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Better Safe than Sorry: Options for Managing Bank Runs in the Future

Recent experience in the US and Switzerland suggests that reforms to bank regulation and supervision enacted after the global financial crisis have not been sufficient. The question is: what further steps can be taken?

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Better Safe than Sorry: Options for Managing Bank Runs in the Future

by Mark Zelmer

- While Canada's prudential framework has successfully promoted a stable banking system for many years there are some emerging trends that suggest it may not be sustainable in the future.
- This *Commentary* considers four options to manage the risk of future bank failures in the event that we need to change our prudential framework. They range from some fairly minor adjustments to the status quo to more radical options that even include, at one extreme, separating the money creation and credit extension roles of deposit-taking institutions.
- We conclude that a more stable and "resolvable" financial system may result from considering more radical options but they would result in more expensive financial services. That said, they may make it possible to contemplate a simpler and less intrusive prudential regulatory regime.
- Regardless of the path taken there are some steps that should be taken now to make it easier to resolve a failing deposit-taking institution and reduce the run-risk that currently exists in bank deposits.

Global banking history is replete with examples of bank runs not only bringing down a deposit-taking institution but – when a financial panic sets in – also seriously crippling confidence in the broader financial system and the economy more generally. The Global Financial Crisis of 2007-08 is a classic example. Unfortunately, the failures of several regional banks in the US and the demise of Credit Suisse in 2023 in Switzerland suggest that reforms to bank regulation and supervision enacted in the wake of that crisis have not been sufficient. Authorities in both countries had to step in with public money to prevent those failures from triggering broader disruptions to their financial systems and economies. As noted in a recent

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IMF blog and working paper (Tobias and Dobler 2024)[1] and summarized in Box 1, not only were prudential standards (i.e., the safety and soundness requirements applied to deposit-taking institutions) arguably too lax for the affected institutions, but supervisors failed to require those institutions to take prompt corrective action to address the underlying vulnerabilities that ultimately led to their failure.

Those experiences suggest there is still a risk that public authorities may need to supply public funds or guarantees to a deposit-taking institution when it experiences a rapid outflow of deposits and other liabilities (a bank run), rendering it unable to access markets for fresh sources of funds or capital. This risk may continue to grow now that implementation of Basel III reforms has stalled as some jurisdictions shy away from fully implementing the final chapter of those reforms.[2]

Canada's banking history, by contrast, has been far calmer. We have been blessed with a stable banking system with no failures of any significance for nearly 30 years. It would be tempting to conclude that we have successfully contained the systemic risks posed by bank runs and thus our prudential regulatory framework is working well. But for reasons that will be outlined later in this paper we should take care not to rest on our laurels. There are some emerging trends that suggest our current prudential regulatory framework's focus on preventing bank failures may not be sustainable going forward.[3]

If indeed our prudential regulatory framework cannot be sustained in the future, one must ask what preventative steps can be taken to manage the systemic risks posed by bank runs, and facilitate an orderly resolution or exit of a deposit-taking institution that is no longer viable before it fails – all without calling on the public purse. While Canada has not had any serious failures in many years, it would be best to prepare for possible problems now when things are quiet, rather than in the heat of the moment.

As will become apparent in this paper, there are no simple answers to this question. Instead, we propose four broad options for policymakers to consider. They range from some fairly minor adjustments to the status quo to more radical options that even include, at one extreme, separating the money creation and credit extension roles of deposit-taking institutions. While larger measures must be weighed against the potential day-to-day impact on the cost of financial services for the broader economy, we conclude that a more stable and "resolvable"[4] financial system may result from considering more radical options. The more radical options may even make it possible to

1 Available at: https://www.imf.org/en/Blogs/Articles/2024/03/18/more-work-is-needed-to-make-big-banks-resolvable See also Tobias, Moretti, et al. "Good Supervision: Lessons from the Field," International Monetary Fund Working Paper WP 23/18, September 2023. Available at www.imf.org.

2 See Zelmer (2024) for more details on the Basel III end-game reforms and the resistance in the US to implementing those reforms Also see Zelmer and Kronick (2018), which foreshadowed the growing challenges in implementing international standards in a world where nationalism and protectionism are on the rise.

3 At the same time, some might argue the lack of banking system failures in Canada, although positive, suggests a lack of risk taking, or an overly cautious approach to lending in this country. A lack of failures might also signal a potential vulnerability to the extent it suggests a lack of societal tolerance for such failures. In such an environment, any future failure, no matter how small, could attract significant public scrutiny. This would likely spark demands for government intervention to cover most, if not all, potential losses to depositors and other creditors given governments are increasingly expected to absorb individual losses when shocks occur.

4 One can apply Huertas (2015) and define resolvable as a financial institution that is "safe to fail": it can fail or be restructured without cost to the taxpayer and without significant disruption to the broader financial system or the economy at large. See: https://www.hoover.org/sites/default/files/research/docs/makingfailurefeasible-ch6.pdf for further details.

contemplate a simpler and less intrusive prudential regulatory regime; a more resolvable banking system might allow policymakers to place more reliance on bank boards and management to be held accountable for the governance of their institutions.

Regardless of the option selected, this paper outlines some steps that should be taken now to make it easier to resolve a failing deposit-taking institution and reduce the run-risk that currently exists in bank deposits. These steps include:

(i) completing work at the Canada Deposit Insurance Corporation (CDIC) to speed up the payout of future deposit insurance claims when a failing institution cannot be merged with a healthier institution;

(ii) making use of the information contained in bank resolution plans and paying more attention to resolvability issues in current prudential supervision frameworks to make it easier to resolve failing institutions and reduce the run-risk that currently exists in bank deposits; and,

(iii) making sure that resolution plans incorporate the possibility that multiple institutions may encounter stress and have to be resolved at the same time.

We end the paper with some thoughts on the broader changes taking place in the financial system and the need to work with international counterparts to ensure that the current risks embedded in the banking system do not appear in other guises, in other parts of the financial system that are not subject to the same prudential safeguards in place for deposit-taking institutions.

Some Emerging Trends to Consider

Before delving into the four options, there are some emerging trends in the financial system and society more broadly summarized in Appendix I that should be considered as they will have an important bearing both on the future sustainability of the current approach to prudential regulation in Canada, and on how one formulates and weighs the options.

Bank runs can now happen in a matter of hours not days. The failure of Silicon Valley Bank, which occurred after the bank lost almost 85 percent of its deposits over a span of two days, illustrates that bank runs in a digital and social media age can now take place very quickly, especially when a bank relies on very large deposits as its main source of funding.[5] These runs can cripple a deposit-taking institution within a matter of days or less, at any time, and on any day of the week when depositors and other creditors become concerned about the solvency of the institution. At the same time, it is fair to assume that the risk of a bank run may continue to grow as we enter a world of open banking and other innovations. While these are ultimately good for consumers, they will make it even easier for clients or third-party agents to move funds with the click of a mouse. Such innovations may thus cause retail deposits to start behaving in practice more like less-sticky wholesale deposits that are often quick to flee when a deposit-taking institution encounters stress.

Deposit insurance does not necessarily prevent bank runs. The failures of several US regional banks in 2023 led many observers to suggest that more attention needs to be paid to the number of uninsured deposits issued by deposit-taking institutions. However, one should not forget that the Canadian experience with Home Capital in 2017 demonstrated that insured deposits can run very quickly too, even when they are backed

5 Silicon Valley Bank was funded by very large deposits, which made deposit insurance a non-factor. In such cases it does not take much time for the deposit base to disappear as depositors react to social media rumours.

Box 1: The Failure of Credit Suisse and Some Regional US Banks

Credit Suisse, a globally systemic bank with $540 billion in assets, and the second-largest Swiss lender, failed in 2023 and was sold to UBS. In the United States, Silicon Valley Bank (SVB), Signature Bank, and First Republic Bank failed around the same time amid Federal Reserve interest rate hikes to contain inflation.* With a combined $440 billion of assets, these were the second, third, and fourth biggest bank resolutions since the Federal Deposit Insurance Corporation was created during the Great Depression of the 1930s.

This banking turmoil represented the most significant test since the global financial crisis of ending too-big-to-fail – whereby a systemic bank can be resolved while preserving financial stability and protecting taxpayers.

On the one hand, the actions of the US and Swiss authorities in 2023 successfully avoided deeper financial turmoil. In addition, unlike many of the failures during the global financial crisis, this time significant losses were shared with the shareholders and some creditors of the failed banks.

On the other hand, taxpayers were once again on the hook as extensive public support was used to protect more than just the insured depositors of failed banks. Amid a massive creditor run, the acquisition of Credit Suisse by its Swiss competitor UBS was backed by a government guarantee and liquidity nearly equal to a quarter of Swiss economic output. While the public support was ultimately repaid, it entailed very significant contingent fiscal risk, and created a larger, more systemic bank. Use of standing resolution powers to transfer ownership of Credit Suisse to UBS, after bailing in shareholders and creditors, rather than relying on emergency legislation to effect the merger would have seen Credit Suisse shareholders fully wiped out but potentially less public support extended.

In the United States, in addition to easing collateral requirements for liquidity support, the Federal Reserve purchased assets at par under its Bank Term Funding Program to mitigate commercial bank losses on those assets, and US authorities cited systemic concerns to invoke an exception allowing protection of all deposits in two of the failed banks. This significantly increased costs for the deposit insurer which will need to be recouped from the industry over time. Even very large and sophisticated depositors were protected – not just the insured.

These events remind us that intrusive supervision and early intervention are critical. Credit Suisse depositors lost confidence after prolonged governance and risk management failures. In the US, the failed banks pursued risky business strategies with inadequate risk management. Supervisors in both cases should have acted faster and been more assertive and conclusive.

An additional lesson is that even smaller banks can be systemic, in some situations. This highlights the need for sufficient recovery and resolution planning for those institutions.

* The specific issues that gave rise to the failures of these US banks arose because US banking regulators do not require deposit-taking institutions to value their high-quality liquid assets at fair-market-value, plus they had not required those institutions to properly control the amount of interest rate risk embedded in their balance sheets. Such issues are less likely to arise in Canada because banks here are formally required to value their high-quality liquid assets at fair-market-value. OSFI supervisors also ensure that banks have formal policies and controls over their exposure to interest rate movements in accordance with OSFI's interest rate risk management guideline (Guideline B-12).

by a strong deposit insurance framework.[6] This is especially true in cases where a third party, like a deposit broker or a major bank wealth-management platform, is helping clients place funds on deposit. Those intermediaries are likely to shun deposit-taking institutions experiencing stress to avoid the potential reputational consequences of having to explain to their clients why their money was placed with a failing institution – even if the clients' funds are fully protected by deposit insurance. In effect, what should have been a solid, fully insured, stable retail deposit base behaved in practice more like flighty uninsured wholesale deposits, due to the presence of the third-party intermediaries in the process.

Smaller deposit-taking institutions can be collectively systemic too. The global financial crisis led regulators to identify and place more stringent regulatory expectations on individual banks that are considered to be inherently systemic from a domestic or global financial system perspective. But the 2023 experience in the United States confirmed previous lessons from the United Kingdom in the 1980s and 1990s: that smaller, less sophisticated institutions can also be collectively systemic in some situations, especially if they employ similar business models and strategies and rely on homogeneous groups of depositors or other creditors for their funding.[7]

The line between leading and supervising a deposit-taking institution is becoming increasingly blurred. In the past 15 years, we have witnessed a major expansion in regulatory requirements and in the intensity of supervisory oversight of deposit-taking institutions in Canada and around the world (Bourque and Gherardo 2024). As well, Zelmer (2014) notes that an important contributor to this trend has been growing oversight by regulators of institutions' wide range of non-financial risks – given that weak governance practices and inadequate internal controls have often been the root cause of many financial institution failures.[8]

While understandable from a prudential perspective, there is a risk that more rules and more intense supervision of non-financial risks and governance practices, even if articulated in the form of principles – as is the case by OSFI and its provincial counterparts – could blur the line between bank management and regulatory oversight. This approach could also potentially dampen incentives for innovation (or encourage less beneficial innovation that mainly seeks to game the regulators), possibly resulting in more homogeneous banking practices. In turn, this may undermine incentives for bank boards and management to take responsibility for prudently managing their institutions. Instead, they may be tempted to simply manage "to the regulatory requirements," especially if those latter requirements are driven by official

6 In 2017, Home Capital, an alternative mortgage lender, experienced a partial bank run. A reputational hit triggered a decline in deposits, with withdrawals totaling nearly $900 million between April 24, 2017, and April 28, 2017 https://www.cbc.ca/news/business/home-capital-friday-1.4089781. High-interest savings account balances declined by about $1.8 billion between 2017Q1 and 2017Q2 (Home Capital Management's Discussion and Analysis, Q2 2017, page 21). Available at https://www.sedarplus.ca/csa-party/records/document.html?id=8a543044be43ce070bb34d6a992dcf04b131a9ec7e2f51c162780bb8778378ba

7 The UK experience with the failure of many small banks in the early 1990s is nicely summarized in the article: "The small bank failures of the early 1990s: another story of boom and bust" by Kushal Balluck, Artus Galiay, Gerardo Ferrara and Glenn Hoggarth. See Bank of England Quarterly Bulletin 2016:Q1. Available at https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2016/the-small-bank-failures-of-the-early-1990s-another-story-of-boom-and-bust.pdf

8 See: *Preventing Financial Institution Failures in Canada: Importance of Corporate Governance*, Remarks to the Risk Oversight Program of the Global Risk Institute (Toronto: Sep. 29, 2014).

sector risk appetites that are more conservative than those of the leaders of the regulated institution.

Meanwhile, public tolerance for government agencies exercising judgment in the application of regulatory requirements is declining over time.[9,10] As noted in Appendix I, there is a risk that Canada's Office of the Superintendent of Financial Institutions' (OSFI's) principles-based prudential regulatory framework could be threatened in the long run due to increasing competition in the financial services sector, declining public tolerance for the opaque exercise of judgment by public officials,[11] and the challenges public agencies like OSFI face in maintaining credibility with the institutions they oversee. These challenges include public-sector constraints in attracting and retaining competent staff and investing in supporting infrastructure.

Together, these trends suggest that the risk of bank runs could continue to grow in the future. At the same time, our current approach to prudential regulation and supervision may struggle to remain fit for purpose as the banking system and wider society continue to evolve over time. To paraphrase former Bank of Canada Governor Gerald Bouey, who 40 years ago spoke about the need to find a firmer place for monetary policy to stand, perhaps we now need to find a firmer place for prudential regulation to stand so that the risk of future deposit runs can be managed without sending the broader financial system and economy into cardiac arrest.[12]

Some Options for the Way Forward

Deposit-taking institutions are inherently more fragile than other types of financial institutions due to their large reliance on deposits, and other funding liabilities, that can run at a moment's notice and potentially give rise to panics that destabilize the broader banking system and economy more generally. Given these institutions are meant to take risks in competitive markets, runs can be expected whenever there is a hint that a deposit-taking institution is no longer able to access funds or capital from private markets. Loss of access generally arises when there are concerns about whether the value of a deposit-taking institution's assets remains sufficient to cover all its obligations – i.e., when the institution's solvency is in doubt. This is especially true in a social-media age where, as the

9 In addition, while the Canadian judicial process has traditionally been fairly deferential towards the judgment exercised by public officials, this could change in the future if Canadian courts begin adopting US practices. Regarding the US, the IMF noted in its 2020 financial stability assessment that the exercise of prudential judgment is becoming increasingly litigious and open to legal challenge when it has not been clearly linked to US legal and regulatory requirements. See United States: Financial Sector Assessment Program-Technical Note-Banking Supervision and Regulation; available at: https://www.imf.org/en/Publications/CR/Issues/2020/08/07/United-States-Financial-Sector-Assessment-Program-Technical-Note-Banking-Supervision-and-49657

10 As but one example, according to Statistics Canada (Table: 45-10-0073-01), at the end of 2023, just under 40 percent of Canadians had low confidence in federal parliament. In another example, Angus Reid did a study looking at Canada-wide and by-province Government Performance Indices, and in each case, save for Nova Scotia, the proportion of the respective population saying their government was doing a good job had declined. https://angusreid.org/provincial-government-performance-health-care-danielle-smith-eby-ford-legault/

11 Prudential supervisory interventions cannot be disclosed by law. See Section 22 of the *OSFI Act* and the associated Supervisory Information Regulations. More generally, while OSFI and its provincial counterparts do publicly disclose information about their guidance and supervisory frameworks on their websites, there is limited information in the public domain about the factors that drive supervisory risk assessments.

12 *Monetary Policy – Finding a Firmer Place to Stand*. Gerald K. Bouey. The 1982 Per Jacobsson Lecture.

experience of SVB showed, rumours can quickly surface and become panics in the blink of an eye.

Given bank runs are bound to happen from time to time, the question then becomes how to manage a run when it happens and prevent it from turning into a broader banking system panic that could disrupt the wider economy; and how do we do this without drawing on the public purse.[13] Or, simply put, if we cannot avoid a run we need a plan to manage runs that allows for smooth resolutions of affected deposit-taking institutions, if they are not able to recover on their own.

A key ingredient for the smooth resolution of a stressed financial institution is time. One should focus on options that can buy more time during a bank run, so that either its recovery plan can be carried out or, if necessary, an orderly resolution of the stressed institution can be conducted – be it through an orderly sale to another institution, a bridge bank process or, in the case of the largest institutions, an open door process whereby the bank remains open under Canada Deposit Insurance Corporation (CDIC) control while the institution is recapitalized, and the issues that led to the resolution are addressed.

The more confident we are that stressed institutions can be resolved in an orderly fashion without causing significant harm to the broader financial system or economy, the more we can tolerate future failures. Sound resolution strategies require time and advanced planning, and may reduce the need for our current complex regulatory and supervisory systems that are primarily focused on preventing failures. In turn, perhaps we could place more responsibility on bank boards and management to manage their institution's own affairs, knowing that if they fail to do so, the institution can be safely removed from the financial system.

Four stylized options are put forward to stimulate discussion.

Option A: Introduce More Comprehensive and Efficient Deposit Insurance

The 100 percent deposit limits introduced in 2023 by US authorities to protect depositors of failing banks, and the guarantees provided to depositors of other banks, quickly stabilized the regional banking system in the United States. That success has led to calls in Canada for higher deposit insurance limits more generally to protect depositors and reduce the risk of future bank runs. Indeed, given that deposit insurance limits are often raised when an institution experiences stress, it prompts the question: why not simply recognize the obvious and formally offer 100 percent deposit insurance now?[14]

Such a step would also recognize the fact that with the introduction of bail-in debt triggers for the six major banks, most of the depositors of those banks have effectively been given de facto priority

13 It should be noted that in the event of a deposit-taking institution failure, any costs borne by the deposit insurer would be repaid over time through future deposit insurance premiums levied by the insurer on the surviving institutions in the industry.

14 Anything short of complete 100 percent deposit insurance is unlikely to stop deposit runs. Liquidity support mechanisms for troubled institutions did not stop the Silicon Valley Bank runs; changing the thresholds and mechanisms just shifts parameters.

over other creditors in a resolution scenario.[15] Hence, raising deposit insurance limits would arguably simply level the playing field in terms of how most depositors are treated in resolution – at both the largest banks and the smaller deposit-taking institutions that do not issue wholesale bail-in-able debt.[16]

However, as pointed out by Kronick, Munn and Zelmer (2023), increasing deposit insurance limits may not actually eliminate the risk of a bank run as was shown in Home Capital's deposit run in 2017 where fully insured deposits ran too. Such a step may also generate additional moral hazard in the banking system that would need to be managed. For example, larger risk-based deposit insurance premiums or additional regulatory requirements might be needed, especially for smaller deposit-taking institutions that benefit the most from deposit insurance.[17] One would also need to determine how big the supporting deposit insurance funds should be.

Meanwhile, other near-term actions could be considered under this option to help manage the risk of bank runs, other than raising deposit insurance limits. An obvious one would be for CDIC to complete its payout modernization project[18] so that all depositors can have greater confidence that they will be quickly reimbursed in the event that CDIC decides to close an institution and reimburse depositors.[19]

15 Insured depositors have of course always been fully protected within prescribed deposit insurance limits. The bail-in debt regulations now effectively give more de facto protection to most uninsured depositors of the major banks too. In 2018, the government of Canada issued regulations implementing the bail-in regime for the six major Canadian domestic systemically important banks. The regulations require each of those banks to have sufficient loss-absorbing capacity to recapitalize it in the unlikely event it fails. This would be done by converting the bank's tradable senior unsecured debt issued after September 23, 2018, with an original term to maturity in excess of 400 days, into new common equity of the bank. (The bank's subordinated debt and preferred shares would also have been converted into new common equity when the bank was declared to be no longer viable). The conversion of those instruments into new common equity capital of the bank means that holders of those instruments will effectively absorb losses in practice before other creditors, such as depositors (except holders of tradable deposit notes), holders of secured liabilities like covered bonds, derivatives counterparties and holders of the bank's structured notes, given that those stakeholders are not subject to the bail-in requirements.

16 Such a step would also be consistent with the increases in protection limits for life insurance and annuity policyholders announced by Assuris in 2023. Details on the new Assuris protection limits can be found at https://assuris.ca/how-am-i-protected/ As a result of those changes most policyholders of Canadian life insurers are now fully protected against the risk of loss in the event that their life insurer fails and holders of investment type products issued by Canadian life insurers that most closely resemble deposits are now protected up to $100 thousand or 90 percent of the benefit amount, whichever is higher.

17 See Jeremy Kronick, Duncan Munn and Mark Zelmer, *The Big Questions Surrounding the Future of Deposit Insurance*, C.D. Howe Institute Intelligence Memo (May 1, 2023). Smaller institutions benefit more from deposit insurance because it makes it easier for them to compete against the major banks that have now been designated as systemically important.

18 CDIC's Payout Modernization project aims to build a new state-of-the-art system that will reimburse depositors quickly and more conveniently in the event of a member failure. The system will also allow depositors, member institutions, and nominee brokers to communicate with CDIC and share/receive data more quickly, easily, and securely. Source: CDIC 2023 Annual Report. Available at https://www.cdic.ca/wp-content/uploads/cdic-2023-annual-report.pdf

19 CDIC has a range of tools it can use to resolve member institutions that cease to be viable. These are not confined to simply closing an institution and reimbursing insured deposits. They include powers to support: a sale of shares or assets; amalgamation with another institution; recapitalization; restructuring or other private solutions. Factors such as the size and complexity of the bank, its franchise value, as well as the current availability of private-sector solutions would be key considerations in determining the best approach.

Another would be for CDIC and its federal partners (Department of Finance, Bank of Canada, OSFI, and Financial Consumer Agency of Canada (FCAC)) to review the resolution plans that the six major banks have prepared and consider whether they indicate a need for structural change to the corporate structure and business models of those banks, so as to facilitate a more efficient resolution process if necessary. OSFI and its provincial counterparts should also consider expanding their current prudential supervisory frameworks to include resolvability risk, and consider potential future resolution implications when reviewing transactions that require regulatory or ministerial approvals.

CDIC should also consider reviewing the assumptions underpinning these resolution plans in light of the events of 2023. For example, the assumption that CDIC would have a weekend to take control of a failing institution and commence resolution before the institution is re-opened for business under CDIC control may no longer be realistic, in light of how quickly deposits melted away from Silicon Valley Bank.

By the same token, the recent US and past UK experiences suggest that CDIC and its sister agencies at the federal level should be prepared for the possibility that more than one institution might need to be resolved at the same time, given that many deposit-taking institutions have similar business models and exposures. In such situations, certain types of shock, such as a widespread economic slowdown, could conceivably destabilize multiple institutions in a short period of time.

In the longer term, consideration could also be given to adopting the US practice of granting depositors priority ahead of other creditors in a resolution scenario, along with reintroducing a bygone practice in the trust company industry wherein guaranteed investment certificates issued by certain trust companies were backed by specific assets on the balance sheet, plus a more general claim with those of other creditors on the residual assets of the trust company. That said, steps like these may increase the risk that other creditors could become further incentivized to run in times of stress.

Option B: Introduce More Stringent Liquidity Standards

Another way to buy more time for a smooth resolution could be to encourage deposit-taking institutions to carry larger stocks of high-quality liquid assets (HQLA), which can be sold as needed to meet a bank run. That way they would be able to survive for a longer time in the event of a run. The fact that they would be carrying larger stocks of liquid assets to back their liabilities may even help to prevent a run from emerging in the first instance.[20]

The global financial crisis served as a good reminder of the need for prudent liquidity management. Among other things it prompted OSFI and its foreign counterparts to introduce two new liquidity requirements as part of the post-crisis Basel III reforms: the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR), designed to encourage deposit-taking institutions to carry enough liquid assets to survive a 30-day stress scenario (LCR) and to reduce their reliance on short-term wholesale funding of less than one-year remaining term to maturity (NSFR). OSFI also requires larger deposit-taking institutions to

20 We remind readers that increasing HQLA is not paradoxical to the situation at SVB as their failure (and those of the other US banks) arose because a) US banking regulators do not require deposit-taking institutions to value their high-quality liquid assets at fair-market-value as we do in Canada, and b) they had not required those institutions to properly control the amount of interest rate risk embedded in the structure of their balance sheets. OSFI supervisors ensure that banks have formal policies and controls over their exposure to interest rate movements in accordance with OSFI's interest rate risk management guideline (Guideline B-12).

adhere to a Net Cumulative Cash Flow (NCCF) supervisory metric that computes a survival horizon for each institution based on specified assumptions regarding their cash inflows and outflows, including likely deposit and funding rollovers in times of stress.[21] Meanwhile, the smallest institutions are required by OSFI to file operating cash flow statements to facilitate liquidity monitoring by OSFI supervisors.[22]

Appendix II summarizes the salient assumptions regarding expected deposit and funding outflows in times of stress for the LCR and NCCF tests. While OSFI's Liquidity Adequacy Guideline claims that all its liquidity tests are meant to assess a deposit-taking institution's liquidity position in a severe but plausible stress environment, the run-off rates prescribed for these two tests clearly assume that most of an institution's core deposit base will stay put in times of stress.

These assumptions paint a sunnier picture than the reality experienced in practice by Home Capital in 2017 and Silicon Valley Bank in 2023, raising the question of whether the run-off rates prescribed in the liquidity stress tests should be raised significantly to be more consistent with those 2017 and 2023 deposit-run experiences.[23]

Table 1 presents a summarized version of the LCR liquidity disclosures for the six major banks as a whole for the three months ending October 31, 2023. Recall that the LCR summarizes a bank's capacity to withstand liquidity stress for a 30-day horizon using the rather lenient run-off rate assumptions prescribed by OSFI and its international counterparts. If one simply doubles the run-off rate assumptions for less stable retail deposits (from 10 to 20 percent), the last column of Table 1 suggests that net cash outflows would increase by $118 billion to $235 billion (i.e., doubling the $117,724 million weighted-average shown in Table 1 for that line item). If one also assumes that all non-operational unsecured wholesale deposits would run, the last column of Table 1 suggests that net cash outflows for that line item would increase by another $372 billion ($852,100 million – $479,843 million). Together, this would result in a $490 billion increase in net cash outflows in the LCR test, equivalent to about 1/3 of those banks' $1,472 billion holdings of High-Quality Liquid Assets (HQLA), or roughly 7 percent of their $7.4 trillion holdings of loans and investments as of October 31, 2023.[24] The impact on the supply of credit extended by these banks could thus be rather significant if no countervailing actions were taken to mitigate the impact of the more stringent (though still rather lenient) recalibrations.

This simple analysis suggests that, all things being equal, this approach – expecting banks to self-insure themselves against the risk of bank runs by carrying enough high-quality liquid assets to meet a major run and survive for at least 30 days – could be very costly to society both in terms of revenue forgone by the banks by having to carry more lower-yielding liquid assets, and in terms of the potential reduction in the supply of credit to households and businesses served by those banks.

21 In addition to these tests, deposit-taking institutions are also required to conduct their own liquidity assessments, which are generally used by them to determine how much liquidity they need to hold over and above the amounts stipulated by the regulatory requirements.

22 OSFI's Liquidity Adequacy Guideline also contains a variety of other liquidity metrics that can be used by supervisors to monitor liquidity conditions of deposit-taking institutions as circumstances require.

23 Other design features could be reconsidered too, such as whether the design and calibration of these tests should consider metrics related to the concentration/diversification of the deposit base, and how long the depositor has been with the bank, to get at how stable the deposit is likely to be in times of stress.

24 This calculation assumes that banks would want to maintain their current LCR liquidity ratios to have a comfortable buffer above the minimum 100 percent requirement, so that they can manage routine fluctuations in their liquidity positions.

Table 1: Six Major Banks, Liquidity Coverage Ratio (LCR)
August 1, 2023 – October 31, 2023 (Daily Average) (in $millions)

		Average (unweighted)	Average (weighted)	More Stringent Run-off Scenario Average (weighted)
High-quality liquid assets (HQLA)			**1,472,416**	
Cash outflows				
Retail & small business customer deposits		1,673,147	139,757	257,481
of which:	*Stable deposits*	*726,035*	*22,033*	*22,033*
	Less stable deposits	*947,112*	*117,724*	*235,448*
Unsecured wholesale funding		1,677,172	800,093	1,172,350
of which:	*Operational deposits*	*664,560*	*159,738*	*159,738*
	Non-operational deposits	*852,100*	*479,843*	*852,100*
	Unsecured debt	*160,512*	*160,512*	*160,512*
Secured wholesale funding		–	191,152	191,152
Additional requirements		1,417,524	334,382	334,382
of which:	*Outflows related to derivatives exposures & other collateral requirements*	*225,863*	*95,409*	*95,409*
	Outflows related to loss of funding on debt products	*42,900*	*42,900*	*42,900*
	Credit & liquidity facilities	*1,148,761*	*196,073*	*196,073*
Other contractual funding obligations		60,468	48,391	48,391
Other contingent funding obligations		3,181,747	52,022	52,022
Total cash outflows			**1,565,797**	**2,055,778**
Cash inflows				
Secured lending (e.g., reverse repos)		1,189,260	216,972	216,972
Inflows from fully performing exposures		122,989	69,600	69,600
Other cash inflows		168,294	168,294	168,294
Total cash inflows			**454,866**	**454,866**
HQLA			**1,472,416**	**1,472,416**
Net cash outflows			**1,110,931**	**1,600,912**
Liquidity Coverage Ratio			**133%**	**92%**

Source: Summation of LCR disclosures from 2023 annual reports of RBC, TD, BNS, BMO, CIBC and NBC. Weighted values are values of high-quality liquid assets and cash inflows and outflows after haircuts are applied in accordance with the Basel methodology. https://www.bis.org/publ/bcbs272.pdf

Of course, all things are not equal. If they were faced with such an outcome. it would be reasonable to expect the banks to take other steps to contain the increase in the size of their required liquidity holdings. They could, for example, reduce their need for liquid assets by following the lead of EQ Bank and routinely enforce notice requirements for savings deposit withdrawals, in return for offering higher rates on those deposits to entice customers to voluntarily accept such a restriction.[25] That would have the salutary effect of shifting those deposits beyond the 30-day horizon of the LCR test, thereby reducing the amount of HQLA that banks need to carry, given those deposits could no longer run at short notice.

If combined with not paying interest on accounts that permit immediate withdrawals without sufficiently stringent notice requirements, it could help to encourage both retail and wholesale customers to constrain the flightiness of their deposits.

All told, this option could help generate a larger pool of high-quality liquid assets that would be quick to mobilize in case of a bank run. But it would likely come at a high cost in terms of the potential impact on the price and supply of credit to the private sector. Thus, expecting banks to fully protect themselves against the risk of a bank run by carrying more HQLA may not be feasible in practice. Indeed, that is why most jurisdictions including Canada have had central banks for many decades. A key role of central banks is to be prepared to offer emergency liquidity assistance to solvent institutions that are experiencing stress. Some suggestions to enhance their function are offered in the next option.

There remain some important unanswered questions. Even if it is practicable, would such an option buy enough time to facilitate an orderly resolution of a stressed institution? Could breaching the minimum thresholds of liquidity standards in times of stress, as assets are sold to meet a run, actually make things worse? Could publicly disclosing an LCR ratio below 100 percent trigger further runs, even though OSFI's liquidity requirements and their Basel counterparts explicitly allow for drawdowns of liquid assets in times of stress? Such a path would no doubt require international agreements to protect the competitive position of Canadian banks relative to their international counterparts.

Option C: Redesign the Current Liquidity Requirements and Expand the Scope of Central Bank Liquidity Support

The idea in this option would be to replace the current liquidity standards with a new standard focused on facilitating a smooth resolution. This new standard would require banks to carry enough high-quality liquid assets and other assets, such as loan portfolios, that can be quickly pledged (i.e., posted as collateral) to the Bank of Canada in exchange for cash on short notice. This would ensure that any deposit, or other funding claim likely to run within the timeframe needed for an orderly resolution, can be quickly met. The holders of instruments that could run within that timeframe would have first claim on those assets, giving them the comfort of knowing that, even if the institution is at risk of becoming insolvent, there is no risk that their obligations will not be honoured. That way depositors and other creditors that can run within the time required to commence the resolution process would have less incentive to run in the first place. And if they did run, their claims would be promptly honoured.

That said, this option is unlikely to prevent the kind of insured deposit run issue that took place at Home Capital. As noted previously, third parties

25 While bank notice deposits legally give banks the right to demand notice before withdrawals take place, this right has not been routinely enforced in practice.

helping clients manage deposits would likely still shun deposit-taking institutions experiencing stress. They would want to avoid the potential reputational consequences of having to explain why clients' money was placed with a failing institution, even if the clients' funds are fully protected by the additional liquid assets available under this option.

Clearly, this option comes with some issues that would need to be addressed.

All creditors and shareholders, including the deposit insurer/resolution authority, would need to understand from the outset that a deposit-taking institution's high-quality liquid assets – and other assets that can be pledged to the Bank of Canada for emergency liquidity assistance – will be reserved, in the first instance, to satisfy depositors and other creditors that have claims that can run on demand or that are maturing within a pre-set timeframe. To put it simply, those creditors would be granted at least a de facto priority over other creditors from a resolution perspective.

Putting this into practice is feasible but likely complicated from a legal perspective. It would likely raise the cost of financial intermediation in the economy as those creditors who don't benefit from the priority claim would likely demand higher yields to compensate them for the additional risk they would bear going forward. By the same token, deposit insurers are unlikely to be thrilled because, in the event of a run, the best assets are likely to be liquidated first, making resolutions more expensive at the end of the day.

The Bank of Canada would also need to be ready to manage the broader market consequences of a stressed institution having to mobilize its assets quickly to meet any runs. That would be especially true if the run involved one of the major deposit-taking institutions. Fortunately, the Bank of Canada has developed a range of facilities that could be used for such a purpose.[26]

Former Bank of England Governor Mervyn King has proposed having deposit-taking institutions pre-pledge assets at the central bank so that the central bank could quickly provide liquidity support on demand to any solvent institution experiencing a run (King 2016). He suggests that the introduction of such a "pawnbroker for all seasons" service could alleviate the need for a large segment of the current prudential regulatory and supervisory apparatus.

Indeed, the Bank of Canada encourages members of the Lynx payment system to pre-pledge collateral with it, to facilitate quick access to its liquidity facilities. However, stressed deposit-taking institutions may be loathe to access the Bank's liquidity facilities on an emergency basis due to stigma concerns – i.e., for fear that it would signal that they have lost access to markets, further exacerbating a run.[27]

To combat this stigma, it might be worth considering allowing distressed deposit-taking institutions to sell the assets needed to meet a run on an outright basis to the Bank of Canada, which could then either hold them to maturity or resell

26 See the Bank of Canada's framework for market operations and liquidity provision at https://www.bankofcanada.ca/markets/market-operations-liquidity-provision/framework-market-operations-liquidity-provision/

27 Experience has shown that routine overnight borrowings from the central bank to settle periodic imbalances in the payment system do not attract stigma, nor do borrowings from the central bank in times of market-wide stress. However, stigma is likely to arise if an individual bank borrows from the central bank when funding markets are functioning well even if the collateral has been pre-pledged, because it would suggest that the institution has lost the confidence of the marketplace. That could make such a facility less usable in practice. In addition, the traditional view has been that central banks should not extend credit, even on a collateralized basis, to institutions that have doubtful solvency, as they usually have preferred creditor status; hence, their credit extension could potentially damage the claims of other bank creditors in a resolution process. This latter concern has evolved in recent years as the Bank of Canada is now more willing to extend credit on an emergency basis provided the institution in question has "credible" recovery and resolution plans.

them to the market on an orderly basis over time, to reduce the risk that markets might be disrupted in the short term. In effect, this would expand the Bank of Canada's current emergency lending facilities to include an outright purchase of assets option. No stigma should arise from accessing such a facility because no credit extension is involved. (There are no requirements for an affected deposit-taking institution to disclose the counterparty when it sells assets on an outright basis). Alternatively, the Bank of Canada could stand ready to intervene in the affected markets as necessary, to address any disruptions caused by a distressed institution selling assets to the marketplace instead of the central bank.

Tucker (2018) cautions against outright facilities for emergency lending purposes, arguing that an outright purchase is a one-shot game, exposing the central bank purchaser to market and default risk, whereas a secured liquidity advance – or repo – enables a central bank to demand additional collateral or a different type of collateral if the original pledged asset has fallen in value. While a legitimate concern, one can argue that it is a risk that can be managed if the central bank applies suitably conservative discounts in its purchase price and limits the range of assets that can be purchased to tradable securities, which are easier to value quickly than illiquid loan portfolios whose values are more likely to be dependent on the deposit-taking institution's own credit risk models. In any event, this Rubicon has already been crossed. Witness the Bank of Canada and other central banks' purchases of private-sector-issued securities on an outright basis during the pandemic.

One must also question whether Governor King is correct in saying that most prudential requirements could be set aside under this kind of option – that greater onus could be placed on bank boards and management to govern themselves, subject to the oversight of the marketplace.

Option D: Split Deposit-taking Institutions into Narrow and Broad Institutions

Our fourth and final option would entail a major restructuring of deposit-taking institutions so that their money creation and credit extension roles are split into separate entities. This is not a novel idea. In the 1930s, a large number of leading US macroeconomists supported a proposal for fundamental monetary reform that later became known as the Chicago Plan, after its strongest proponent, professor Henry Simons of the University of Chicago. It was also supported and well summarized by Irving Fisher of Yale University (Fisher 1936).

The key feature of this Plan was the call for 100 percent backing of deposits by government-issued money, and also by ensuring that the financing of new bank credit could only take place through earnings that have been retained in the form of government-issued money, or through the borrowing of existing government-issued money from non-banks – not the traditional way, through the creation of new deposits by banks. (Each time a bank makes a loan, it simultaneously creates a matching deposit, thereby creating new money.)

Fisher claimed four major advantages for this Plan. First, preventing banks from creating their own funds during credit booms and then destroying these funds during subsequent contractions would allow for much better control of credit cycles, which were perceived at the time to be the major source of business cycle fluctuations. Second, 100 percent reserve backing would completely eliminate bank runs. Third, allowing the government to issue money directly at zero interest, rather than borrowing that same money from banks at interest, would lead to a reduction in the interest burden on government finances and to a dramatic reduction of (net) government debt, given that irredeemable government-issued money represents equity in the

commonwealth rather than debt. Fourth, given that money creation would no longer require the simultaneous creation of mostly private debts on bank balance sheets, the economy could see a dramatic reduction not only of government debt but also of private debt levels.

Benes and Kumhof (2012) studied these claims by embedding a comprehensive and carefully calibrated model of the banking system in a dynamic stochastic general equilibrium model of the US economy. They found support for all four of Fisher's claims. Further, their model suggested that adoption of the plan could generate output gains approaching 10 percent, and that steady state inflation could drop to zero without posing problems for the conduct of monetary policy.

A modern version of the Chicago Plan would be to have all liabilities to the public – demand and notice deposits and redeemable term deposits that are to be perfectly liquid and redeemable at par – 100 percent backed by central bank reserves or high-quality liquid assets, while credit extension would be funded by non-redeemable term deposits, marketable debt and bank capital. An even more radical version of this option would see the public holding central bank digital currencies for payment purposes, with the payment system operated by technology companies, and credit intermediation handled by investment funds and other institutional investors.[28]

This option would likely be seen as too radical for most people to contemplate at this time. That said, some aspects of this option are already emerging as the shadow banking system expands, relative to the regulated banking system. For example, private debt funds are playing a rapidly growing role in financing businesses by raising money from investors. Meanwhile, on the other side of the intermediation spectrum, various types of money market funds offer the public the opportunity to place some of their savings in funds backed by a variety of short-term assets, with the ability to withdraw their money at par on short notice. Disintermediation of the banking system could accelerate further if the payment system is opened up to a broader range of participants in the future.

Weighing the Options

Table 2 assesses the four options against four key criteria:[29] (i) the extent to which the option might reduce the risk of a bank run; (ii) whether the option would help facilitate an orderly resolution if a bank run happened; (iii) the impact on cost of financial intermediation; and finally, (iv) whether the current web of regulatory and supervisory requirements could potentially be reduced.

The rankings in the table are basic relative rankings of each of the four options against the four criteria. Not surprisingly, there is no dominant option.

Option A's more efficient deposit insurance regime offers some elements that should be pursued to facilitate smoother resolutions of distressed institutions in the future. But it is unlikely to reduce the risk of bank runs, as shown by the Home Capital 2017 experience, discussed previously, where even insured depositors were

28 If the Bank of Canada begins issuing a digital currency and the public becomes enamoured with it, it is conceivable that many demand and notice account balances might flow to the central bank, which would effectively bring about Option D one way or another. However, history suggests that if blockchains do indeed become an efficient means of exchanging and settling payments then a more likely outcome is that private firms, including banks, may begin offering their own stablecoins that would be convertible into a central bank digital currency. In such a scenario, privately issued stablecoins, not a central bank digital currency, would effectively become the successor to demand and notice accounts, and not much would change as a result.

29 For purposes of this paper, we have focused on criteria relevant to managing bank runs. Other criteria like social impact, consumer preference, and emerging requirements from consumers to see their accounts aggregated to improve financial planning and outcomes could also be considered at a later date if one wants to delve deeper into some of the options.

Table 2: The Options and Their Outcomes

	Option A: More Efficient Insurance	Option B: More Stringent Liquidity Rules	Option C: Redesign Liquidity Rules	Option D: Restructure Deposit-Taking
Reduces risk of bank run	0	0	√	√√
Helps facilitate an orderly resolution	0	√	√√	√√
Impact on cost of financial intermediation	0	××	×	×××
Scope for less regulation in future	××	×	√	√√

Notes:
× = Negative impact and ×× and ××× even more negative relative to status quo.
0 = Neutral impact.
√ = Positive impact and √√ even greater positive impact relative to status quo.

quick to run when there were concerns about that institution. This option also raises the question of whether larger risk-based deposit insurance premiums and even more regulation, at least for smaller institutions, might be needed if higher deposit insurance limits are introduced, given the greater moral hazard that would be expected with higher deposit insurance limits.

The more stringent liquidity requirements of Option B may offer some resolution benefits, such as allowing more time to carry out a smoother resolution of a troubled institution. But this would likely come at the expense of more costly financial intermediation, due to the need for deposit-taking institutions to carry more liquid assets.

Option C's redesign of liquidity requirements offers the hope of reducing the risk of bank runs and facilitating smoother (though potentially more costly) resolutions if a run occurs, but much depends on whether it would actually prevent the types of runs experienced by Home Capital when third-party intermediaries are involved. Much also depends on whether an outright purchase facility would actually reduce the stigma of obtaining emergency support from the central bank, and whether easier access to central bank emergency facilities would in fact allow for reduced regulatory burden as suggested by Governor King. But it, too, would likely increase the cost to the economy of financial intermediation due to the preferential treatment that would be accorded to deposits and other claims that could run prior to the commencement of resolution.

Finally, restructuring deposit-taking institutions under Option D offers the greatest potential benefits across each of the criteria, but this would come at the expense of a major re-engineering of the banking system, bound to be costly at least in the short run. But, as noted previously, this may well be the option that emerges over the longer run in practice, as competition drives many banking services into the hands of entities that operate outside of the prudentially regulated banking system. Indeed, by raising the cost of financial intermediation, all of the options presented in this paper may serve to hasten our path to an end-state of an even larger shadow banking system.

Discussion and Policy Recommendations

The events of 2023 have shown us that more work needs to be done if we want to reduce the risk of bank runs that could undermine confidence in the banking system and the functioning of the economy more generally. To stimulate discussion on how best to move forward, this paper has sketched out four high-level options for possible reforms, ranging from some relatively modest adjustments of current practices to a radical rethink of how the business of banking should be structured.

None of the four options is a clear panacea because, while one can envision ways to reduce the risk and consequences of bank runs, it is clear that they would likely be accompanied by higher costs in financial intermediation – costs that would be borne by Canadian households and businesses. That said, there are some steps that should be taken now to move forward.

- CDIC should move expeditiously to complete its payout modernization project so that insured depositors can be confident that they will be reimbursed quickly in the event that a failing institution is closed.
- CDIC and its federal partners should take stock of the resolution plans that the six major banks have prepared, and consider whether there is need for structural changes to corporate structure and business models – in the interest of facilitating a more efficient resolution process, should the need arise. OSFI and its provincial counterparts should also consider expanding their current prudential supervisory frameworks to include resolvability risk, and consider potential future resolution implications when reviewing transactions that require regulatory or ministerial approvals.
- CDIC and its federal partners should also review the assumptions underpinning the major bank recovery and resolution plans, in light of the events of 2023. They should also be prepared for the possibility that more than one institution might need to be resolved at the same time, given many deposit-taking institutions have similar business models and exposures.
- While it is tempting to offer full deposit insurance coverage – seeing that deposit insurance limits are often raised anyway when an institution is failing, and given that most depositors of the major banks now have added protection following the introduction of bail-in debt – past experience suggests such a step may not actually significantly reduce the risk of bank runs. Plus, that path may require higher risk-adjusted deposit insurance premiums and more regulation. This could be a topic worth exploring in the federal government's planned review of the deposit insurance framework announced in its 2024 Budget.
- Rather than tightening up current liquidity requirements, OSFI and its international counterparts should instead consider what changes could be introduced to reduce the run risk in existing deposits, such as routinely enforcing notice requirements for withdrawals from savings accounts in exchange for higher interest rates on those accounts.
- The Bank of Canada may wish to explore whether there is merit in modifying the structure of its emergency liquidity facilities to make access easier for deposit-taking institutions in times of stress, and whether introducing an outright purchase option as part of these facilities could help reduce the stigma for institutions wishing to access those facilities.

Finally, while the Chicago Plan is likely too radical for most stakeholders to consider at this time, it may emerge in practice over time. Institutional investors are becoming more active in extending credit and supplying equity capital to firms, and households and firms are increasingly looking to various types of investment funds as repositories for their savings, instead of bank deposits. A key question is whether this will result in an inherently more stable financial system in the future, as some adherents believe, or if we will simply see the same fragilities emerge in a less prudentially regulated system.

Policymakers have been attuned to this risk. As a result, there is work underway led internationally by the Financial Stability Board, and international standard setters like the International Organisation of Securities Commissions (IOSCO), to enhance

the resilience of non-bank financial intermediation in the global financial system.[30] The main focus of this work so far has been to reduce excessive spikes in the demand for liquidity that can emerge from liquidity mismatches at open-ended investment funds (e.g., mutual funds and exchange-traded funds), and to enhance the margin requirements in capital markets. We encourage Canadian securities and prudential regulators to continue actively supporting this policy work and implementing its recommendations in Canada on a timely basis, to help foster a more resilient non-bank financial intermediation system here at home.

Conclusion

Preventing bank runs from turning into panics that disrupt the financial system, and the welfare of the public, has been a longstanding challenge in global banking history. The failures of some US regional banks and Credit Suisse in Switzerland in 2023 suggest that reforms to bank regulation and supervision enacted in the wake of the global financial crisis have not been sufficient to contain risk. While Canada has not had any banking failures for many years, we should not be complacent. There are some emerging clouds on the horizon that suggest there is risk that our current well-performing prudential regulatory framework may not be sustainable in the future. If so, the best time to step back and consider how best to manage problems is while they remain in the future, and not in the moment they descend upon us.

To initiate discussion, this paper summarizes some recent trends in the banking system, and society more generally, and how they may impinge on the conduct of future prudential regulation and supervision. They suggest that it might make sense to consider paying more attention at the margin to facilitating a smooth resolution when a failure is imminent, rather than simply preventing failures from occurring in the first place.

With that in mind, the paper presents for discussion four broad high-level options for how to move forward on this front. The options range from some fairly minor adjustments to the status quo to more radical options that even include, at one extreme, separating the money creation and credit extension roles of deposit-taking institutions. We conclude that while a more stable and resolvable financial system may result from considering more radical options, that needs to be weighed against the potential day-to-day impact on the cost of financial services for the broader economy. Having said that, the more radical options may make it possible to contemplate a simpler and less intrusive prudential regulatory regime, because a more resolvable banking system might allow for more reliance on bank boards and management to be held accountable for the governance of their institutions.

Regardless of the decision going forward – and there was no clearly dominant winner among our four options – we have outlined some steps that should be pursued now. They range from moving expeditiously to complete CDIC's payout modernization project, to making use of the resolution plans prepared for the six major banks, to considering how best to structure the system going forward to make all deposit-taking institutions easier to resolve, and their deposit liabilities less likely to run in the first place.

Finally, we encourage policymakers to bear in mind the broader changes that have been taking place in the financial system over the past 15 years. Institutional investors are becoming more active in extending credit and equity capital to firms through various private credit and private equity vehicles, and households and firms are increasingly shifting their savings from bank deposits to various types of debt and equity investment funds, and other

30 For further details on the work program in this area see Financial Stability Board (2023).

investment products. This could accelerate with open banking, as fintech firms and other non-bank entities seek to help Canadians conduct payments and manage their financial affairs outside of the prudentially regulated banking system. Whether the end result will be a more resilient financial system less prone to bank runs is still an open question. We thus encourage Canadian policymakers and regulators to continue participation in the work led by the Financial Stability Board and IOSCO on this topic, while thinking through what will be necessary for the specifics of the Canadian economy.

Appendix I: Why Canadian Prudential Regulation and Supervision May Not be Sustainable in the Future

Canadian prudential regulation stands out from the regulatory frameworks in most jurisdictions for its reliance on informal principles-based guidelines to set expectations for financial institutions. This allows prudential supervisors in Canada to apply more judgment than most of their foreign counterparts in tailoring the application of those guidelines to the specific circumstances of individual institutions. The outcome has been a safe and sound financial system that has served Canadians well over many years. But we should not rest on our laurels. This appendix sets out some reasons why our prudential framework needs to evolve to meet the changes taking place in the financial system and society more broadly.

Three trends may combine in the future to undermine our current approach to prudential oversight.

Changing structure of the financial system suggests financial institutions may become less willing to accept informal guidance from prudential authorities

Canada's approach to prudential regulation has worked well because our banking system is quite profitable and dominated by a few large institutions. The latter have been willing to work cooperatively with the regulators because everyone has a stake in promoting a stable system that offers lucrative returns.

But this could change. There are many players outside the regulated sphere that would like to offer banking services without being regulated like banks. Consider open banking and fintech firms that are keen to offer payment services, financial advice, and other products and services to the Canadian public. Plus, we have institutional investors in private debt and equity markets that are increasingly active in extending credit and supplying equity capital to firms here and abroad. Many of them are not subject to prudential oversight by either federal or provincial agencies.

Growing competitive pressures can give rise to a less harmonious relationship between banks and their regulators. Consider the United Kingdom. The long-standing informal moral suasion afforded by the eyebrows of the Bank of England Governor vanished the moment US banks arrived in London and started bringing their lawyers to meetings with regulators.

Canadians are becoming less deferential towards public officials

Canadian prudential regulators have traditionally been granted a large amount of discretion in how they set expectations and apply them to the institutions they oversee. The exercise of supervisory judgment, in particular, comes with very little public oversight. Public disclosure of prescribed supervisory information is actually prohibited by law, making it difficult for the public to monitor how supervision is conducted in practice. The bar is also high to legally challenge the actions of prudential regulators. Canadian courts tend to be fairly deferential to the judgment exercised by public officials.

A quick glance at social trends reveals that public acceptance of government officials exercising judgment in an opaque manner with limited accountability is on the wane. The public increasingly expects such discretion to be constrained where possible, and that officials be transparent in the conduct of their duties.

Canada often follows social trends in the US with a lag. While both countries prohibit the public disclosure of supervisory information, it is worth noting that at the regulatory level US banks are becoming more willing to challenge public regulatory guidelines when they perceive those guidelines go beyond the requirements

articulated in laws or official regulations. This resistance may intensify now that the US Supreme Court has decided to dispense with a 40-year-old legal doctrine, known as Chevron Deference, whereby US courts previously generally deferred to government agencies' interpretation of rules and laws enacted by Congress.

One cannot help but wonder if Canada might follow the US down a similar path in the future. If so, it raises the question of whether our own prudential regulatory practices can be sustained.

Growing pressures on the ability of prudential regulators to credibly interact with regulated institutions

Anyone leading a business knows how hard it is these days to attract and retain highly qualified professionals. And the technology needed to conduct effective prudential regulation is becoming more sophisticated and expensive with every passing day. Public agencies like OSFI are not well placed to compete for that talent, nor to make those investments, given the constraints imposed by a multitude of government staffing and procurement requirements.

This, combined with growing public skepticism of people moving back and forth between regulators and the entities they regulate, may make it harder for regulators to continue to be respected as credible formulators of prudential guidance, and exercisers of the discretion provided by that guidance.

Appendix II: A Summary of Run-Off Assumptions in OSFI Liquidity Requirements

This appendix summarizes the run-off assumptions for deposits, wholesale funding, and other projected cash outflows in OSFI short-term liquidity stress tests known as the Liquidity Coverage Ratio (LCR) and the Net Cumulative Cash Flow (NCCF) supervisory metric.[31]

The deposit run-off assumptions for OSFI's LCR and NCCF tests are summarized in Tables A1 and A2. Interestingly, the deposit run-off rates in both these tests are rather mild, considering that the two tests are supposed to measure a deposit-taking institution's liquidity condition in a severe but plausible liquidity stress scenario. For example, the LCR test (Table A1) prescribes run-off rates ranging from 3 to 10 percent for retail deposits that are either redeemable on demand or mature within 30 days, and a 40 percent run-off rate for wholesale deposits held by non-financial corporates that are not covered by deposit insurance. Similarly, mild assumptions are used in the NCCF test (Table A2). While these run-off rates may have been calibrated to be broadly consistent with those experienced in the 2007-2008 financial crisis, they are certainly well below the deposit run-off rates experienced by Home Capital in 2017 and Silicon Valley Bank in 2023.

31 OSFI also monitors a variety of other liquidity metrics including, most notably, the Net Stable Funding Ratio (NSFR), which focuses more on assessing the adequacy of an institution's funding mix over a 12-month horizon, and an operating cash flow statement that is submitted by the smallest federally regulated deposit-taking institutions.

Table A1: Liquidity Coverage Ratio Cash Outflow 30-Day Run-Off Rate Assumptions

Cash Outflows	
A. Retail deposits:	
Demand deposits and term deposits (less than 30 days maturity) • Stable deposits (deposit insurance scheme meets additional criteria) • Stable deposits • Less stable retail deposits	 3% 5% 10%
Term deposits with residual maturity greater than 30 days	0%
B. Unsecured wholesale funding:	
Demand and term deposits (less than 30 days maturity) provided by small business customers: • Stable deposits • Less stable deposits	 5% 10%
Operational deposits generated by clearing, custody and cash management activities • Portion covered by deposit insurance	25% 5%
Cooperative banks in an institutional network (qualifying deposits with the centralised institution)	25%
Non-financial corporates, sovereigns, central banks, multilateral development banks, and PSEs • If the entire amount fully covered by deposit insurance scheme	40% 20%
Other legal entity customers	100%
C. Secured funding:	
• Secured funding transactions with a central bank counterparty or backed by Level 1 assets with any counterparty. • Secured funding transactions backed by Level 2A assets, with any counterparty • Secured funding transactions backed by non-Level 1 or non-Level 2A assets, with domestic sovereigns, multilateral development banks, or domestic PSEs as a counterparty • Backed by RMBS eligible for inclusion in Level 2B • Backed by other Level 2B assets • All other secured funding transactions	0% 15% 25% 25% 50% 100%
D. Additional requirements:	
Liquidity needs (eg collateral calls) related to financing transactions, derivatives and other contracts	3 notch downgrade
Market valuation changes on derivatives transactions (largest absolute net 30-day collateral flows realised during the preceding 24 months)	Look back approach
Valuation changes on non-Level 1 posted collateral securing derivatives	20%
Excess collateral held by a bank related to derivative transactions that could contractually be called at any time by its counterparty	100%
Liquidity needs related to collateral contractually due from the reporting bank on derivatives transactions	100%

Table A1: Continued

Increased liquidity needs related to derivative transactions that allow collateral substitution to non-HQLA assets	100%
ABCP, SIVs, conduits, SPVs, etc:	
• Liabilities from maturing ABCP, SIVs, SPVs, etc (applied to maturing amounts and returnable assets)	100%
• Asset Backed Securities (including covered bonds) applied to maturing amounts.	100%
Currently undrawn committed credit and liquidity facilities provided to:	
• retail and small business clients	5%
• non-financial corporates, sovereigns and central banks, multilateral development banks, and PSEs	10% for credit 30% for liquidity
• banks subject to prudential supervision	40%
• other financial institutions (include securities firms, insurance companies)	40% for credit 100% for liquidity
• other legal entity customers, credit and liquidity facilities	100%
Other contingent funding liabilities (such as guarantees, letters of credit, revocable credit and liquidity facilities, etc) • Trade finance • Customer short positions covered by other customers' collateral	National discretion 0-5% 50%
Any additional contractual outflows	100%
Net derivative cash outflows	100%
Any other contractual cash outflows	100%
Total cash outflows	

Source: Reproduced from Basel Committee on Banking Supervision, "Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools," January 2013. Available at https://www.bis.org/publ/bcbs238.pdf

Table A2: Net Cumulative Cash Flow Weekly Run-Off Rate Assumptions

Paragraph	Deposit Type	Weekly run-off rate (first month)	Monthly run-off rate (months 2 to 12)*
49, 57	Insured retail and small business – stable (demand and term deposits):		
	Where criteria outlined in Chapter 2, paragraph 59 are met	0.50%	0.75%
	Where criteria outlined in Chapter 2, paragraph 59 are **not** met	1.00%	0.75%
50, 57	Demand deposits – funds managed by unaffiliated third party	7.5%	10%
51, 57	Term deposits (maturing or cashable in next 4 weeks) managed by unaffiliated third party	5%	7.5%
52, 57	RSD – client managed, no relationship, account not transactional	3.75%	3.75%
53, 57	RSD – client managed, established relationship or account transactional	1.25%	3.75%
54, 57	Insured retail and small business – not a transactional account or no relationships	1.25%	2.5%
55, 57	Uninsured retail and small business (demand and term deposits)	1.25%	3.75%
58	Unsecured wholesale term funding:		
	Term deposits from non-financial corporates, sovereigns, central banks, multilateral development banks, and PSE customers.	40% at maturity	
	All other non-small business customers	100% at maturity	
59, 60	Non-financial corporates, sovereigns, central banks, PSEs, MDBs, other FIs and other legal entities – operational deposits:		
	Where the deposit is not fully covered by deposit insurance	2.5%	5%
	Where the deposit is fully covered by deposit insurance and:		
	Jurisdiction where the deposit is located permits a 3% run-off factor	0.75%	3%
	Jurisdiction where the deposit is located does not permit a 3% run-off factor	1.25%	5%
61, 62	Non-financial corporates, sovereigns, central banks, PSEs and MDBs – non-operational deposits:		
	Where the deposit is **not** covered by an effective deposit insurance scheme or public guarantee	3%	10%
	Where the deposit is covered by an effective deposit insurance scheme or public guarantee	3%	5%
63	All other counterparties (including other FIs and other legal entities) - non-operational deposits	100% (equally run-off over 4 weeks)	n/a

* Note that there should be no run-off beyond 100% of the original balance of any existing liability in the NCCF, and balances should be run-off on a declining balance basis.

Source: Reproduced from OSFI, Liquidity Adequacy Requirements Guideline, Chapter 4 – Net Cumulative Cash Flow, Available at https://www.osfi-bsif.gc.ca/en/guidance/guidance-library/liquidity-adequacy-requirements-lar-2023-chapter-4-net-cumulative-cash-flow#toc-id-0

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