



## Criteria and Risk-Management Standards for Prominent Payment Systems

### Designation Criteria for Prominent Payment Systems

The Bank of Canada has established five high-level criteria to help identify prominent payment systems (PPS):<sup>1</sup>

- (i) **Value and volume of transactions:** Value and volume are a proxy for the potential to pose credit, liquidity and operational risk. They reflect the magnitude and potential impact should risks materialize. The larger the value and volume of the transactions processed, the more significant the potential impact on the Canadian economy and financial system in the event of a disruption.
- (ii) **Availability of substitutes:** If a system has limited substitutes, even imperfect substitutes, it is more likely that adverse economic effects, or a generalized loss of confidence, will result in the event of a disruption to that system. The fewer substitutes there are for making payments, the larger the potential impact of a disruption because direct participants and end-users have limited alternatives to effect payments.
- (iii) **Time criticality of payments:** The more time-critical payments are, the larger the potential impact if there is a system disruption. Further, the more time-critical payments a given system clears and settles, the more likely the disruption will result in adverse economic effects. If end-users experience delays in the clearing and settlement of their time-critical payments, they may be more likely to lose confidence in the overall Canadian payments system.
- (iv) **Centrality:** This refers to both a system's importance in the payments system and its importance to the market it serves. In this regard, centrality is accentuated when multiple stakeholders and payment instruments depend on one platform, with no alternative providers. A central system has a greater potential to have an impact on economic activity because a greater number of payments instruments and end-users could be affected. Similarly, the scope of the impact on confidence is also broadened.
- (v) **Interdependencies:** A payment system that is dependent on other systems has a greater capacity to affect or be affected by those systems on which it is dependent in the event of a disruption. This interdependency has the potential to increase the economic effects of a disruption and broaden the impact on confidence in payment systems.

<sup>1</sup> Similarly, the Bank has published high-level criteria for identifying systemically important payment systems (SIPS). Criteria for identifying systems that could pose systemic risk are (i) the size of transactions cleared or settled by the financial market infrastructure (FMI); (ii) the degree to which the FMI plays a critical role in supporting Canadian financial markets and the Canadian economy; and (iii) the size of obligations that Canadian participants can incur through participation in the FMI. The criteria are available at [http://www.bankofcanada.ca/wp-content/uploads/2012/12/guideline\\_related\\_bofc\\_oversight\\_activities\\_pcsa.pdf](http://www.bankofcanada.ca/wp-content/uploads/2012/12/guideline_related_bofc_oversight_activities_pcsa.pdf).



### **Risk-Management Standards for Prominent Payment Systems**

This section describes the risk-management standards and key considerations<sup>2</sup> that apply to PPS. These are based on the CPMI-IOSCO *Principles for Financial Market Infrastructures* (PFMI); many of the standards and key considerations are unchanged from the PFMI; however, some have been adapted to reflect that the risks posed by PPS are different, or lower, than those posed by SIPS. As a result, the standards for PPS are less stringent in some areas than those in the PFMI.<sup>3</sup> Further, these standards are expressed at a principles level; they do not prescribe the approach that PPS operators must follow to observe them.

The Bank expects and encourages any operator of a system that is designated as a PPS to propose and discuss with the Bank approaches for observing the standards in the context of the system's design and operation.

#### **1. Legal basis**

A PPS should have a well-founded, clear, transparent and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

#### **Key considerations**

- (i)** The legal basis should provide a high degree of certainty for each material aspect of a PPS's activities in all relevant jurisdictions.
- (ii)** A PPS should have rules, procedures and contracts that are clear, understandable and consistent with relevant laws and regulations.
- (iii)** A PPS should be able to articulate the legal basis for its activities to relevant authorities, participants and, when relevant, participants' customers, in a clear and understandable way.
- (iv)** A PPS should have rules, procedures and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the PPS under such rules and procedures will not be voided, reversed or subject to stays.
- (v)** A PPS conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

<sup>2</sup> The key considerations provide additional explanation of the standards.

<sup>3</sup> For further explanation of terms used in the standards, see the explanatory notes in the PFMI.

## 2. Governance

A PPS should have governance arrangements that are clear and transparent, promote the safety and efficiency of the PPS, support confidence in and the smooth functioning of the markets it serves, and support other relevant public interest considerations as well as the objectives of relevant stakeholders.

### Key considerations

- (i) A PPS should have objectives that place a high priority on the safety and efficiency of the PPS and support confidence in and the smooth functioning of the markets it serves and other relevant public interest considerations.
- (ii) A PPS should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants and, at a more general level, the public.
- (iii) The roles and responsibilities of a PPS's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.
- (iv) The board should include suitable members with the appropriate skills and incentives to fulfill its multiple roles. This typically requires the inclusion of non-executive board member(s).
- (v) The roles and responsibilities of management should be clearly specified. A PPS's management team should have the appropriate experience, a mix of skills and the integrity necessary to discharge its responsibilities for the operation and risk management of the system.
- (vi) The board should establish a clear, documented risk-management framework that includes the risk-tolerance policy for the PPS, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources and access to the board.
- (vii) The board should ensure that the PPS's design, rules, overall strategy and major decisions appropriately reflect the legitimate interests of its direct and indirect participants and other relevant stakeholders.<sup>4</sup> Major decisions should be clearly disclosed to relevant stakeholders and,

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<sup>4</sup> Relevant stakeholders include direct and indirect participants, payment service providers, end-users and other FMIs that rely on the PPS.

when there is a broad market impact, the public.

### 3. Framework for the comprehensive management of risk

A PPS should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational and other risks.

#### Key considerations

- (i) A PPS should have risk-management policies, procedures and systems that enable it to identify, measure, monitor and manage the range of risks that arise in or are borne by the PPS. Risk-management frameworks should be subject to periodic review.
- (ii) A PPS should provide incentives to participants and, when relevant, to its customers to manage and contain the risks they pose to the PPS.
- (iii) A PPS should regularly review the material risks it bears from and poses to other entities as a result of interdependencies and develop appropriate risk-management tools to address these risks.

### 4. Credit risk

A PPS should effectively measure, monitor and manage its credit exposures to participants and those arising from its payment clearing and settlement processes. A PPS should maintain sufficient financial resources to cover its credit exposure arising from the default of the participant and its affiliates that would generate the largest aggregate credit exposure for the PPS in extreme but plausible market conditions.

#### Key considerations

- (i) A PPS should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment clearing and settlement processes.
- (ii) A PPS should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.
- (iii) A PPS should fully cover the single largest credit exposure with a high degree of confidence using collateral and/or other equivalent financial resources.
- (iv) A PPS should establish explicit rules and procedures that fully address any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the PPS. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds a PPS may borrow from liquidity providers. These rules and procedures should also indicate the process adopted by the PPS to replenish any financial resources that it may employ during a stress event



so that the PPS can continue to operate in a safe and sound manner.

## 5. Collateral

A PPS that requires collateral to manage its credit exposure or the credit exposures of its participants should accept collateral with low credit, liquidity and market risks. A PPS should also set and enforce appropriately conservative haircuts and concentration limits.

### Key considerations

- (i) A PPS should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity and market risks.
- (ii) A PPS should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.
- (iii) A PPS should avoid concentrated holdings of certain assets when this would significantly impair the ability of the PPS to liquidate such assets quickly without significant adverse price effects.
- (iv) A PPS that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.
- (v) A PPS should use a collateral-management system that is well designed and operationally flexible.

## 6. Liquidity risk

A PPS should effectively measure, monitor and manage its liquidity risk. A PPS should maintain sufficient liquid resources in all relevant currencies to effect same-day and, when appropriate, intraday and multi-day settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the PPS in extreme but plausible market conditions.

### Key considerations

- (i) A PPS should have a robust framework to manage its liquidity risks from its participants, settlement banks, custodian banks, liquidity providers and other entities.
- (ii) A PPS should have effective operational and analytical tools to identify, measure and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.
- (iii) A PPS, including one using a deferred net settlement mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement and, when appropriate,

intraday or multi-day settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

- (iv)** For the purpose of meeting its minimum liquid resource requirement, a PPS's qualifying liquid resources in each currency should include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash using prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions.
- (v)** A PPS may supplement its qualifying liquid resources with other forms of liquid resources. If the PPS does this, these liquid resources should be in the form of assets that are likely to be marketable or acceptable as collateral for lines of credit, swaps or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. A PPS should take account of what collateral is typically accepted by the relevant central bank because such assets may be more likely to be liquid in stressed circumstances. A PPS should not assume the availability of emergency central bank credit as a part of its liquidity plan.
- (vi)** A PPS should regularly test its procedures for accessing its liquid resources at a liquidity provider.
- (vii)** A PPS with access to central bank accounts, payment services or securities services should use these services, when practical, to enhance its management of liquidity risk.
- (viii)** A PPS should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. A PPS should have clear procedures to report the results of its stress tests to its appropriate decision-makers (including management, the board of directors, regulators and participants) and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. When conducting stress testing, a PPS should consider a wide range of relevant scenarios. Scenarios should also take into account the design and operation of the PPS and include all entities that might pose material liquidity risks to the PPS. In all cases, a PPS should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of the total liquid resources it maintains.
- (ix)** A PPS should establish explicit rules and procedures that enable it to effect same-day and, when appropriate, intraday settlement of payment obligations on time, following the default of one of its participants. These rules and procedures should address unforeseen and potentially



uncovered liquidity shortfalls and should aim to avoid unwinding, revoking or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the PPS's process to replenish any liquid resources it may employ during a stress event so that it can continue to operate in a safe and sound manner.

## **7. Settlement finality**

A PPS should provide clear and certain final settlement by the end of the value date. When necessary, or preferable, a PPS should provide final settlement intraday or in real time.

### **Key considerations**

- (i) A PPS's rules and procedures should clearly define the point at which settlement is final. The rules and procedures should clearly define the conditions under which recourse is permitted and any associated timeline.
- (ii) To reduce settlement risk, a PPS should complete final settlement no later than the end of the value date<sup>5</sup> and could consider completing settlement intraday or in real time when warranted by technical requirements or the needs of the end-user.<sup>6</sup> In exceptional cases, when it is technically infeasible to settle certain items or instruments by the end of value date, credit and liquidity risk exposures should be covered using collateral and/or other equivalent financial resources, in accordance with the credit- and liquidity-risk-management standards, until settlement can occur.
- (iii) A PPS should clearly define the point after which unsettled payments, transfer instructions or other obligations may not be revoked by a participant.

## **8. Money settlements**

A PPS should conduct its money settlements in central bank money when practical and available. If central bank money is not used, a PPS should minimize and strictly control the credit and liquidity risk arising from the use of commercial bank money.

### **Key considerations**

- (i) A PPS should conduct its money settlements in central bank money, when practical and available, to avoid credit and liquidity risks.

<sup>5</sup> The value date is the day on which the payment, transfer instruction or other obligation is due and the associated funds are credited to the payee. The value date should be agreed upon by the end-user and the direct participant in the PPS.

<sup>6</sup> A PPS should consider intraday or real-time settlement when faster settlement is warranted either by business needs (those of participants or end-users) or by a desire for stronger risk management.

- (ii) If central bank money is not used, a PPS should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.
- (iii) If a PPS settles in commercial bank money, it should monitor, manage and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, a PPS should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalization, access to liquidity and operational reliability. A PPS should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.
- (iv) If a PPS conducts money settlements on its own books, it should minimize and strictly control its credit and liquidity risks.
- (v) A PPS's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected and that funds received should be transferable as soon as possible, at a minimum by the end of the day and, when necessary or preferable, intraday, to enable the PPS and its participants to manage credit and liquidity risks.

## 9. Participant-default rules and procedures

A PPS should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the PPS can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

### Key considerations

- (i) A PPS should have default rules and procedures that enable it to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.
- (ii) A PPS should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.
- (iii) A PPS should publicly disclose key aspects of its default rules and procedures.
- (iv) A PPS should involve its participants and other stakeholders in the testing and review of the PPS's default procedures. Such testing and review should be conducted periodically or following material changes to the rules and procedures to ensure that they are practical and effective.

## 10. General business risk

A PPS should identify, monitor and manage its general business risk and hold **sufficient liquid net assets** to cover potential general business losses so that it can continue operations and services as a going





concern if those losses materialize.<sup>7</sup> Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

### Key considerations

- (i) A PPS should have robust management and control systems to identify, monitor and manage general business risks, including losses from poor execution of business strategy, negative cash flows or unexpected and excessively large operating expenses.
- (ii) A PPS should hold a reserve of liquid net assets so that it can continue operations and services as a going concern if it incurs general business losses.<sup>8</sup> The amount of liquid net assets a PPS holds should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.<sup>9</sup>
- (iii) Assets held to cover general business risk should be of high quality and sufficiently liquid to allow the PPS to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.
- (iv) A PPS should maintain a viable plan for raising additional equity if its equity were to fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

### 11. Custody and investment risks

A PPS should safeguard its own and its participants' assets and minimize the risk of loss on and delay in access to these assets. A PPS's investments should be in instruments with minimal credit, market and liquidity risks.

### Key considerations

- (i) A PPS should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures and internal controls that fully protect these assets.

<sup>7</sup> Net liquid assets are cash and securities that can be converted to cash quickly, minus current liabilities. A PPS would be expected to hold a minimum amount of the reserve in the form of liquid assets but could employ other options to supplement these assets, such as committed lines of credit, provided the other options are reliable, liquid and quickly accessible.

<sup>8</sup> In this context, reserve means the amount of liquid net assets a PPS sets aside to manage general business risk, as described by this standard.

<sup>9</sup> When quantifying the amount of reserves needed, a minimum number of months of operating expenses is not specified; rather, it should reflect a conservatively estimated time needed based on the recovery plans.

- (ii) A PPS should have prompt access to its assets and the assets provided by participants, when required.
- (iii) A PPS should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.
- (iv) A PPS's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants. Investments should be secured by, or be claims on, high-quality obligors, and they should allow for quick liquidation with little, if any, adverse price effect.

## 12. Operational risk

A PPS should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business-continuity management should aim for timely recovery of operations and fulfillment of the PPS's obligations, including in the event of a wide-scale or major disruption.

### Key considerations

- (i) A PPS should establish a robust operational-risk-management framework with appropriate systems, policies, procedures and controls to identify, monitor and manage operational risks.
- (ii) A PPS's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the PPS's operational-risk-management framework. Systems, operational policies, procedures and controls should be reviewed, audited and tested periodically and after significant changes.
- (iii) A PPS should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.
- (iv) A PPS should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.
- (v) A PPS should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.
- (vi) A PPS should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to mitigate the impact on end users and enable the PPS to complete settlement by the end of the day of the



disruption, even in case of extreme circumstances. The PPS should regularly test these arrangements.

- (vii) A PPS should identify, monitor and manage the risks that key participants, other FMIs, payment service providers and service and utility providers might pose to its operations. In addition, a PPS should identify, monitor and manage the risks that its operations might pose to key participants, other FMIs and payment service providers.

### 13. Access

A PPS should have objective, risk-based and publicly disclosed criteria for participation that permit fair and open access.

#### Key considerations

- (i) A PPS should allow for fair and open access to its services, including by direct and, when relevant, indirect participants, payment service providers and other FMIs based on reasonable risk-related participation requirements.
- (ii) A PPS's participation requirements should be justified in terms of the safety and efficiency of the PPS and the markets it serves, be tailored to and commensurate with the PPS's specific risks and be publicly disclosed. Subject to maintaining acceptable risk-control standards, a PPS should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.
- (iii) A PPS should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

### 14. Tiered participation arrangements

A PPS should identify, monitor and manage the material risks to the PPS arising from tiered participation arrangements.

#### Key considerations

- (i) A PPS should ensure that its rules, procedures and agreements allow it to gather basic information about indirect participation in order to identify, monitor and manage any material risks to the PPS arising from such tiered participation arrangements.
- (ii) A PPS should identify material dependencies between direct and indirect participants that might affect the PPS.
- (iii) A PPS should identify indirect participants responsible for a significant proportion of transactions processed by the PPS and indirect participants whose transaction volumes or values



are large relative to the capacity of the direct participants through which they access the PPS in order to manage the risks arising from these transactions.

- (iv) A PPS should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

### **15. Efficiency and effectiveness<sup>10</sup>**

A PPS should be efficient and effective in meeting the requirements of its participants and the markets it serves, with a particular consideration for the interests of end-users.

#### **Key considerations**

- (i) A PPS should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled or recorded; and use of technology and procedures.
- (ii) A PPS should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations and business priorities.
- (iii) A PPS should have established mechanisms for the regular review of its efficiency and effectiveness.

### **16. Communication procedures and standards**

A PPS should use communication procedures and standards that meet common industry practices and use or accommodate relevant internationally accepted communication procedures and standards to facilitate efficient payment clearing, settlement and recording.

#### **Key considerations**

- (i) A PPS should use communication procedures and standards that meet common industry practices and, when necessary, use or accommodate relevant internationally accepted communication procedures and standards.<sup>11</sup>

### **17. Disclosure of rules, key procedures and market data**

A PPS should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees and other

<sup>10</sup> Consistent with the definitions in the PFMI, “efficiency” refers generally to the resources required by the PPS to perform its functions, while “effectiveness” refers to whether the PPS is meeting its intended goals and objectives.

<sup>11</sup> Communication standards should not act as an undue barrier to participation. While domestic industry standards may be sufficient for domestic instruments, the use of international standards may be necessary to efficiently link domestic systems with foreign ones to process cross-border transactions.



material costs they incur by participating in the PPS. All relevant rules and key procedures should be publicly disclosed.

- (i) A PPS should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.
- (ii) A PPS should disclose clear descriptions of the system's design and operations, as well as the PPS's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the PPS.
- (iii) A PPS should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the PPS's rules and procedures and the risks they face from participating in the PPS.
- (iv) A PPS should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The PPS should provide clear descriptions of priced services for comparability purposes.
- (v) A PPS should disclose aggregate market data, which, at a minimum, should include basic data on transaction volumes and values.

### 18. Recovery plans

A PPS is expected to identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. This entails preparing appropriate plans for its recovery or orderly wind-down based on the results of that assessment.

- (i) A PPS should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. A PPS should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. When applicable, a PPS should also provide the relevant authorities with the information needed for resolution planning.
- (ii) A PPS should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets to implement this plan. These assets are in addition to resources held to cover participant defaults or other risks covered under the credit- and liquidity-risk-management standards.



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