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Submission

Review of the Federal Financial Sector Framework—Department of Finance

Improving Canada's Financial Stability Governance Regime

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Executive Summary

An efficient and effective financial system facilitates strong economic growth. Ensuring the continued provision of financial services – that is maintaining the stability of the financial system – is therefore key. This brief focuses on this stability objective and draws from CIGI's research of international best practices to offer suggestions on how Canada can build on the strengths of its governance regime to further bolster its financial stability policy framework. While Canada's financial stability agencies practice a high-level of coordination, especially by international standards, the regime lacks some important features that could enhance its effectiveness. In this regard, we offer recommendations based on best practice in financial stability regimes worldwide.

Several jurisdictions worldwide have, for example, revised existing, or added new explicit responsibilities to the mandates of relevant domestic agencies, and have delegated control over modern macroprudential tools to newly-created or newly-enhanced domestic regulatory authorities. Of course, not all economies are taking the same path to improving regulatory architecture, nor are they all making progress at the same pace. In certain regards, Canada has not fully incorporated the lessons learned from the 2007-08 global financial crisis on financial stability governance. Although Canada does well with coordination among agencies, there remains no clear delegation of authorities, several regulatory agencies do not have a financial stability-related mandate, and for those that do, the mandate is too vague. This is cause for concern, as explicit responsibilities and accountabilities are crucial for timely responses to financial shocks.

We recommend that the Government of Canada clearly delegate authority among the relevant regulatory agents, including precise descriptions of each agency's mandates and powers concerning financial system stability and macroprudential policy. To ensure that Canada's cooperative approach to financial stability regulation continues over the long-term, we recommend that some of the communication channels among regulators be formalized. With respect to specific institutions, we suggest that the Office of the Superintendent for Financial Institutions (OSFI) be made an independent public institution, that the Bank of Canada's role in financial stability be made more clear while its primary responsibility remains monetary policy, and that the newly-created Capital Markets Regulatory Authority (CMRA) secure a stronger role in the Canadian financial system stability regime. Finally, in keeping with Canada's existing practice in financial system governance, the framework should remain flexible to the evolving needs and risks emanating from the financial system. Implementing these recommendations would greatly contribute to bolstering the financial sector's resilience to adverse and unexpected shocks that will inevitably emerge from various sources.

1. Introduction

The timing of the Department of Finance's review of the financial sector is opportune. We have now entered the 10th year since the events of 2007-08 translated into the global financial crisis and created a prolonged period of low growth. A fundamental cause of the crisis was poor governance of financial systems and weak financial regulations in advanced economies. The economic costs of these failures continue to accumulate and are being reinforced by structural factors that further contribute to the feeling that the world has not yet returned to 'normal' economic conditions.

An efficient and effective financial system facilitates strong economic growth. Ensuring the continued provision of financial services – that is maintaining the stability of the financial system – is therefore crucial for generating ongoing benefits. The three core policy objectives of stability, efficiency and utility are indeed critical for ensuring that the Canadian financial system consistently delivers benefits to the public. Drawing from research performed at the Centre for International Governance Innovation (CIGI) over the past few years, this brief focuses on the stability objective and applies our knowledge of international best practice to offer suggestions on improving the governance of Canada's financial stability policy framework.

Canada's financial system emerged relatively unscathed from the global financial crisis, even despite the deep linkages between its financial system and that of the United States. The coordination of Canada's financial regulatory agencies, facilitated by the Financial Institutions Supervisory Committee (FISC) and the Senior Advisory Committee (SAC) has proven to be ahead of its time in both structure, and in ensuring systemic risks are identified and accounted for in financial sector policies. In addition, the structure of the financial sector, including the dominance of six large banks, robust mortgage lending and insurance practices, and sound fiscal management helped prevent the build-up of imbalances in the financial sector that, in other major advanced economies, led to bank failures, housing bubbles and sovereign debt crises. The requirement that the Canadian federal Government reviews the legal and regulatory structure of the Canadian financial system every five years and presents legislation to Parliament to ensure an efficient and robust financial system, is another attribute of Canada's regime that demonstrates a strong and adaptable approach to financial regulatory governance.

Since the global financial crisis, new risks to financial system stability have surfaced. Canadian household debt is among the highest in the OECD, and well above the peak level observed in the United States in 2007. This in in part due to the 'lower for longer' monetary policy of the Bank of Canada, which has too contributed to housing price increases outpacing those of wages and net worth. In addition, pension funds and insurance companies are beginning to see the financial stresses of the need to adapt to the distortions created by ultra-loose monetary policies worldwide. Further, several new trends in the financial system will pose financial stability risks going forward, such as a new normal of the macroeconomic and financial environments; cybersecurity threats; financial product innovations and regulatory arbitrage; and financial services innovations. These trends need to be carefully monitored, and an appropriate policy framework will be necessary to ensure that the policy response be pre-emptive and decisive.

The overarching impression is that Canada's financial system is resilient and well placed to meet any future large shock that will threaten financial system stability. However, there is little evidence to support this case. And although there is much for which to commend the current policy strategy given past performance, Canada can no longer claim to fully follow best practices in the realm of financial system stability regimes. This note offers suggestions on how to improve Canada's financial stability policy framework by focussing on advancing existing governance arrangements, and capitalizing on the desirable features already in place.

Since the events of 2007-08, scholars have begun to develop an understanding of best practice in financial stability governance and several jurisdictions worldwide have accordingly implemented comprehensive reforms to their institutional frameworks. Based on the work performed by CIGI on cross-jurisdictional governance arrangements, as well as on numerous discussions and conferences where our researchers have engaged with leading thinkers in the field, Section 2 outlines best practice in financial system stability regimes. Section 3 describes Canada's framework and compares it to leaders in the field. Section 4 concludes and offers policy recommendations to improve governance arrangements of Canada's financial stability policy. An Appendix also adds to the discussion on specific trends and challenges that affect the Canadian financial system from a stability perspective.

2. Best Practice in Financial Stability Governance

The previous eight years have witnessed significant efforts internationally to establish more robust financial stability and macroprudential policy frameworks. Several jurisdictions have, for example, revised existing, or added new responsibilities to domestic agencies' financial system oversight mandates, and have delegated control over modern macroprudential tools to newly created or enhanced domestic regulatory authorities. Of course, not all economies are taking the same path to improving regulatory architecture, nor are they all progressing at the same pace. A CIGI-sponsored paper by Domenico Lombardi and Pierre Siklos (2016) highlights the discernible differences in the financial stability-focused regulatory architectures of 46 economies worldwide. The study presents a comprehensive—albeit not exhaustive—empirical index that measures a given economy's capacity to deploy macroprudential policies.

The 'capacity' index quantifies how effective existing macroprudential policy frameworks are at addressing ongoing and emerging risks that may threaten financial system stability.[2] The components of the index reflect the emerging consensus among policymakers and experts in the field on best practice in financial stability policy. Broadly speaking, a high score reflects the following criteria:[3]

1. **Coordination and Responsibility**

The emerging consensus among practitioners and academics suggests that one authority should be

[2] Index values capture macroprudential policy frameworks as of January 2015.

[3] Other, smaller contributing sections are: the existence of deposit insurance, the size and relevance of a financial stability policy committee within the central bank, the recognition by the central bank of financial stability as a factor to the transmission of monetary policy, and the responsiveness of each jurisdiction to FSB/G20 recommendations.

assigned overarching responsibility for financial stability policy (e.g. Tucker 2016). This need not be a single agency; as it can be a committee whereby the leaders of distinct agencies share responsibility over financial stability. Regardless of the specific institutional arrangement, the relationships between the financial stability authority and other domestic regulators should be clearly defined.

Although decision-making should be centralized, information and diagnostics are inherently decentralized. As such, there should be several formal and informal channels of communication among authorities that have influence over financial system stability. Any agency with authority for financial regulation should be assigned a statutory mandate for financial system stability; and any powers delegated to agencies to address financial stability should be clearly established by the legislature.

The index captures the legislated allocation of responsibility for financial stability objectives and macroprudential policy tools, and whether there is measurable coordination among relevant agencies.

2. Implementing Macroprudential Policy

The financial stability authority must have the capacity to deliver on its mandate, which at the very least requires that it has the power to recommend actions by other relevant agencies (e.g. sectoral regulators, infrastructure regulators and Government policy). While the financial stability authority needs not have the power to itself implement any or all macroprudential policies, the agency or agencies that control various macroprudential policy instruments should be independent from political and financial influences. This is critical to address issues of credible commitment, implementation lag and inaction bias (e.g. Tucker 2016). The powers and responsibilities of the macroprudential policy authority must be clear and established in legislation.

The index measures the size of the announced macroprudential policy instrument toolkit, the legislated allocation of authority over those instruments, and whether there is political oversight in their application.

3. Transparency and Accountability

The financial stability authority and, if different, the agency responsible for macroprudential policy should be accountable for taking appropriate actions to deliver on their mandates. Presupposing a clear mandate, policy tools and apparent operating procedures, the agency should practice transparent and consistent communication and operations. The goals of policy communication should be to inform the public about what policies are being implemented and why, as well as to clearly establish the limits of the financial stability policy regime.

The index captures the saturation of discussion of macroprudential policy in central bank communications.

4. Addressing FSB and G20 Financial Stability Recommendations

In the aftermath of the global financial crisis, the G20 agreed to financial reforms to improve global financial stability; the implementation of which were to be monitored by the newly-established Financial Stability Board (FSB). These reforms include the Basel framework, improved oversight of the shadow banking sector and over-the-counter derivatives markets, and addressing risk-taking incentives in compensation practices, to name a few.

The index measures the extent to which each jurisdiction has addressed the G20/FSB recommendations. This component therefore captures financial regulatory, structural and infrastructure reforms to address fundamental risks identified during the global financial crisis.

The components of the capacity index emphasize the role of central banks in financial stability policy regimes, as the central bank maintains a unique position in preserving financial stability (e.g. Lombardi and Schembri, *forthcoming*). Crucially, however, the pursuit of financial stability does cut across several responsible agencies and policy jurisdictions, and requires capitalizing on the distinct strengths of relevant agencies. For this reason, it is paramount that in addition to the central bank, a comprehensive financial system stability regime includes all supervisors and regulators, at least for coordinating policies and sharing information.

3. Financial Stability Policy Frameworks and Canada

Canada's relative success in parrying the global financial crisis deserves commending and is largely owing to its sturdy financial stability policy regime. Canada's financial regulatory framework consists of five primary federal regulatory agencies: the Office of the Superintendent for Financial Institutions (OSFI), the Department of Finance, the Bank of Canada, the Canadian Deposit Insurance Corporation, and the Financial Consumer Agency of Canada. These agencies meet regularly through two informal committees: the Financial Institutions and Supervisory Committee (FISC) and the Senior Advisory Committee (SAC). Together, these two bodies coordinate the regulators responses to evolving financial system risks, and are responsible for ensuring that there is close inter-agency cooperation and a shared understanding on practical matters of both micro-prudential supervision of individual institutions and macroprudential regulation of the financial system as a whole. The experience of cooperating for many years within the SAC and FISC prior to 2007-08 doubtlessly saved the country from the worst aspects of the financial crises that occurred in other countries.

While inter-agency cooperation is indeed a necessary element of an effective and comprehensive policy framework, it is not sufficient for robust financial system governance, and requires complementary features. The current arrangement is characterized by informal groupings that do not have explicit responsibility, accountability mechanisms, decision-making authority, or operational independence. Although the principles outlined in the previous section described the basic requirements for good governance of financial stability policy, the exact institutional arrangements will of course vary by jurisdiction based on pre-existing authorities, national customs and the structure of the domestic

financial system and legal arrangements. For example, one challenge in Canada is that provinces retain authority over financial market regulations. The lack of unity in this aspect has been recognized as having a significant macroprudential risk in Canada for at least two decades, but improvements to the framework will be taken slowly for legal reasons.

While Canada has a good foundation for building a robust financial stability policy regime, the Canadian Government has yet to, in full, adapt the system to address gaps in our understanding of financial system stability governance revealed by the global financial crisis. The current arrangement leaves the financial system susceptible to future shocks from regulatory 'grey areas' – those lacking responsible and accountable institutions – and impedes the potential speed of response to adverse developments. Comparing Canada's financial stability framework to those of other global leaders against the features outlined in the last section can reveal areas in need of improvement and provide case studies of 'good governance' for Canadian policymakers to look to in making improvements.

Based on the criteria outlined in the previous section, the Eurozone, its member states, the United Kingdom and the United States have some of the top ranked macroprudential policy frameworks in the world. Not without their own weaknesses, these jurisdictions perform well overall despite their financial stability regimes actually sharing few commonalities; this phenomenon reflects their unique jurisdictional features. For instance, the Eurozone and US rank well above the UK when it comes to coordination among relevant entities, whereas the US lags behind the Eurozone and UK with respect to transparency and accountability. Further, the Eurozone scores relatively poorly in distance and response time to G20 recommendations. Each of these jurisdictions have created financial stability policy frameworks that are tailored to their unique institutional, legal and political circumstances and financial system; but importantly they have all taken steps to lay out clear financial system stability frameworks in a way that is appropriate for their needs. Indeed, the US, the UK and the Eurozone have all established a financial stability policy authority, explicitly mandated cooperation among relevant governing agencies, and created precise and legislated mechanisms of accountability. Canada can learn from the efforts of these jurisdictions in adapting a regime that fits its own unique circumstances.

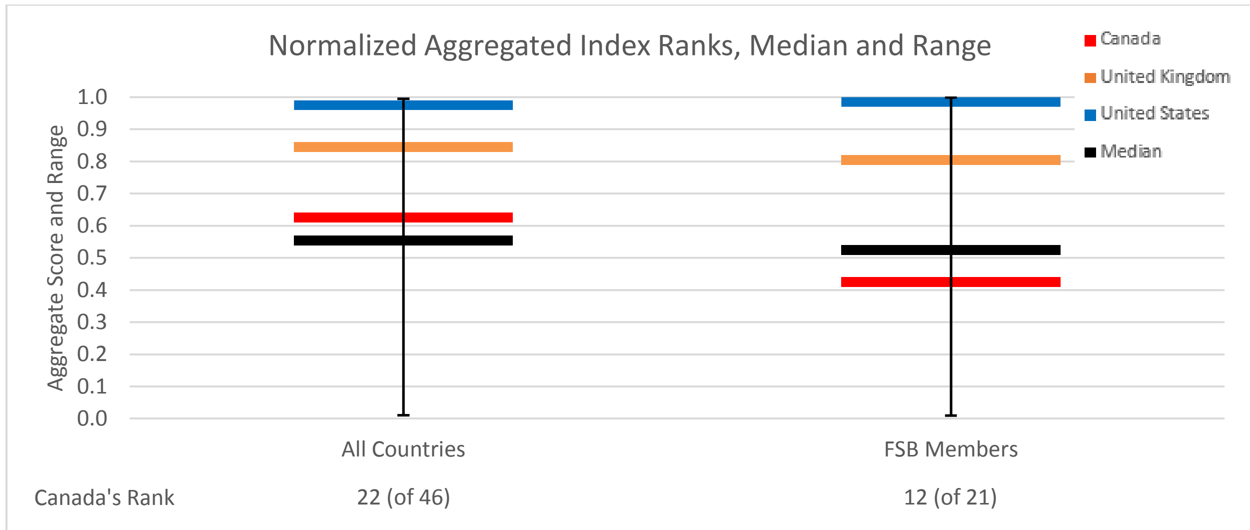
Figure 1 shows Canada's performance on the macroprudential capacity index relative to the range and median values of its peers, and against the US and the UK. Panel A is the aggregate index compared to the 46 counties in the sample and the 21 economies of the G20, where Canada ranks 22nd and 12th overall, respectively. Panel B illustrates Canada's relative international standing in the four areas of financial stability governance outlined in the previous section. Canada performs relatively well is in the degree of coordination among federal agencies, placing 10th of the sample of 46 economies. Not only is coordination crucial for capable governance overall, but it also provides a favourable foundation on which to assign responsibilities among involved agencies going forward. On all other measures, Canada performs worse than the median score.

Although Canada does well on coordination and responsibility, as expected, it can still learn from the top ranked jurisdictions of the US and Eurozone in other areas. Both economies, for example, have created clear and explicit financial stability policy committees that act as the single authority with oversight over the financial system and relevant regulatory agencies. In contrast, Canada operates exclusively on informal coordination arrangements discussed above. In addition, the financial stability committees in

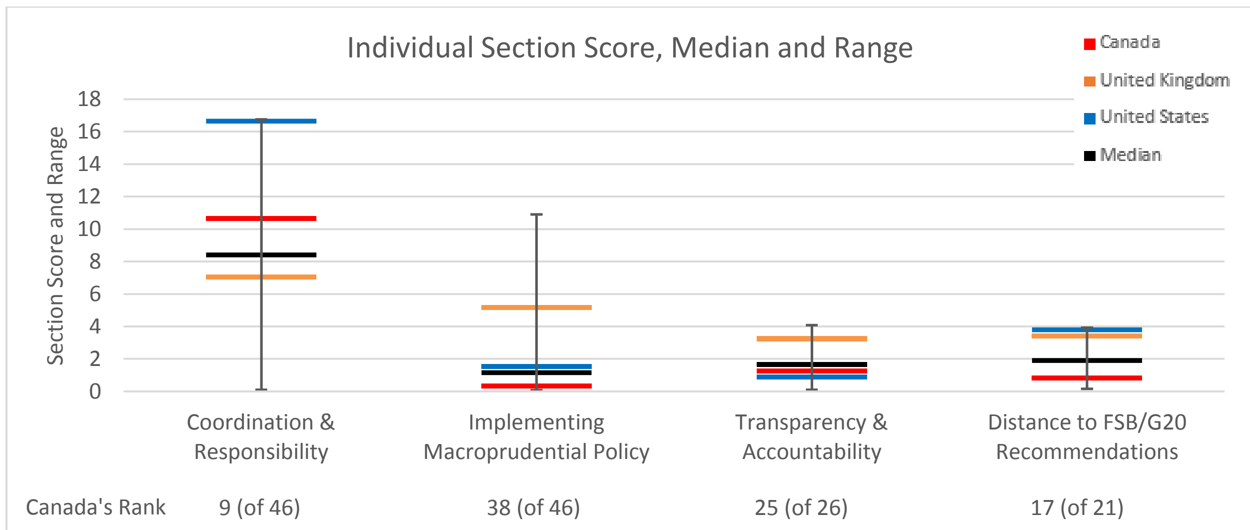
the US and Eurozone have been legislated specific powers to recommend policy actions to address risks by relevant authorities, such as sectoral and sub-jurisdictional regulators, as well as legislatures.

Figure 1: How Does Canada's Macroprudential Policy Framework Measures Up to its Peers?

Panel A



Panel B



Note: Panel A shows the complete index rankings, with values normalized to a range of zero to one. 'All Countries' includes all 46 economies surveyed; 'FSB Members' includes the 21 FSB-G20 economies. Ranges correspond to best and worst performers, with the median of all economies, and the scores of Canada, the United Kingdom and the United States plotted along the range. Panel B breaks the aggregation down into 4 major components.

On implementing macroprudential policy, Ireland, Portugal and the Netherlands are the top three performers. Each of these countries have an independent macroprudential policy authority that have explicit financial stability mandates, and have been delegated specific policy instruments, with the

delegation of tasks often included in official legislation. In this area Canada ranks among the bottom 10. It is Canada's worst performing section, in part due to the lack of defining explicit roles for each agency.

On transparency and accountability, the Eurozone, UK and Korea score the highest, owing to the much clearer communication efforts related to the stability framework and its tools, as well as efforts to clearly establish which organizations are responsible and accountable for various policies. As Canada has yet to clearly define responsibility for macroprudential policy, the transparency and accountability of its regime performs unfavourably. Finally, on meeting the reform recommendations of the G20, Canada ranks fourth from the bottom, mainly because its policy reforms have been set by regulation, rather than firmly established by primary or secondary legislation.

Due to progress made in other countries on improving financial system stability frameworks, Canada's governance structure is no longer looked to as a case study of best practice. Indeed, there remains no clear delegation of authorities, and several regulatory agencies do not have a financial stability mandate. This is cause for concern, as explicit responsibilities and accountabilities are crucial for timely responses to financial shocks. The Government of Canada should clearly delegate authority among these relevant agents, including precise descriptions of each agency's roles and powers concerning financial system stability and macroprudential policy. Doing so would contribute to bolstering the financial sector's resilience to adverse and unexpected shocks that will inevitably emerge from various sources.

4. Conclusions and Policy Recommendations

The main thrust of the note has been to highlight gaps in the governance and coordination of Canada's financial stability policy framework. A more robust regime will improve regulators' ability to identify and respond to threats to financial system stability. For a discussion of trends and challenges that pose a risk to financial system stability, refer to the Appendix.

The renewal of Canada's inflation target agreement is a welcome development for supporting ongoing economic stability. Nevertheless, as the joint statement by the Government and the Bank of Canada points out: "Monetary authorities have dramatically extended the limits of their policy toolkits to combat persistent weakness, guard against deflation, repair financial system functioning, and restore confidence. Given such challenges, monetary policy frameworks have themselves come under intense scrutiny." The precise role of the Bank of Canada in helping maintain financial system stability remains unclear – not unlike the roles of other relevant agencies – as the Government has yet to clearly establish a financial stability policy framework. The weakness in financial stability governance implies that Canada's economy is more vulnerable to the next major financial crisis than it could be.

This note suggests that additional clarity is required pertaining to the respective roles and responsibilities of the various agencies involved in regulation and oversight of the financial system. Building on Canada's success with its collaborative financial regulatory structure, enhancing accountability, decision-making capacity, transparency and independence will improve the ability to deliver resilience in the event of future economic and financial shocks. In this vein, we make the following recommendations based on our understanding of international experiences and best practices in financial stability policy regimes:

1. **Establish a financial system stability authority**

   Canada needs to establish a financial stability authority, or explicitly elevate and make independent one of the existing coordinating bodies. While the authority itself can be effective under several forms, we recommend that Canada create a formal committee, much like the current FISC or SAC, that is responsible for financial system stability. We recommend that the chair of the committee be the authority responsible for macroprudential policy, and that the committee be given authority to, at the very least, recommend actions by other regulators on a 'comply or explain' basis. In areas where there are provincial interests, provincial regulators must be duly represented in communicating and coordinating policy with the financial stability authority. In addition, all agencies that are responsible for financial regulation should be assigned a financial system stability-related mandate. This is currently missing for OSFI, the Department of Finance and most provincial regulators.

2. **Assign clear macroprudential policy mandate(s)**

   The Government should assign clear statutory mandates to the authorities responsible for macroprudential policy and macroprudential oversight (whether that be the SAC, FISC, Bank of Canada, OSFI, another agency or a combination thereof) such that the public and financial market participants can understand them. The authority must be provided sufficient policy instruments and/or power to achieve its mandate. For some macroprudential policy instruments that may have larger distributional consequences, for example loan-to-value ratios on mortgage loans, the legislature should decide whether the authority should remain with the Government. In these cases, the macroprudential policy authority and/or financial stability authority should have the power to recommend action by the Government to minimize inaction bias and ensure it can still take action to pursue its mandate. The legislative procedure for granting authority for additional tools should also be established ex ante.

3. **Make OSFI an independent public institution**

   While OSFI has a clear statutory mandate to supervise federally regulated financial institutions, it is formally part of the public sector and its budget is subject to oversight by that Department of Finance. OSFI's mandate should be formalized more clearly and publicly. It should be made an independent public institution accountable to Parliament, and it should control its own budget expenditures and obtain its revenues by levying fees directly on the institutions it supervises.

4. **Clarify the role of the Bank of Canada**

   Although the Government has recently renewed its inflation target objective, the precise role of the Bank of Canada in ensuring the maintenance of financial stability is not as clear as it should be. The central bank must remain primarily responsible for monetary policy; and therefore can only assist, along with other public agencies, in ensuring that financial system stability is well maintained. It is also crucial that financial system stability and monetary policy continue to be pursued with distinct sets of instruments, and similarly, that each goal as well as the entities responsible are made perfectly clear to the public, so to best avoid accountability confusion.

5. **Formalize communication channels among regulators**

   Canada should formalize some of the cooperative mechanisms between and among financial regulatory agencies. This will ensure that communication among agencies continues after changes of leadership and will support a long-term mechanism for ongoing relationship building. Formal mechanisms for communication are also important to improve transparency and ensure consistency. Formal channels for communication and cooperation should also be established between federal and provincial regulators.

6. **Progress on cooperative capital markets regulation**

   Canada currently lacks a national financial markets regulatory agency similar to the Securities and Exchange Commission in the United States. The current provincial regulatory arrangement creates fragmentation in national financial system, reduces the market's effectiveness, and leaves financial markets more vulnerable to regulatory arbitrage. We recognize the recent initiative to establish the Capital Markets Regulatory Authority (CMRA) as a cooperative effort towards establishing a single regulator in this area, and we encourage further cooperation among the participants of the Capital Markets Stability Act, as well as additional efforts to attract other provinces and territories. The designated financial stability authority (recommendation 1) should also have the authority to, at a minimum, recommend actions by the CMRA on a 'comply or explain' basis.

7. **Ensure flexibility in the financial system stability regime**

   A financial stability policy framework is only as potent as its ability to evolve alongside, and react to the constantly changing financial environment. Indeed, the financial system is dynamic, and is subject to developments and innovations, and so too should be the governing framework. The financial stability policy framework should maintain a degree of flexibility so as to not hinder any future calls for changes, or creations and inclusions of new roles and responsibilities.

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Appendix: A Financial System Stability Perspective on Trends, Challenges and Emerging Risks

In contributing to the discussion on trends and challenges influencing the financial sector, this Appendix sticks to the theme of the note by focussing on risks to financial system stability. The term 'financial system stability' refers to financial conditions that ensure smooth delivery of financial services, including the efficient allocation of saving and investment. Instability of the financial system therefore suggests that one or more financial services are impaired; for example, through disruptions to the payments and settlements systems, or a reduction in the availability of credit or insurance contracts. The financial system is constantly facing multiples threats, such as liquidity, credit and technology risk. Materialization of these risks can be triggered by various events, for example, economic shocks that threaten the underlying value of assets, natural disasters or criminal activity. While shocks are typically unpredictable in both time and severity, underlying vulnerabilities of the financial system can be identified before the event and risk management strategies or macroprudential policies can be adopted to adapt to or respond to threats. We briefly discuss trends that may exacerbate some of these risks, and could be much better managed in Canada under an improved financial system stability policy framework.

New Normal Macroeconomic Environment

The global economy is experiencing a period of low growth and inflation, low interest rates and low commodity prices. These trends are being caused by several underlying structural factors, such as changing demographics, rising of inequality and slowdowns of global trade growth, and reflect some legacies of the global financial crisis. This new macroeconomic environment is likely to persist for some time. Low growth and interest rates affect financial stability by depressing household income growth, increasing the incentive for risk taking, lowering the profitability of insurance firms, and squeezing pension funding. Lower household income and low interest rates create an incentive to raise household debt, which creates vulnerabilities in the mortgage market and in turn the housing market. Incentives to search for higher yields and/or increase leverage in an environment characterized by low return on investments increases the potential for elevated asset price valuation and volatility. These risks, if inadequately monitored and addressed, can reduce confidence, reinforce low growth, and further increase the vulnerability of the economy and financial system to shocks. Banks and non-bank financial institutions, such as pension funds and insurance firms, need to create new investment strategies to ensure sufficient funding and profitability. Macroprudential policies can be used to buffer against the buildup of financial imbalances with respect to asset prices and household and corporate debt.

New Normal Financial Environment

Changes in economic fundamentals are further reinforced by a new normal in financial markets. Traditionally volatile markets, like equity and foreign exchange markets, are seeing more frequent episodes of turbulence. In addition, historically-stable markets such as high-rated bonds and fundamental sources of liquidity – including wholesale funding, derivatives markets and short-term collateralized transactions – have also become more volatile, and more exposed to counterparty and liquidity risk. These conditions can increase funding costs for financial and non-financial corporations

and, in severe cases, may threaten financial system stability. In these new economic and financial market environments, firms need to ensure they have prudent risk management practices to buffer against price volatility and adverse liquidity events. Robust macroprudential stress testing can help identify areas of the financial system that are more vulnerable to these risks.

Increasing Global Interconnectedness

The Canadian financial system is becoming increasingly exposed to emerging market economies (EMEs) as domestic banks and financial agents search for additional profitable opportunities overseas. Exposure to EMEs has increased through direct investment, foreign lending, the establishment of subsidiaries in foreign jurisdictions, and increased holdings of EME assets by pooled investment funds and non-bank financial institutions. Canada's economy has also become more exposed to EMEs through efforts to establish stronger trade relations to further stimulate domestic economic activity. All of these factors increase the risk that shocks in other countries will affect the stability of Canada's financial system. These trends reinforce the need to collect more and better quality data on capital flows and their intermediation by domestic financial institutions (banks and investment funds) as to improve our ability to identify sources of vulnerability. International cooperation in data collection and analytics would also help with identifying global sources of vulnerability as well as potential channels of contagion and spillovers.

Cybersecurity Threats

As financial services and infrastructure increasingly rely on web-based technologies, the Canadian financial system will become more vulnerable to cybersecurity threats. Cybercrimes can range from smaller threats, such as financial account fraud and insider information theft, to bigger threats like malware, distributed denial-of-service (DDoS) attacks, and breach of data integrity. DDoS attacks are one of the biggest risks to the financial system as they are relatively easy for criminals to conduct, and are difficult to block completely. For these reasons, DDoS attacks occur frequently and financial institutions are already investing significant toward their prevention. The implication of a DDoS attack can be minor, such as a temporary shut-down of a bank's website, but have the potential to create major disruptions should financial markets be shut down for a prolonged period. Malware also poses a significant threat given the potential damage to data and systems. To facilitate better safeguards to address threats to cybersecurity, financial institutions should work closely with Government agencies to identify risks, share information, and prepare responses and recoveries from cyber threats and attacks. These preparations should include consideration of the impact on financial system stability.

Financial Service Innovation

Financial service innovation through new financial technologies has the potential to increase efficiency of financial intermediation and improve consumer access to financial services. However, new methods of intermediation, such as distributed ledger systems and peer-to-peer lending, are untested on a larger scale and may pose a risk to financial system stability. Peer-to-peer lending may improve stability by decreasing risk of runs; however, these markets may also become highly susceptible to liquidity risk

during periods of stress. In addition, as banks and other large investors become more involved in peer-to-peer lending and as this channel of intermediation becomes more competitive, financial regulators need to be aware of potential deterioration in lending standards and in risks from the emergence of new financial manoeuvering. Similarly, while distributed ledger systems may significantly improve the efficiency of settlements systems, reduce counterparty and operational risks, and decrease vulnerability to fraud, disruptions in these markets on a larger scale could pose significant risks to the whole financial system.

These new intermediation channels are also increasingly transcending jurisdictional boundaries, which will require improved coordination and information-sharing among global regulators. While the depth and interconnectedness of such firms remains small, it is important that standards be identified now that determine when these firms have become capable of posing a larger threat to financial system stability. Further, thresholds should be identified, based on for example size or perceived interconnectedness, that determine when stronger data collection as well as regulatory oversight will become necessary. These technologies may also distort the functioning of existing financial intermediation. This further speaks to the importance of maintaining a high degree of coordination among relevant and involved entities, as well as clearly defining mandates and responsibilities with respect to financial system stability.

Financial Product Innovation

Financial product innovation can improve the growth potential of financial market activities, and improve stability through better hedging and diversification of risk, and by increasing market accessibility. However, product innovation can also pose major threats to financial system stability, as was made clear by the destabilizing impact of collateralized debt obligations and derivatives products in 2007-08. Innovation is ongoing in both financial products – such as the rapid expansion of exchange traded products – and market exchange methods – such as automated trading processes. Improving coordination among regulators is necessary to ensure financial systems have appropriate safeguards, particularly in services or markets where several agencies have regulatory responsibilities. For this reason too, clearly allocating responsibilities for financial stability policy and ensuring all regulators have a financial stability mandate is also important. Risks associated with new products and processes can be difficult to foresee, and being vigilant of the trends through close scrutiny of larger investment flows and better data collection would help identify where vulnerabilities may emerge and the potential repercussions of an economic or financial shock.