



BANK OF CANADA
BANQUE DU CANADA

Bank of Canada Oversight Activities for Financial Market Infrastructures 2021 Annual Report

May 2022

Executive summary

Financial market infrastructures (FMIs) are critical to the financial system. They support economic activity by providing a platform for transferring funds and settling transactions. At the same time, FMIs can also be a potential source of risk to economic activity and to the resilience of the financial system if, for example, they:

- settle transactions of large value
- have important links to other FMIs
- have few or no substitutes

The Bank of Canada designates FMIs operating in Canada that have the potential to pose systemic risk or payments system risk and oversees them to ensure that the risks are adequately controlled. This oversight contributes to the Bank's broader mandate of promoting the stability and efficiency of the Canadian financial system.

This report describes how the Bank fulfills its mandate for the oversight of designated FMIs. It highlights key issues on the safety and soundness of these systems. It also specifies the key risk management enhancements that the Bank expects FMI operators to pursue and outlines additional initiatives undertaken by the Bank to promote a sound FMI environment.

Designated FMIs overseen by the Bank demonstrated resilience throughout 2021, and they significantly improved their risk management practices in order to meet the Bank's oversight expectations.



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The Bank's approach to oversight of financial market infrastructures

Financial market infrastructures (FMIs) play an important role in the sound functioning of the financial system. They provide critical services that allow individuals and firms to safely and efficiently purchase goods and services, invest in financial assets or manage financial risks.

Given their central role, FMIs require strong risk management practices and must be resilient to shocks.

Regulatory framework

The *Payment Clearing and Settlement Act* (PCSA) authorizes the Bank to oversee FMIs. Under the PCSA, the Governor of the Bank of Canada has the authority to designate an FMI if he or she deems it to have the potential to pose systemic risk or payments system risk in Canada.¹ The PCSA further stipulates that the Bank is responsible for overseeing these designated FMIs. In this role, the Bank coordinates with other federal and provincial authorities that also have oversight responsibilities for a designated FMI established in Canada.² Formal agreements between the Bank and relevant authorities exist to guide this collaboration.

The Bank also designates and oversees foreign-domiciled FMIs that have the potential to pose systemic risk to the Canadian financial system. For the designated foreign-domiciled FMIs, the Bank relies on co-operative arrangements in the form of oversight colleges or committees that are led by authorities in the jurisdiction where the foreign FMI is domiciled.

The Bank must ensure that FMIs adequately control their risks because their operations are essential to the Canadian financial system. To achieve this, the Bank assesses designated FMIs against its *Risk Management Standards for Designated FMIs* and *Criteria and Risk Management Standards for Prominent Payment Systems*. These standards are based on the *Principles for Financial Market Infrastructures (PFMI)*, which were developed by the Committee on Payments and

¹ The Minister of Finance must agree that designation is in the public interest. See the glossary in Appendix 2 for a full definition of systemic risk and payments system risk.

² The Canadian Depository for Securities (operator of CDSX) and the Canadian Derivatives Clearing Corporation (operator of the Canadian Derivatives Clearing Service) are recognized and regulated by the Autorité des marchés financiers, the British Columbia Securities Commission and the Ontario Securities Commission. The Minister of Finance shares the responsibility to oversee Payments Canada (operator of Lynx and the Automated Clearing Settlement System).

Market Infrastructures (CPMI) together with the International Organization of Securities Commissions (IOSCO).³

Table 1 lists the designated FMIs.

Table 1: Financial market infrastructures designated for Bank of Canada oversight*	
Domestic designated FMIs	
CDCS	The Canadian Derivatives Clearing Service (CDCS) is a central counterparty operated by the Canadian Derivatives Clearing Corporation (CDCC). It clears transactions in all derivatives trades on the Montréal Exchange and certain fixed-income securities, repurchase agreements and over-the-counter (OTC) equity derivatives. CDCC is a wholly owned subsidiary of the Montréal Exchange, which is a wholly owned subsidiary of TMX Group Limited (TMX Group).
CDSX	CDSX is a system operated by CDS Clearing and Depository Services Inc (CDS). It consists of a securities settlement system, a central securities depository for equities and fixed-income securities, and a central counterparty service for eligible Canadian exchange-traded and OTC equities. CDS is a wholly owned subsidiary of The Canadian Depository for Securities Limited, which is a wholly owned subsidiary of TMX Group.
Lynx	Lynx is an electronic funds-transfer system operated by Payments Canada. It settles large-value and time-critical payments.
ACSS	The Automated Clearing Settlement System, operated by Payments Canada, is a retail payment system that clears cheques and electronic items, such as pre-authorized debits, direct deposits and Interac debit payments.
<i>Interac</i> e-Transfer®	<i>Interac</i> e-Transfer® is a person-to-person, person-to-business, business-to-person and business-to-business electronic payment system offered through online banking with participating Canadian financial institutions. The system is widely used among Canadians and operated by Interac Corp.
Foreign-domiciled designated FMIs	
CLS Bank	CLS Bank is a special-purpose bank offering the settlement of foreign exchange transactions, including those involving the Canadian dollar.
SwapClear	SwapClear is a clearing system operated by LCH Limited. It centrally clears interest rate swaps and other OTC interest rate derivatives denominated in multiple currencies, including the Canadian dollar.

* Except for the ACSS and *Interac* e-Transfer®, all FMIs listed in this table are subject to the Bank's risk management standards for systemically important FMIs. The standards for prominent payment systems apply to the ACSS and *Interac* e-Transfer®.

³ The PFMI establish minimum expectations for risk management of systemically important FMIs to preserve and strengthen financial stability. See [CPMI-IOSCO's web page](#) for more information on the PFMI and CPMI-IOSCO.

The Bank's FMI oversight framework

The Bank regularly monitors and assesses designated FMIs against its risk-management standards. Central to this process are periodic core assurance reviews that focus on FMIs' controls and risk management practices in specific areas.

Findings identified in core assurance reviews are presented to the Bank's Oversight Risk Advisory Committee (ORAC), which is composed of Deputy Governors as well as senior Bank staff with expertise in FMIs, risk management and financial stability. ORAC may request that FMIs address certain findings. Under this approach, each of the Bank's risk management standards is assessed in depth over a three-year cycle. The prioritization of any mitigating measures the Bank requests from an FMI is based on how relevant they are to the safety and soundness of the FMI and the broader financial system.

The year 2021 marked the third full year of the Bank's focused, in-depth oversight framework centred around core assurance reviews.

Special developments and risk considerations in 2021

Modernization

Replacement of Canada's wholesale payment system

Lynx was successfully implemented on August 30, 2021, replacing the Large Value Transfer System (LVTS) as Canada's wholesale payment system. The LVTS had operated for more than 20 years. The new system is more resilient and cyber secure and can more easily support future technologies, which will facilitate interoperability with other systems. Lynx also incorporates a more robust financial risk framework in line with other real-time gross settlement (RTGS) systems around the world.

Development of a new real-time payment system

In 2021, Payments Canada made significant progress on the design of the new Real-Time Rail (RTR) system by completing the vendor procurement phase of the project, beginning the technology build and developing the implementation strategy. Available 24 hours a day, 7 days a week, the RTR will support data-rich payments based on the ISO 20022 messaging standards when it is launched in 2023. Consistent with the goal of acting as a platform for innovation in retail payments, the system will be enhanced in the future.

Replatforming of CDSX

The TMX-CDS Post-Trade Modernization project aims to replace the technology infrastructure for CDS's core clearing, settlement and depository functions. As part of this project, CDS will also improve its financial risk model and introduce an automated central ledger functionality for the cash equity central counterparty (CCP). The implementation of the project has been delayed and is now expected in 2023. In 2022, CDS expects to finish preparing for the platform's launch by:

- finalizing its implementation plan
- getting participant buy-in for the implementation plan
- performing comprehensive industry testing and training participants

CDS will also work toward receiving the necessary regulatory approvals for the changes to its rules, procedures and system. The Bank's oversight focus will be on ensuring the safe and sound launch of a well functioning system.

Resilience of designated FMIs to the COVID-19 pandemic

Designated FMIs continued to adapt to developments related to the COVID-19 pandemic, demonstrating ongoing operational resilience in a largely remote work environment.

Oversight expectations for Payments Canada systems

This section describes key oversight expectations for designated FMIs operated by Payments Canada. It includes updates on priorities prescribed in previous years as well as new areas of focus identified in 2021.

Progress and outstanding deliverables

In 2021, Payments Canada significantly improved its cyber risk readiness and put in place stronger operational risk controls and procedures related to Lynx.

Table 2:
 Progress and outstanding deliverables on oversight expectations for Payments Canada systems

	Completed	Outstanding
Cyber resilience		
Payments Canada	<ul style="list-style-type: none"> Developed a cyber resilience strategy Created an evergreen inventory of information assets and system configurations, including interconnections with other internal and external systems Enhanced its cyber resilience framework by establishing objectives and risk tolerance 	<ul style="list-style-type: none"> Enhance testing program for cyber security controls Develop a comprehensive audit and compliance program for its cyber resilience framework

Operational risk		
Lynx	<ul style="list-style-type: none"> Identified and addressed security vulnerabilities before launching Implemented security improvements 	<ul style="list-style-type: none"> Implement permanent solutions to address outstanding minor vulnerabilities
Lynx	<ul style="list-style-type: none"> Developed a contingency arrangement where, if a disruption were to occur, participants would pre-settle payments using their Bank of Canada settlement accounts before exchanging payments bilaterally using the SWIFT messaging system 	<ul style="list-style-type: none"> Conduct a feasibility assessment on credible options for contingency if there were a prolonged disruption in Lynx and establish a plan for implementation

Newly established expectations

Oversight expectations for a retail batch system

In 2021, the Bank shared with Payments Canada a set of expectations of the design of the future retail batch payment system. Payments Canada is expected to design an approach to support participant access and to manage financial risks by the end of 2022.

Findings of core assurance review

In 2021, the Bank completed a core assurance review of Payments Canada's enterprise risk management (ERM) and governance arrangements.

The Bank evaluated Payments Canada's ERM function against the Bank's oversight standards to assess the maturity and effectiveness of the ERM framework. The Bank also reviewed how Payments Canada integrated an internal audit function to bolster its ERM framework. The Bank did not identify any major gaps or concerns related to ERM but suggested a few areas for improvement. Since ERM is an evolving practice, the Bank will continue to monitor Payments Canada's progress toward its target state to ensure that it continues to integrate its ERM framework into its risk culture and strengthen the effectiveness of the three lines-of-defence model.

The Bank also did not identify any major gaps or areas of concern related to the governance part of the review. In 2015, Payments Canada transitioned to a new governance model as the result of a commitment by the Government of Canada in the 2014 federal budget to strengthen the governance of Canada's payments

sector. The core assurance review confirmed that the board is fulfilling its duties effectively and adhering to the PFMI. The Bank provided minor suggestions for consideration to enhance governance arrangements.

Oversight expectations for CDS and CDCC

This section presents key priorities for CDS and CDCC, two designated FMIs ultimately owned by TMX Group. It includes updates on focus areas identified in previous years as well as priorities identified in the Bank's 2021 oversight reviews.

Progress and outstanding deliverables

In 2021, CDS and CDCC made substantial progress on the Bank's expectations associated with default management, cyber risk management, access and tiered participation, and liquidity risk management. Some matters require further action, as described in **Table 3**.⁴

Table 3:
Progress and outstanding deliverables on oversight expectations for CDS and CDCC

	Completed	Outstanding
Default management		
Canadian Derivatives Clearing Corporation (CDCC)	<ul style="list-style-type: none"> Completed its analysis assessing the benefits and feasibility of developing a framework for client participation in auctions 	<ul style="list-style-type: none"> Complete work to automate default auction processes, including developing tools to facilitate participant bidding
Liquidity risk management		
CDCC	<ul style="list-style-type: none"> Developed and began implementing improvements to their settlement bank contingency procedures 	<ul style="list-style-type: none"> Complete implementation of improvements to the settlement bank contingency process Complete risk analysis and develop recommendations on additional tools to manage settlement congestion

⁴ See "Special developments and risk considerations in 2021" section for an update on the CDS Post-Trade Modernization project.

CDS	<ul style="list-style-type: none"> Finalized the liquidity risk framework 	<ul style="list-style-type: none"> Complete work on ensuring sufficiency of resources across all services Improve the liquidity stress testing framework
Cyber risk management		
CDS and CDCC	<ul style="list-style-type: none"> Improved security controls Conducted additional cyber exercises Completed initial analysis of cyber participation requirements 	<ul style="list-style-type: none"> Continue improving CDS' and CDCC's cyber recovery posture by enhancing frameworks and policies Finalize the definition and implementation of cyber participation requirements
Business risk		
CDS and CDCC		<ul style="list-style-type: none"> Submit revised recovery plans for CDS and CDCC
Access and tiering		
CDS	<ul style="list-style-type: none"> Conducted the first mandatory tiered participation survey 	<ul style="list-style-type: none"> Complete the tiered participation framework

Newly established expectations

Governance and enterprise risk management

The Bank's review of governance and enterprise risk management at CDS and CDCC focused on how the FMIs are governed and managed within the larger TMX Group. While the FMIs are part of a larger for-profit organization, the boards and management of CDS and CDCC are ultimately responsible for risk management at the FMIs. The Bank found that the FMIs have a robust governance framework overall but identified an area of concern related to FMI insight into—and control of—the risks posed by external parties that affiliates within the TMX Group rely on to provide critical services to the FMIs.

The Bank expects CDS and CDCC to implement a framework to perform due diligence on these service providers by the end of 2022. This framework could leverage due diligence performed by TMX Group affiliates where appropriate. However, it must at least include an effective challenge by the FMIs of this TMX affiliates' due diligence and should apply to both the initial selection of service providers and an ongoing review of risk throughout the contract.

Regarding ERM, the Bank also provided CDS and CDCC with several recommendations to strengthen the roles of both the FMI boards and management.

Operational risk

The Bank's review of operational risk management confirmed that both CDS and CDCC have mature and comprehensive frameworks for managing operational risk. However, the external environment has changed, and the FMIs' data backup and recovery capabilities need to evolve to remain resilient to risk events that could cause severe operational disruptions.

The Bank expects CDS and CDCC to assess and improve their data backup and recovery capabilities to remain resilient in the context of an evolving threat environment. This could be a multi-year process, and the Bank will begin by engaging with the FMIs in 2022 as they analyze the risks and design solutions that meet applicable standards.

Wind-down plans

Previously, the Bank and other regulators had provided guidance that wind-down plans for designated FMIs were not necessary because the Bank would not support a termination of critical FMI services. The Bank recently changed its view based on work in international policy groups and on implementing Canada's FMI resolution regime.

The Bank thus expects CDS and CDCC to develop orderly wind-down plans. The plans should demonstrate that the FMIs could be severed from TMX Group and transferred to an alternate entity in a timely and orderly manner, with continuity of critical services provided to the Canadian financial system.

Oversight expectations for *Interac* e-Transfer

This section presents key oversight expectations for the *Interac* e-Transfer system. *Interac* e-Transfer was designated as a prominent payment system in August 2020. For that reason, no oversight expectations were established until 2021.

Newly established expectations

Real-Time Rail migration plan

In 2021, the Bank conveyed its expectations to Interac related to payments modernization. Interac is developing the exchange system for Payments Canada's RTR system and has committed to settling all its *Interac* e-Transfer transactions using the RTR Clearing & Settlement (C&S) system after it goes live. Interac and

Payments Canada have agreed to phase in implementation, migrating the *Interac* e-Transfer for Business product to the RTR in the first phase and then migrating its person-to-person focussed consumer products in a second phase. While Payments Canada is developing its RTR deployment strategy in consultation with Interac, the Bank also expects Interac to provide its migration strategy for *Interac* e-Transfer products to RTR as an added level of assurance that the approaches are aligned and sound.

Enhancements to the *Interac* e-Transfer default rules and procedures

The *Interac* e-Transfer system does not fully meet the Bank's financial risk management standards for a prominent payment system, given its deferred, bilateral and uncollateralized settlement model. However, Interac has committed to meeting these standards by migrating all *Interac* e-Transfer transactions to the RTR. Since the RTR is not expected to launch until 2023, as the first phase of implementation, the Bank judged that it was important to address some financial risk control gaps in the interim and asked Interac to enhance its *Interac* e-Transfer participant default procedures and rules. Interac is expected to make its default management processes clearer to its Participants through enhancements in 2022.

Selected milestones on Bank of Canada activities

In addition to its work on the risk management practices of designated FMIs, the Bank is involved in several other activities related to its mandates for FMI oversight, resolution and crisis preparedness. This section describes two initiatives:

- finalizing the framework for cooperation on FMI resolution
- strengthening cyber resiliency

Finalizing the framework for cooperation on FMI resolution

To plan for and successfully resolve a Canadian designated FMI, the Bank must work cooperatively with federal and provincial authorities. At the federal level, cooperation and consultation on resolution planning and execution is done through the FMI Resolution Committee.⁵

⁵ The FMI Resolution Committee, established under section 11.04 of the PCSA, is chaired by the Governor of the Bank of Canada and includes senior officials from the Department of Finance Canada, the Office of the Superintendent of Financial Institutions and the Canada Deposit Insurance Corporation.

In 2021, the Bank established a similar framework at the provincial level when it finalized a memorandum of understanding with the Ontario Securities Commission, the Autorité des marchés financiers and the British Columbia Securities Commission.⁶

Expectations for FMI cyber resiliency

The cyber threat landscape continually grows in sophistication and complexity, and technology always evolves. FMIs must therefore keep strengthening and evolving their cyber resilience practices.

The Bank expects designated FMIs to fully meet the expectations established in guidance from [CPMI-IOSCO](#). In 2021, the Bank published its [Expectations for Cyber Resilience of Financial Market Infrastructures](#) (ECR), which complements the CPMI-IOSCO guidance and provides greater clarity on the Bank's expectations for designated Canadian FMIs. In 2022, designated Canadian FMIs will evaluate their cyber security posture against the ECR, which will:

- provide the Bank with an updated baseline
- be used as an input for the Bank's core assurance reviews on cyber risk

In 2021, the Bank also published the [Guideline for Cyber and Information Technology Incident Reporting](#). This document establishes the Bank's reporting expectations for FMI operators over the life cycle of a cyber or information technology incident.

⁶ See [notice of memorandum of understanding between the Autorité des marchés financiers, the British Columbia Securities Commission, the Ontario Securities Commission and the Bank of Canada](#) for more information.

Appendix 1 | Annual summary figures of designated FMIs

Domestic systemically important financial market infrastructures

Lynx (payment system | successor to LVTS, August 2021)

Lynx is an electronic funds-transfer system operated by Payments Canada that settles large-value and time-critical Canadian-dollar payments.

Measure	2018	2019	2020	2021*
Daily average value settled	\$181 billion	\$189 billion	\$398 billion	\$505 billion
Daily average volume settled	38,000	40,000	41,000	46,000
Daily average collateral pledged	\$38 billion	\$40 billion	\$43 billion	\$44 billion
Number of direct participants	17	16	16	17 [†]

* Lynx (designated as a systemically important FMI in 2021) replaced LVTS as Canada's high-value system effective August 30, 2021. Measures for 2021 were calculated using weighted averages based on the number of days that each system was in operation.

[†] Until August 2021, the LVTS had 16 participants. By the end of 2021, Lynx had 17 participants.

CDSX (securities settlement system, central securities depository, central counterparty | designated systemic FMI 2003)

CDSX is a Canadian system operated by CDS Clearing and Depository Services Inc (CDS). It consists of a securities settlement system, a central securities depository and a central counterparty service for Canadian exchange-traded and over-the-counter (OTC) equities.

Measure	2018	2019	2020	2021
Daily average value of equity and fixed-income securities cleared and settled	\$578 billion	\$692 billion	\$782 billion	\$756 billion
Daily average volume of equity and fixed-income securities cleared and settled	2.1 million	1.9 million	2.5 million	2.5 million
Average value of securities held at the central securities depository	\$5.2 trillion	\$5.8 trillion	\$6.8 trillion	\$7.4 trillion
Number of direct participants	94	98	98	100

CDCS (central counterparty | designated systemic FMI 2012)

The Canadian Derivatives Clearing Service (CDCS) is a Canadian central counterparty operated by the Canadian Derivatives Clearing Corporation (CDCC) that clears transactions in certain fixed-income securities, OTC repurchase agreements (repos), OTC equity derivatives and all derivatives traded on the Montréal Exchange.

Measure	2018	2019	2020	2021
Daily average value of OTC repos cleared	\$18 billion	\$25 billion	\$22 billion	\$24 billion
Daily average notional value cleared (exchange-traded derivatives)	\$139 billion	\$144 billion	\$117 billion	\$141 billion
Daily average notional value cleared (OTC derivatives)	\$10.6 million	\$8.6 million	\$4.7 million	\$9.7 million
Number of direct participants	38	38	37	36

Prominent payment systems

ACSS (payment system | designated prominent payment system 2016)

The Automated Clearing Settlement System (ACSS) is a retail payment system operated by Payments Canada that clears paper items such as cheques and electronic items, pre-authorized debits, direct deposits and Interac debit payments.

Measure	2018	2019	2020	2021
Daily average value processed	\$28 billion	\$29 billion	\$31 billion	\$34 billion
Daily average volume processed	32 million	33 million	32 million	34 million
Number of direct participants	12	12	12	12

Interac e-Transfer[®] (payment system | designated prominent payment system 2020)

Operated by Interac Corp., Interac e-Transfer[®] is a Canadian electronic funds transfer system for personal and business bank accounts. It is available 24 hours a day, 7 days a week.

Measure	2020	2021
Daily average value processed	\$673 million	\$896 million
Daily average volume processed	2.09 million	2.66 million
Number of participants	28*	29 [†]

* 2020 figure was revised.

[†] Interac e-Transfer has 29 participants, of which 18 connect directly to the network and 11 connect indirectly.

Foreign-domiciled systemically important financial market infrastructures

CLS Bank (payment system | designated systemic FMI 2002)

CLS is a special-purpose bank that offers the settlement of foreign exchange transactions, including those involving the Canadian dollar.

Measure	2018	2019	2020	2021
Daily average foreign exchange settlement (total)	US\$5,830 billion	US\$5,877 billion	US\$5,852 billion	US\$6,209 billion
Daily average Canadian-dollar foreign exchange settlement*	Can\$216 billion	Can\$217 billion	Can\$212 billion	Can\$233 billion
Settlement members	73	70	71	71

LCH SwapClear (central counterparty | designated systemic FMI 2013)

SwapClear is an LCH clearing platform for interest rate swaps and other OTC interest rate derivatives denominated in multiple currencies, including the Canadian dollar.

Measure	2018	2019*	2020†	2021
Notional outstanding OTC interest rate swaps, in all currencies, as at December 31	US\$309 trillion	US\$316 trillion	US\$333 trillion	US\$352 trillion
Notional outstanding OTC interest rate swaps, denominated in Canadian dollars, as at December 31	Can\$18.4 trillion	Can\$17.5 trillion	Can\$17.8 trillion	Can\$19.3 trillion
Number of direct participants‡	103	118	121	123

* Five new currencies were added for clearing in 2019: the Columbian peso, the Brazilian real, the Chilean peso, the Thai baht and the Taiwanese dollar.

† In 2020, the Israeli new shekel was added for clearing.

‡ SwapClear Global and SwapClear Global FCM

Appendix 2 | Glossary

central counterparty (CCP)	An entity that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer, thereby ensuring the performance of open contracts.
central securities depository	An entity that provides securities accounts, central safekeeping services and asset services, which may include the administration of corporate actions and redemptions. A central securities depository plays an important role in helping to ensure the integrity of securities issues (that is, it ensures that securities are not accidentally or fraudulently created, destroyed or modified).
clearing	The process of transmitting, reconciling and, in some cases, confirming transactions before settlement, potentially including the netting of transactions and the establishment of final positions for settlement. On occasion, this term is also used (imprecisely) to cover settlement. In the context of futures and options, clearing also refers to the daily balancing of profits and losses and the daily calculation of collateral requirements.
clearing fund	A collection of assets prefunded by a CCP's participants that may be used to cover the financial losses or liquidity pressures during a participant default. Clearing funds are typically sized to cover extreme but plausible circumstances.
collateral	An asset or third-party commitment that is used by a collateral provider to secure an obligation for a collateral taker.
credit risk	The risk that a counterparty, whether a participant or other entity, will be unable to fully meet its financial obligations when due or at any time in the future.
default	Generally, an event related to the failure to complete a transfer of funds or securities in accordance with the terms and rules of the system in question.
default-management auction	A default-management auction is one of the tools a CCP may use to transfer a defaulted participant's positions, or a subset thereof, to a non-defaulting participant, thereby removing the position and risks from the CCP and restoring it to a matched book.
designated system / designated financial market infrastructure	A financial market infrastructure designated under the <i>Payment Clearing and Settlement Act</i> for oversight by the Bank of Canada.

financial market infrastructure (FMI)	A multilateral system among participating institutions, including the operator of the system, used to clear, settle or record payments, securities, derivatives or other financial transactions.
liquidity risk	The risk that a counterparty, whether a participant or other entity, will have insufficient funds to meet its financial obligations as and when expected, although it may be able to do so in the future.
payment system	A set of instruments, procedures and rules for the transfer of funds between or among participants. The system includes the participants and the entity operating the arrangement.
payments system risk	The risk that a disruption to or a failure of an FMI could cause a significant adverse effect on economic activity in Canada either by impairing the ability of individuals, businesses or governments to make payments or by producing a general loss of confidence in the Canadian payments system.
payment-versus-payment (PvP)	A settlement mechanism that ensures that the final transfer of a payment in one currency occurs if and only if the final transfer of a payment in another currency or currencies takes place.
recovery	<p>The ability of a financial institution, including an FMI, to resume operations after a threat to its viability and financial strength so that it can continue to provide its critical services without authorities having to use resolution powers.</p> <p>More specifically, in the context of an FMI, recovery is defined as the actions of the FMI that are consistent with its rules, procedures and other ex ante contractual arrangements to address any uncovered loss, liquidity shortfall or capital inadequacy, whether arising from participant default or other causes (such as business, operational or other structural weaknesses), including actions to replenish any depleted pre-funded financial resources and liquidity arrangements, as necessary, to maintain the FMI's viability as a going concern and the continued provision of critical services.</p>
resolution	The set of actions that a resolution authority can take when recovery efforts of a financial institution or FMI have been unsuccessful, when authorities deem recovery measures to be insufficient to return the entity to viability, or when authorities deem that allowing the entity's continued implementation of recovery measures threatens financial stability.
securities settlement system	An entity that enables securities to be transferred and settled by book entry according to a set of predetermined multilateral rules. Such systems allow the transfer of securities either free of payment or against payment.
systemic risk	The risk that the inability of a participant to meet its obligations in an FMI as they become due or that a disruption to or a failure of an FMI could, by transmitting financial problems through the FMI, cause:

- other participants in the FMI to be unable to meet their obligations as they become due
- financial institutions in other parts of the Canadian financial system to be unable to meet their obligations as they become due
- the FMI's clearing house or the clearing house of another FMI within the Canadian financial system to be unable to meet its obligations as they become due
- an adverse effect on the stability or integrity of the Canadian financial system

Appendix 3 | Abbreviations

ACSS	Automated Clearing Settlement System
CCP	central counterparty
CDCC	Canadian Derivatives Clearing Corporation
CDCS	Canadian Derivatives Clearing Service
CDS	CDS Clearing and Depository Services Inc
CNS	Continuous Net Settlement
CPMI	Committee on Payments and Market Infrastructures
CSA	Canadian Securities Administrators
FMI	financial market infrastructure
FRFIs	federally regulated financial institutions
FSB	Financial Stability Board
IOSCO	International Organization of Securities Commissions
LVTS	Large Value Transfer System
ORAC	Oversight Risk Advisory Committee
OSFI	Office of the Superintendent of Financial Institutions
OTC	over the counter
PCSA	<i>Payment Clearing and Settlement Act</i>
PFMI	Principles for Financial Market Infrastructures
PPS	prominent payment system
PvP	payment-versus-payment
RTGS	real-time gross settlement
RTR	Real-Time Rail