprises.

Sujets : Maladie à coronavirus (COVID-19); Marchés financiers; Structure de marché et fixation des prix; Incertitude et politique monétaire
Codes JEL : E44, E58, G01

Uncertainty about the effects of COVID-19 on financial markets led to a dash for cash

COVID-19 was first detected in December 2019. By late February 2020, new cases began to rise around the world, and global financial markets began to price in the risk of a significant reduction in economic activity. Between February 21 and February 28, the S&P 500 declined by around 12%. During this period, the TSX 60 declined by nearly 10%, and liquidity in Canadian fixed-income markets began showing signs of deterioration.

Due to a weakened outlook for the Canadian economy, the Bank eased financial conditions by lowering the policy interest rate from 1.75% to 1.25% on March 4 (Bank of Canada 2020a). Markets were still functioning relatively well, and the Bank was monitoring conditions to ensure that liquidity in the financial system remained sufficient.

On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a global pandemic (WHO 2020). To contain the spread of the virus, Canadian governments imposed physical distancing requirements, declared states of emergency and closed schools and businesses.

Nearly one-third of Canadian businesses reported decreases in revenue of 40% or more in the first three months of 2020, compared with 2019. In March 2020, more than one million jobs were lost, and more than two million people reported working fewer hours compared with February 2020. This reduced household disposable income and, consequently, spending. At the same time, household wealth was declining further because household investment portfolios also lost value due to the uncertainty about the evolving pandemic.

Households and businesses were facing a widening gap between their expenses and incomes as the pandemic intensified. Bridging this gap required drawing down savings, selling assets or borrowing funds. For example, Fontaine et al. (2021) show that bond mutual funds faced their highest redemptions on record in March 2020. Pension funds and insurance companies faced similar pressure to sell assets. These institutional investors often rely on financing arrangements to acquire assets. The acquired assets serve as collateral, and lenders will issue margin calls as asset values deteriorate, essentially requiring more cash to be pledged as collateral to protect lenders from potential losses. If cash balances are insufficient, the investor may be required to sell assets, which can further reduce the asset's value. This self-sustaining spiral of margin calls forcing further sell-offs can destabilize the orderly functioning of financial markets even if the underlying fundamentals remain sound.

Canadian banks and securities dealers normally act as the intermediary for investors who are buying and selling securities. They also provide financing to households and businesses. However, during a crisis, banks and securities dealers face limits to their capacity or willingness to intermediate. When few buyers are in the market, securities need to be held for an extended time. This exposes the balance sheets of banks and dealers to further changes in the value of the securities. Between January and April 2020, banks and dealers increased their intermediation, and their balance sheets expanded through new loans and asset purchases. However, the general level of uncertainty around the economic outlook and one-way direction of trade flows—the dash for cash—placed limits on the ability of banks and dealers to purchase more securities from clients and lend money.

During the dash for cash, financial markets began to show increasing signs of widespread dysfunction, both in Canada and around the world.[1] Spreads in core Canadian funding markets, such as the market for bankers' acceptances, widened considerably. Reflecting increased provincial funding costs, spreads in provincial securities markets also widened as investor demand for provincial securities waned. Even Government of Canada (GoC) securities—which are generally highly liquid and considered safe-haven assets in times of stress—sold off and experienced a significant deterioration in liquidity. Businesses and households that were looking to raise cash found it increasingly difficult and costly to do so.

The Bank provided liquidity to support key fixed-income markets

In response to the significant levels of stress across Canadian fixed-income markets, the Bank launched a suite of extraordinary programs to restore market functioning and ensure continued access to credit for businesses and households. These actions complemented reductions in the Bank's policy interest rate as well as measures taken by federal and provincial governments and Canadian regulators to support the economy.

The design of the Bank's programs relied on lessons learned from previous crises and the guiding principles of central bank intervention outlined in Engert, Selody and Wilkins (2008). Given the unprecedented nature of the crisis that led to a broad, large and rapid deterioration in financial markets, some programs had to be developed and deployed quickly.

The Bank's programs targeted key markets important to the Canadian economy and were aimed at:

- easing market-wide liquidity strains
- restoring market functioning
- supporting the stabilization and recovery of the Canadian economy

The programs can be categorized into money market asset purchases, bond purchases facilities and term funding. **Table 1** provides a brief overview of the programs:

[1] Fontaine et al. (2021) provide a comprehensive overview of how conditions in Canadian financial markets deteriorated during the COVID-19 crisis.

Table 1: The Bank of Canada provided liquidity and support to markets through extraordinary programs and facilities

Program name	Acronym	Targeted market	Announcement (2020)	First operation (2020)	Total purchased (billions Can$)
Extended term repo facility	ETRF	Commercial bank funding market (term funding)	March 12	March 17	215.0
Bankers Acceptance Purchase Facility	BAPF	Commercial bank funding market (money market asset purchases)	March 13	March 23	47.1
Canada Mortgage Bond Purchase Program	CMBP	Mortgage funding market (bond purchases)	March 16	March 17	8.0
Contingent Term Repo Facility	CTRF	Non-bank financial institution funding market (term funding)	March 20	April 6	0.1*
Provincial Money Market Purchase Program	PMMP	Provincial debt market (money market asset purchases)	March 24	March 25	12.4
Commercial Paper Purchase Program	CPPP	Corporate debt market (money market asset purchases)	March 27	April 2	3.6
Government of Canada Bond Purchase Program	GBPP	Government of Canada debt market (bond purchases)	March 27	April 1	339.2
Incremental Government of Canada treasury bills purchases		Government of Canada debt market (money market asset purchases)	April 15	April 21	151.7
Corporate Bond Purchase Program	CBPP	Corporate debt market (bond purchases)	April 15	May 26	0.3
Provincial Bond Purchase Program	PBPP	Provincial debt market (bond purchases)	April 15	May 7	17.6

*Amount outstanding as at April 30, 2020, as reported in the Bank of Canada's Supplementary Information of Balance Sheet Loans and Receivables available at https://www.bankofcanada.ca/wp-content/uploads/2020/05/boc-balance-sheet-sup0420.pdf.

The Bank's actions and provision of extraordinary liquidity can be broadly separated into two phases.

Phase 1—March 12 to 31, 2020

After the initial interest rate cut of 50 basis point on March 4, the Bank successively lowered the policy rate further to the effective lower bound of 0.25% and introduced most of its extraordinary programs. This included programs to support commercial banks' access to funding (e.g., extended term repo operations [ETRF] and the Bankers' Acceptance Purchase Facility [BAPF] and programs to support the functioning of the corporate, provincial and Government of Canada debt markets (e.g., Commercial Paper Purchase Program [CPPP], Provincial Money Market Purchase Program [PMPP], and Government of Canada Bond Purchase

Program [GBPP]). Purchases in most of these programs began during this period and helped slow and eventually reverse the deterioration in the targeted markets.

Phase 2—April 1, 2020, to May 6, 2021

The Bank introduced additional purchase programs to support the corporate and provincial debt markets, bringing the total number of programs to 10. As market functioning was restored and conditions in key markets improved, use of the Bank's programs declined. Many of the programs were wound down over the course of the year. The GBPP remained active, but its objective shifted to providing additional monetary policy stimulus through quantitative easing.[2]

Financial conditions improved

The Bank introduced most of its pandemic-related programs in Phase 1 to alleviate the observed severe market dysfunction. Measures of market illiquidity—which had climbed to historical levels—slowed, peaked and finally returned to pre-pandemic levels after the Bank announced and implemented these extraordinary programs.

The actions of federal and provincial governments and regulators as well as the unified crisis response by other major jurisdictions helped improve the effectiveness of the Bank's efforts. The Department of Finance Canada supported liquidity in the Government of Canada bond market with the expansion of the bond buyback program, and the federal government more broadly supported the economic recovery with the COVID-19 Economic Response Plan. Canada's banking supervisor, the Office of the Superintendent of Financial Institutions, intervened by temporarily relaxing the regulatory risk limits on banks, which promoted increased liquidity in markets and lending in the real economy. Due to the global interconnectedness of financial markets, actions by US Federal Reserve also likely helped restore Canadian market functioning and improve financial conditions.[3]

At the beginning of Phase 1, the Bank sought to address strains in core Canadian funding markets and to support financial institutions' ability to continue lending to Canadian households and businesses. Three facilities were introduced for this purpose:

- the ETRF
- the BAPF
- the Canada Mortgage Bond Purchase Program (CMBP)

The ETRF was designed to alleviate pressure in the core short-term interbank funding market. As part of the ETRF, the Bank began to provide secured funding to Canadian primary dealers at terms of 6 and 12 months,

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[2] The Bank ended its quantitative easing program in April 2022.

[3] Financial markets are global, and issues in one market can cause spillover effects (Beaton and Desroches 2011). US markets were experiencing liquidity and market functioning issues similar to those experienced in Canadian markets. Several actions of the US Federal Reserve were announced over the same period as the Bank's measures (Clarida, Duygan-Bump and Scotti 2021).

longer than the regular 1- and 3-month term repurchase agreements that the Bank had been routinely conducting to manage its balance sheets.[4] The participants of the program appreciated the longer-than-normal terms during this period of elevated pressure in the interbank funding market. Participants in the extended term repo operations conducted on March 17 had a significant demand for cash: bid-to-cover ratios for the term repo facility showed demand for cash was almost double what the Bank was offering, and participating primary dealers were willing to pay relatively high interest rates for the cash, significantly exceeding the minimum bid rate set by the Bank (**Table 2**).

Table 2: Term repo operation summary statistics and relevant program changes from March 10 to April 23, 2020

Date	Term repo tranche*	Amount offered by the Bank (billions Can$)	Spread of highest bid rate over minimum required bid rate (basis points)	Bid-to-cover ratio
March 10	1-month	4.4	3	0.8
	3-month	3.0	6	1.1
March 12	The Bank announces new longer-than-normal 6- and 12-month term repo tranches			
March 17	6-month	4.4	24	1.9
	12-month	3.0	29	1.8
March 18	Eligible collateral is expanded and operations move from bi-weekly to weekly			
March 19	12-month	9.0	73	1.4
March 20	Operations move from weekly to twice a week			
March 23	Eligible collateral is further expanded			
March 24	12-month	8.0	129	1.6
March 26	12-month	20.0	230	1.4
March 31	12-month	12.0	83	1.6
April 2	12-month	16.0	77	1.3
April 7	12-month	16.0	64	1.0
April 9	12-month	10.0	39	0.8
April 14	12-month	8.0	22	1.1
April 16	12-month	8.0	3	1.2
April 21	12-month	6.0	1	0.8
	New term repo tranches up to 24-months are announced			
April 23	12-month	6.0	1	0.9

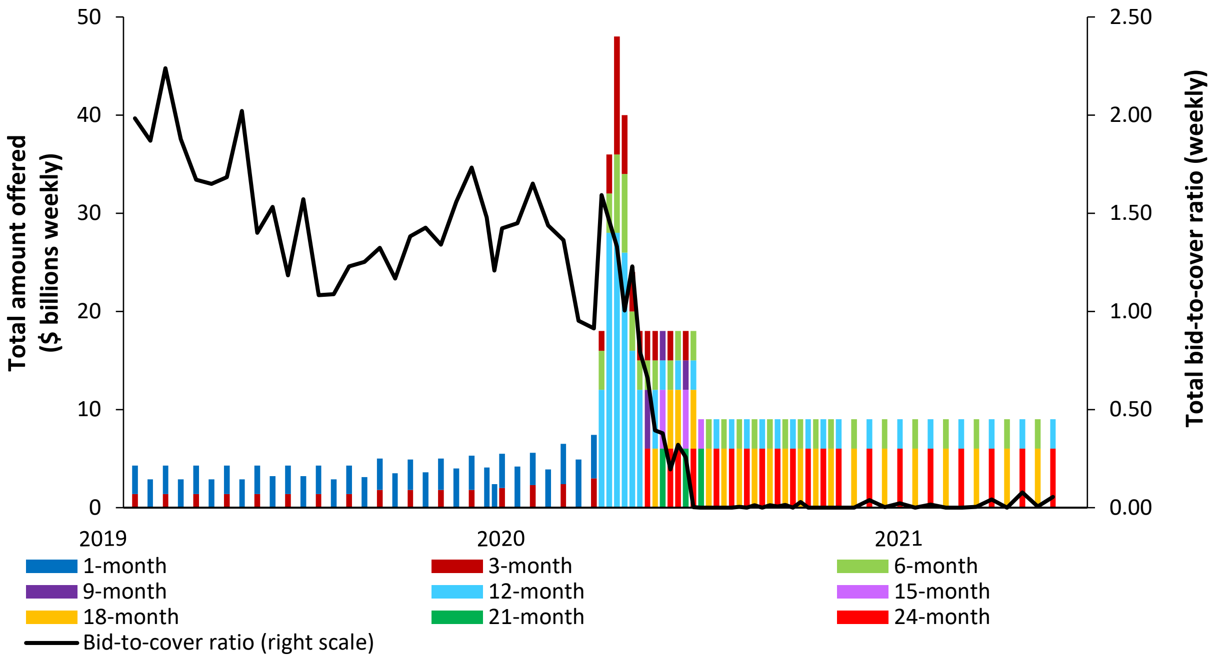
* For ease of visualization, this table excludes 3- and 6-month tranches conducted after March 17.

[4] A full list of primary dealers in Government of Canada securities can be found on the Bank's website.

To further alleviate this excess demand for liquidity, the Bank expanded the term repo program over the following week by offering funds more frequently, in larger sizes and—for greater flexibility—against a broader range of collateral.

Even after these changes, demand for term funding remained elevated in late March, as seen by bid-to-cover ratios well above 1. Throughout April, the expanded program began to meet participants' need for liquidity, and the bid-to-cover ratios declined markedly as more liquidity was injected into the system and other relatively large programs, such as the GBPP, were launched (**Chart 1**).

Chart 1: Increased term repo offerings were initially met with even higher demand for funds in March, before demand subsided throughout April and May 2020



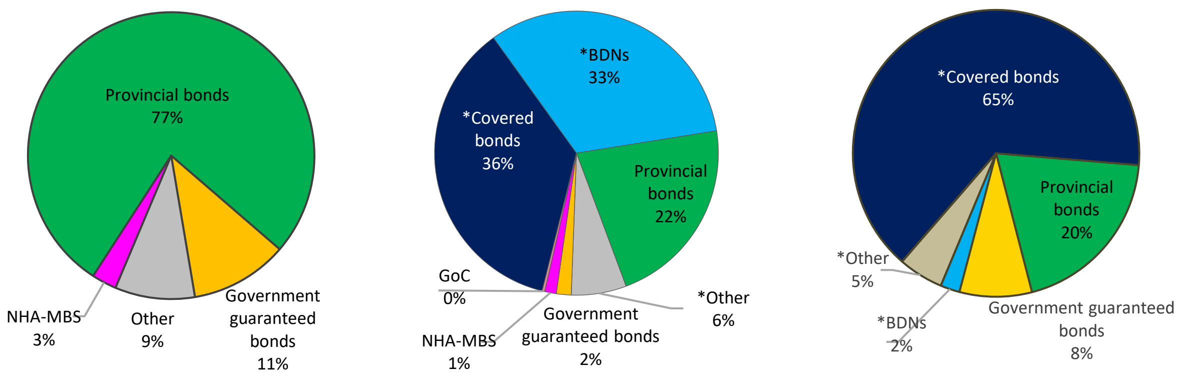
Source: Bank of Canada

Last observation: May 4, 2021

Primary dealers took advantage of the expanded eligible collateral by pledging relatively riskier securities—mostly covered bonds and bearer deposit notes (BDNs) rather than the more typical (pre-pandemic) debt securities that are guaranteed by the provincial or federal government (**Chart 2**).

Chart 2: Collateral composition changed during the pandemic

a. Distribution pre-pandemic | b. Distribution at peak term repos outstanding | c. Distribution at the end of the program



Note: Data exclude collateral substitutions. NHA-MBS are *National Housing Act* mortgage-backed securities. BDNs are bearer deposit notes.

*Represents collateral not eligible under regular term repo operations

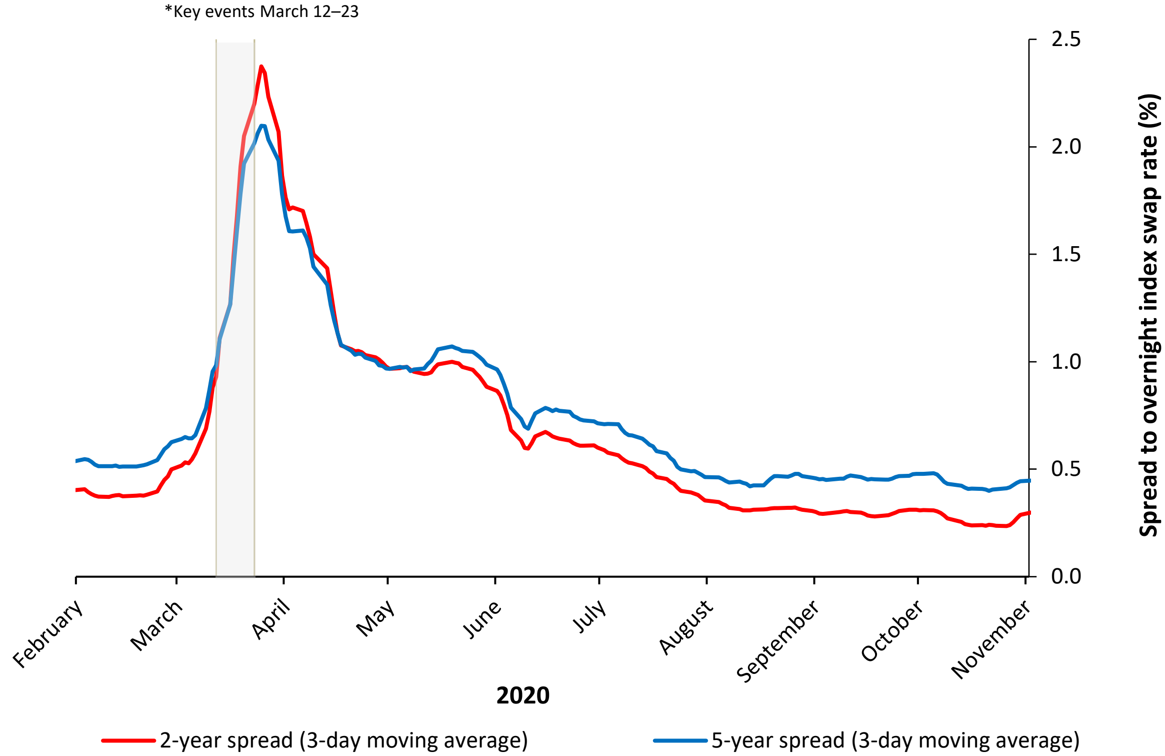
Source: Bank of Canada Last observation: May 10, 2021

The ETRF and other extraordinary programs helped alleviate the increasing pressure in the wholesale funding market for banks. Canadian banks use a wide range of financial instruments to acquire wholesale funding. Senior unsecured deposit notes (SDNs) have historically represented a relatively large share of banks' wholesale funding.[5] The spread between SDNs and risk-free rates widened rapidly early in the COVID-19 crisis, signalling dysfunction and pressure on bank funding. After the introduction of the ETRF in Phase 1, the SDN spread quickly narrowed and ultimately returned to normal levels (**Chart 3**).[6]

[5] See (Truno et. al 2017) for more details on Canadian bank wholesale funding instruments.

[6] Other bank wholesale funding spreads followed a similar trend to SDNs.

Chart 3: The spread between senior deposit notes and risk-free rates narrowed



*Key events for the extended term repo facility:

- The Bank of Canada announces new longer-than-normal 6- and -12-month term repo tranches (March 12, 2020)
- Eligible collateral is expanded and term repo operations move from bi-weekly to weekly (March 18, 2020)
- Operations move from weekly to twice a week (March 20, 2020)
- Eligible collateral is further expanded (March 23, 2020)

Sources: Bloomberg and Bank of Canada

Last observation: October 31, 2020

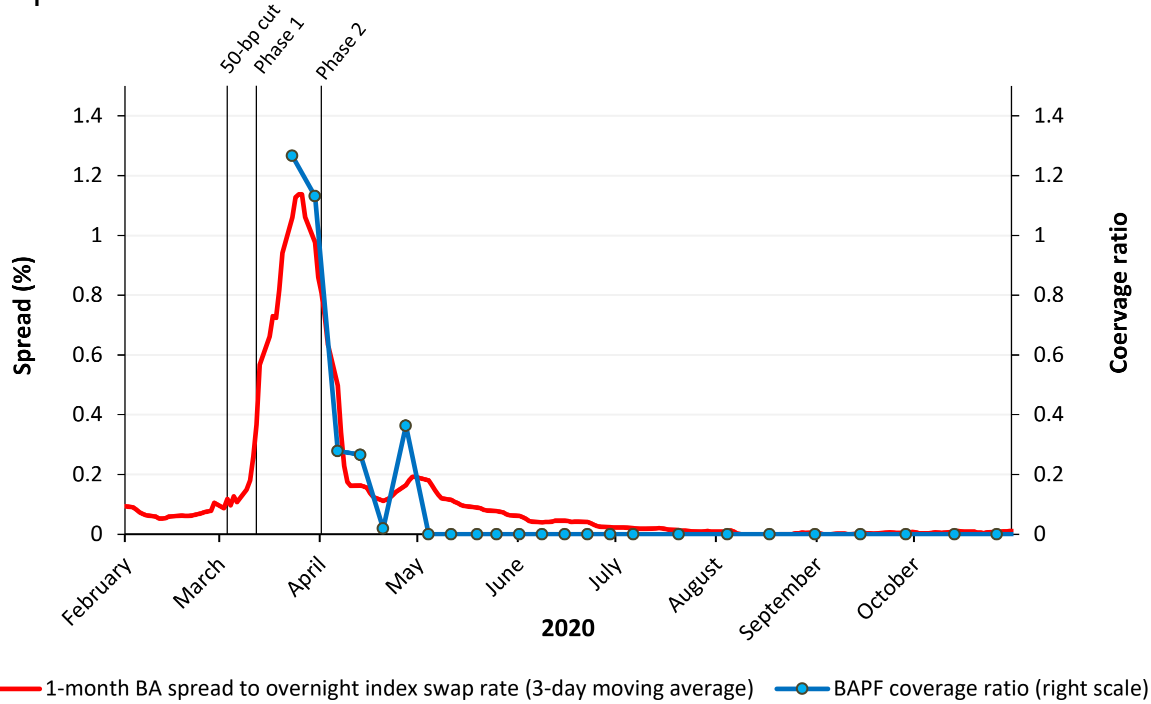
The Bank also intervened in the market for bankers' acceptances (BAs), a core funding market for small to medium-sized businesses in Canada.[7] The size of this market is substantial: in March 2020, BAs outstanding were $87 billion, or 25% of total Canadian money market instruments outstanding.[8] By early March 2020, the BA market was showing obvious signs of stress. Many businesses were drawing down on their BA facilities, while investor demand for assets, including BAs, waned during the dash for cash. Pension funds are relatively large investors in the BA market, but they stopped purchasing BAs and instead became net sellers to manage their liquidity demand early during the crisis (Bédard-Pagé et al. 2021). This lack of investor demand put pressure on banks to fund the BA market themselves, and the spread between BA yields and the risk-free rate widened considerably. The Bank of Canada established the BAPF to ensure that the BA market would continue to function so that banks could continue to provide funding to corporate borrowers. The Bank purchased BAs from the banks and acted as a backstop on this core funding market for businesses.

[7] A BA is created by a borrower first drawing down on an established credit line at a bank. The bank then guarantees the loan for a fee, securitizes it and either transfers the resulting BA to its own inventory or sells it to investors in the secondary market (McRae and Auger 2018).

[8] BAs outstanding reflect the amount banks have sold into financial markets. An additional $70 billion were held on banks' balance sheets at the time.

The announcement of the BAPF program on March 13, 2020, slowed the rise in BA yields, which peaked on the day the purchases began (10 days after the announcement). As purchases continued, BA spreads quickly returned to normal levels (Arora et al. 2020) (**Chart 4**).

Chart 4: Bankers' Acceptance Purchase Facility helps to narrow the spread of bankers' acceptance to risk free rates

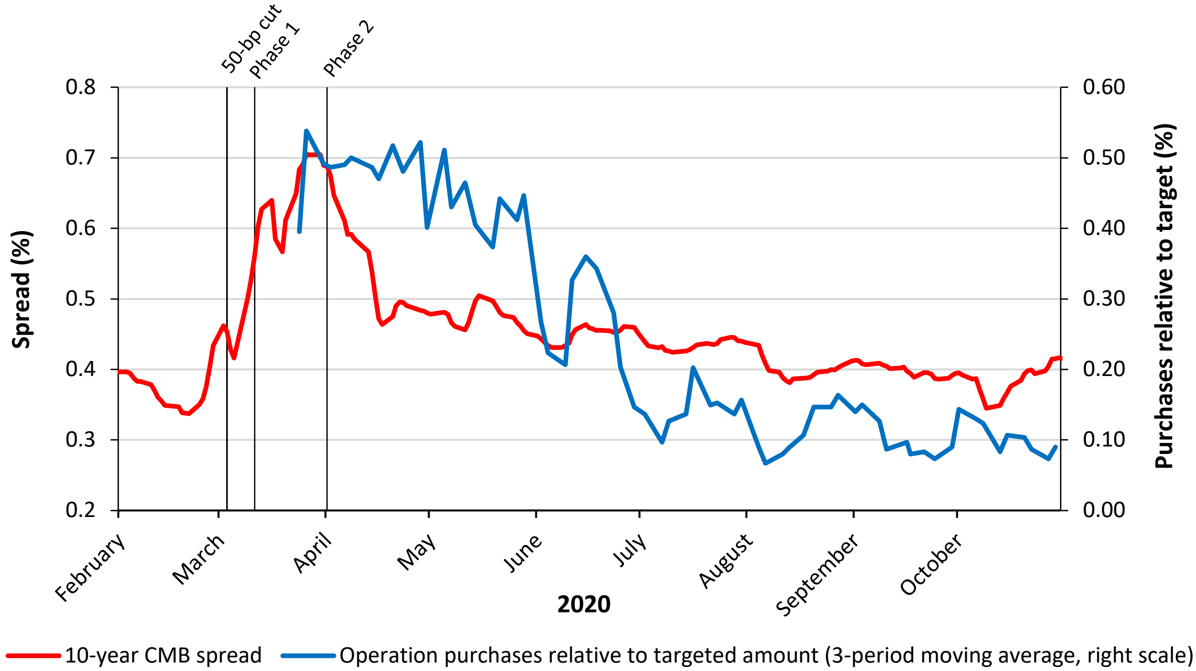


Sources: IIROC, Bloomberg and Bank of Canada

Last observation: October 30, 2020

The announcement of purchases of Canada Mortgage Bonds (CMBs) through the CMBP helped to slow the widening of mortgage bond spreads, similar to how the announcement of the BAPF helped slow the widening of BA spreads. Market conditions for CMBs began to improve after purchases of mortage bonds began. CMB spreads narrowed considerably in April, and the CMBP helped ensure that homeowners had continued access to mortgage financing (**Chart 5**).

Chart 5: The spreads between Canada Mortgage Bonds and Government of Canada securities narrowed after purchases of Canada mortgage Bonds began



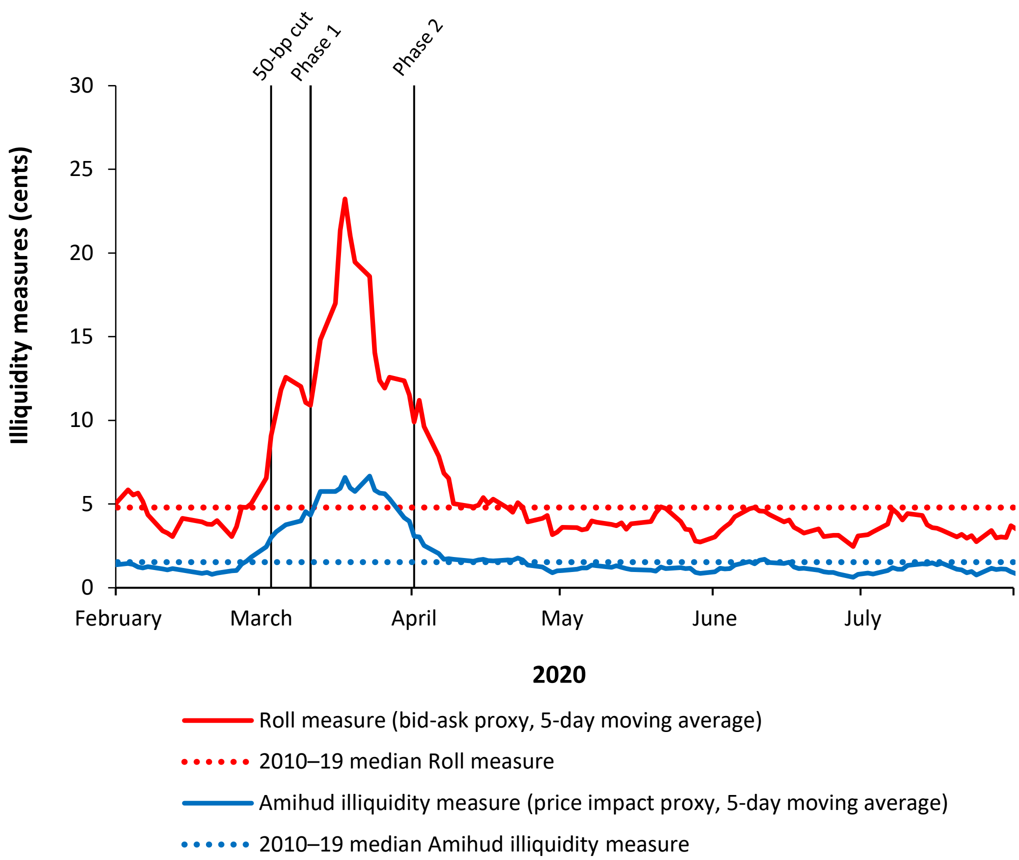
Sources: Bloomberg and Bank of Canada

Last observation: October 30, 2020

In the last week of March, with most measures of illiquidity at or near their peaks, the Bank announced the rest of Phase 1 programs. These included asset purchase programs covering other major money markets, including the provincial money market and the commercial paper market. Among these programs was the GBPP. With a start date of March 27, this program was bigger than the others in terms of relative size, with an initial commitment to purchase a minimum of $5 billion of GoC securities per week. The Bank introduced the GBPP because the GoC market also showed signs of illiquidity. Market participants were looking to convert even GoC security holdings to cash, despite their inherent safety. Before the Bank announced the GBPP, liquidity and market functioning measures in the GoC bond market had begun to show some signs of improvement. This improvement was likely supported by both the Bank's other extraordinary programs having begun to calm markets and market participants' expectations that the Bank would take additional steps.[9] Within two weeks of the GBPP's announcement, GoC liquidity had almost returned to pre-crisis levels (**Chart 6**).

[9] Bond switch operations (conducted by the Bank as the fiscal agent for the federal government) likely contributed to the improvement as well.

Chart 6: Government of Canada bond illiquidity and market functioning measures peaked during phase 1



Note: The illiquidity measures are expressed as cents per $100 bond par value (for a trade size of $1 million)

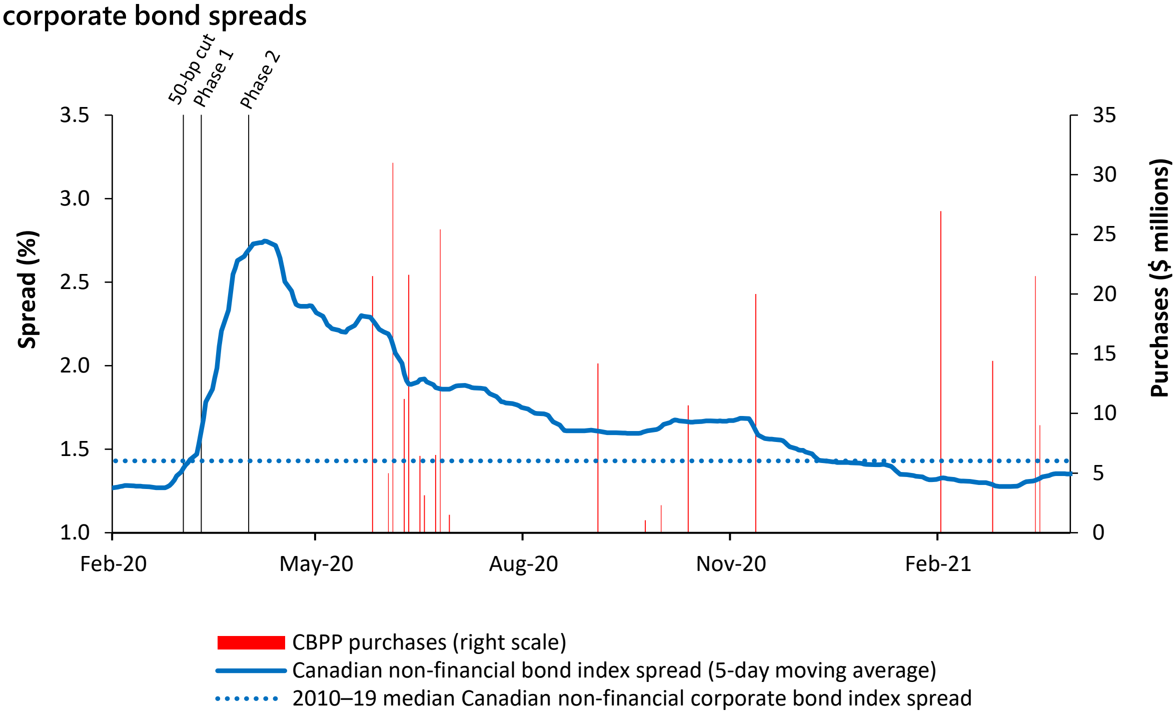
Sources: CDS and Bank of Canada calculations

Last observation: July 31, 2020

By the beginning of Phase 2 in early April, the majority of the COVID-19 response programs had either been announced or were already in effect. Responding further to pressures in the treasury bill (T-bill) market, the Bank increased its non-competitive purchases of T-bills at primary auctions from the previous maximum of 25% to 40% in mid-April (Bank of Canada 2020b). This change was made because, even though T-bills are more cash-like than GoC bonds, the T-bill market showed similar signs of dysfunction due to the dash for cash and sharply increased issuance. T-bill yields, which had historically been at or below other near risk-free rates (such as those for overnight index swaps), began to trade significantly and persistently above them.

Conditions in many markets improved markedly as Bank asset purchases continued. If a pre-defined end date had not been set, the Bank began scaling back some programs as conditions improved. After market participants' use of the BAPF and term repo programs declined, the Bank reduced its respective maximum purchase and lending amounts. In the mortgage bond market, spreads continued to narrow. As a result, the Bank's purchases of Canada Mortgage Bonds began to decline relative to the targeted weekly maximum.

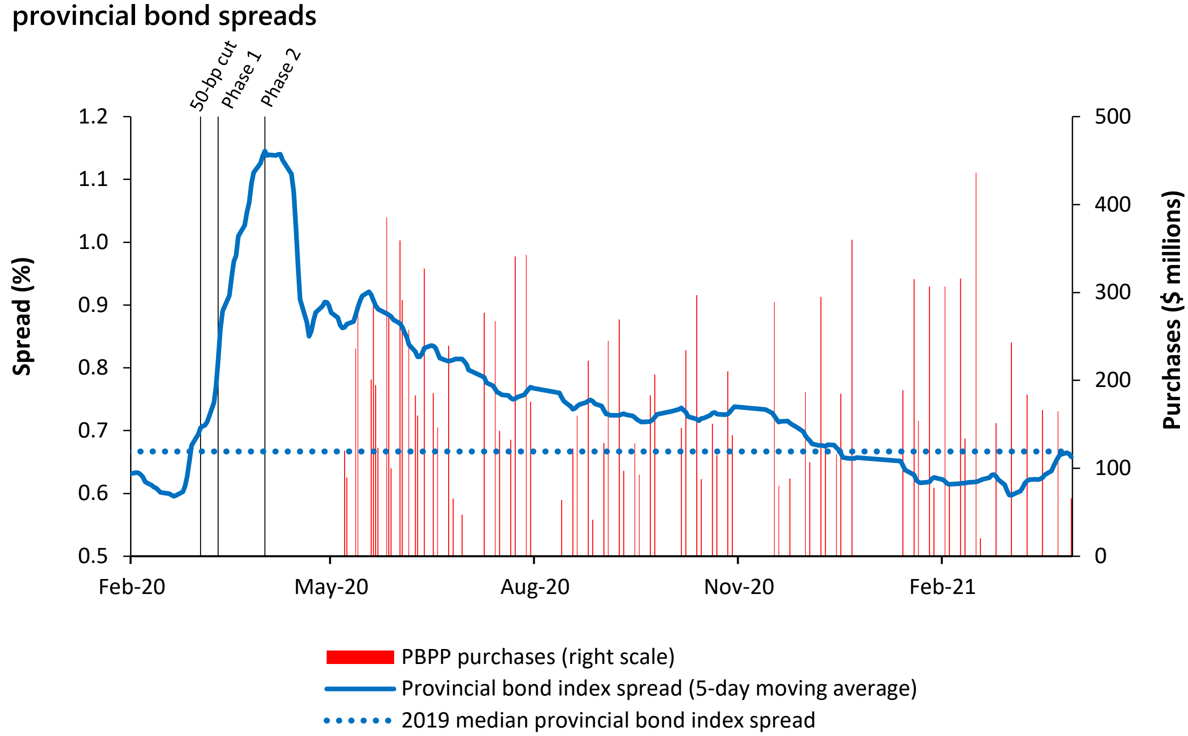
Chart 7: Corporate Bond Purchase Program purchases helped aliviate Canadian non-financial corporate bond spreads



Sources: Bloomberg and Bank of Canada

Last observation: March 31, 2021

Chart 8: Provincial Bond Purchase Program purchases contributed to downward pressure on provincial bond spreads



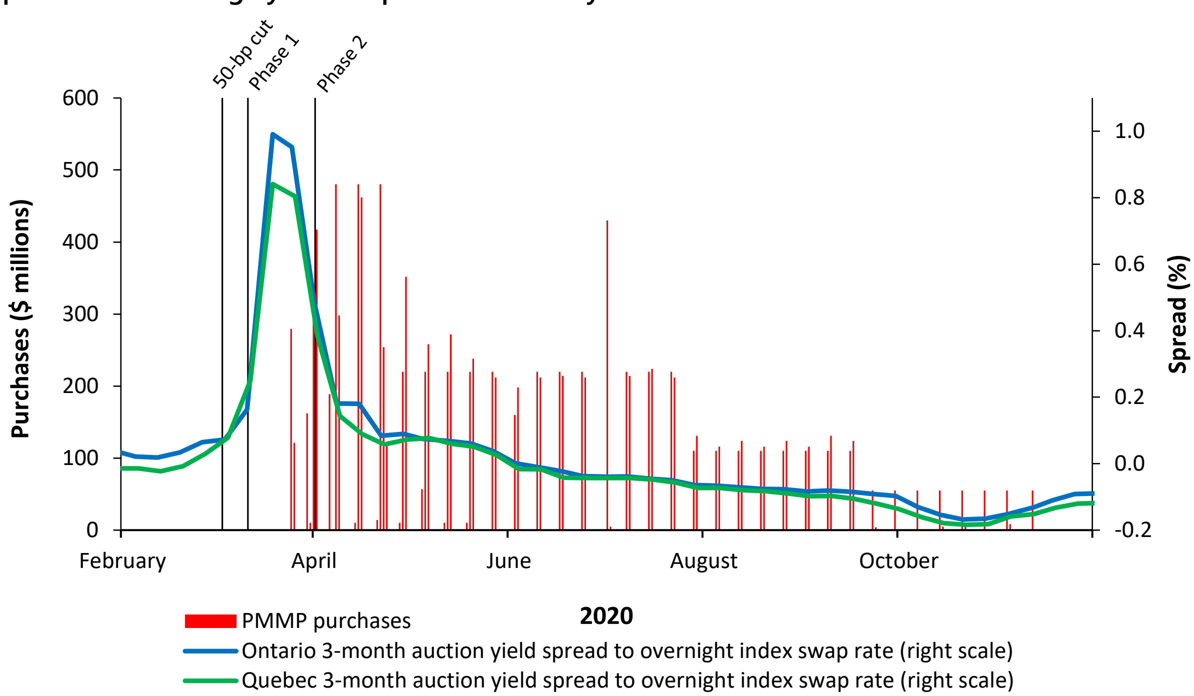
Sources: Bloomberg and Bank of Canada

Last observation: March 31, 2021

In mid-April, the Bank announced new purchase programs for provincial and corporate bond markets (Bank of Canada 2020c, 2020d). As was the case for the earlier programs, the provincial and corporate bond purchases were intended to alleviate funding pressures and illiquidity in these markets because spreads were well above their historical norms and liquidity was impaired (**Chart 7** and **Chart 8**). Although purchases in both programs contributed to improvements in liquidity, total purchases in both programs were relatively small and well below the maximum amount that had been announced. Purchases began two weeks after the programs were announced, and spreads (along with the underlying funding pressures) had already eased substantially.

By the end of October, reflecting the improved financial conditions, the Bank had made significant changes: term repo operations returned to the regular bi-weekly frequency with more limited eligible collateral, and the BAPF and CMBP were discontinued (Bank of Canada 2020e, 2020f). In federal and provincial money markets, the Bank also gradually scaled back its purchases. Purchase amounts of T-bills at auction were scaled back incrementally, first from 40% to 20% in July and then to 10% in September. Provincial spreads had narrowed quickly after the Bank introduced the PMPP, and the performance of provincial government securities auctions also improved. By the summer, liquidity in the provincial money market had returned to normal levels (**Chart 9**).

Chart 9: Provincial Money Market Purchase Program purchases contributed to downward pressure on average yields of provincial money market securities at auctions



Sources: Bloomberg, Quebec Ministry of Finance, Ontario Financing Authority and Bank of Canada calculations

Last observation: November 13, 2020

Except for the GBPP, the Bank's purchase programs were all wound down within just over a year after they were introduced because market conditions had returned to normal levels. The GBPP transitioned from a tool to support market functioning to one for reinforcing monetary policy, providing additional stimulus with the policy rate at its effective lower bound of 25 basis points and complementing the Bank's exceptional forward guidance.

Conclusion

The COVID-19 pandemic placed unprecedented strain on the global financial system. In response to the rapidly deteriorating liquidity in Canadian financial markets, the Bank of Canada had to intervene quickly to ensure that markets continued to function and that credit continued to flow in the Canadian economy. We document the stresses in financial markets during the COVID-19 pandemic and how these stresses abated after the Bank's interventions: the Bank's interventions helped ease market-wide liquidity strains, restore market functioning and support the stabilization and recovery of the Canadian economy.

A full evaluation of the Bank's programs against the guiding principles for central bank interventions outlined by Engert, Selody and Wilkins (2008) is beyond the scope of this paper. Instead, we refer the interested reader to Johnson (2023), who concludes that, in general, the Bank's programs were well-designed and well-executed. However, Johnson (2023) also points out that several areas exist where program design and implementation could be improved if the programs were to be used again. Potential improvements include providing increased clarity about programs' objectives and success measures, making program duration more flexible and taking a more punitive approach when accepting certain collateral types for repo operations.

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