

The Case for Extended Payments Settlement Hours in Canada



June 7, 2016

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I. Executive Summary

The primary objective of this report is to foster support for the extension of payment settlement hours in Canada. Extended payment settlement hours will create a more favourable environment for Canadian financial service companies to compete in a changing global marketplace as well as enhance Canada's position to capture future business opportunities in Asia.

Canadian financial institutions are at risk of missing opportunities since many countries around the world have built, or are in the process of building, more flexibility to better serve their clients and to attract more international business. The US has extended its opening hours to 21:00 Eastern Time (ET) on the day before settlement (T-1) in order to overlap with the closing in Asian time zones; the UK has a natural overlap. Extending the closing time for operating hours for the settlement of payments through the core Canadian Payments Association (CPA) payment infrastructure by a minimum of three hours would close the current gap in the global 24-hour clock. Moreover, extending closing hours would help create an environment that would facilitate extension in Canadian business operating hours to overlap with those in the Asian time zones.

Given increasing globalization and resulting growth in cross-border payments, expanding time frames to overlap with Asian time zones would magnify the benefits and opportunities for all businesses in Canada that serve Asian markets. This benefit will grow over time given the developing influence of the Renminbi (RMB) and its progress towards becoming a reserve currency. Although RMB activity is currently limited in Canada, in part because the US Dollar dominates the majority of transactions (either because the trades are denominated in US Dollars or because the US Dollar has traditionally been used as the intermediary currency), the RMB's potential future growth has been supported by the designation of Canada as the RMB trading hub to serve North America.

In addition, extending operating hours will allow businesses in the Pacific and Mountain Time zones to complete transactions that are currently constrained by ET standards. Having extended operating hours would reduce the number of transactions where the early cut off times do not allow completion on the targeted closing date, delaying settlement for up to four days (if, for example, cut off times are missed on a Friday before a holiday weekend). More generally, the extended hours would reduce the uncertainty for firms operating in the Pacific and Mountain time zones and mitigate the competitive disadvantage relative to businesses operating in other time zones in Canada.

Although there have been discussions in the past to extend the operating hours of CPA core payment infrastructure, they have failed as the existing infrastructure in Canada has not been able to easily accommodate significant changes, in part due to technology constraints. However, the CPA is in the midst of a major initiative to modernize Canada's core payments systems and is currently engaged in a multi-year collaborative project to re-examine and redesign the CPA's payment system infrastructure. This modernization effort creates an opportunity to ensure that the new systems are capable of extended hours so that businesses operating in the Pacific and Mountain time zones will be better served, and all Canadian businesses will be able to fully capitalize on the potential of growing trade with Asia.

However, the two core (national) systems operated by the CPA, the Large-Value Transfer System (LVTS) and the Automated Clearing Settlement System (ACSS), are only one part of the payment infrastructure in Canada, so there are more changes required from stakeholders beyond an extension in operating hours. Canadian Dollar payments can take multiple paths to the CPA's core systems. Consumers, businesses, and governments initiate payments using a broad range of instruments (e.g. cheques, cash, debit cards, credit cards, electronic transfers), and the movement of funds is facilitated through a range of payment networks or other arrangements. Financial

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institutions are a critical link in settling payments, regardless of the instrument or network used to initiate and transmit messages concerning the payment, and they are often the providers of instruments and at the centre of networks. Hence, CPA members, especially those that participate directly in the LVTS and ACSS, play a significant role in the time it takes for a payment to make its way through the infrastructure to final settlement. Effectively then, any changes to operating hours in the core payment systems would need to be accompanied by changes to other processes, networks, and business arrangements.

Changes in payment system hours would also need to extend to the Canadian Depository for Securities system (CDSX, the core system for clearing and settlement of securities), because, under the risk management framework for the LVTS, most of the collateral that guarantees final settlement resides in CDSX. CDSX therefore must remain open throughout LVTS hours for pledging activity. The extension would also apply to the Bank of Canada, on whose books final settlement of the LVTS occurs.

Finally, the US Dollar plays an important role in the Canadian economy, and many transactions, in particular those linked to foreign trade and market transactions, are conducted in US Dollars. Although the CPA provides systems for the clearing and exchange of US Dollars in Canada, the cut-off times for these payments are established based on US-determined timing, since the final settlement of US Dollar transactions occurs in the US through Fedwire, CHIPS, or correspondent banking relationships. Fedwire currently closes at the same time as LVTS.

The paper is structured as follows: Section II summarizes the current Canadian payments system landscape, including oversight, the Canadian Payments Association, and infrastructure. Section III describes the global environment and is followed by a series of case studies explaining the case for extended hours. A conclusion is followed by four appendices outlining LVTS and ACSS participants, LVTS non-participant members, Continuous Linked Settlement system (CLS) currencies, and a list of acronyms used in this paper.

II. Current Canadian Payments System Landscape

The payments system refers to arrangements that allow consumers, businesses, and other organizations to transfer value from one party to another. It includes the institutions, instruments, and services that facilitate the transfer of value between parties in a transaction.

The following sections highlight the key elements of the payments system landscape, beginning with key oversight responsibilities, the management of the national payments systems (the ACSS and the LVTS), and the interface with financial institutions through to end-users.

A. Oversight

1. MINISTER OF FINANCE

The Minister of Finance has the responsibility for the development of payments policy objectives and an oversight role for the Canadian Payments Association. The Bank of Canada has oversight responsibilities for clearing and settlement systems that have been designated as having the potential to pose systemic risk or pose payments system risk and as such, establishes risk standards based on the Principles for Financial Market Infrastructures (PFMIs).¹

The Minister of Finance is responsible for the development of payments policy and providing oversight to the CPA, which operates national clearing and settlement systems for payments, as well as the retail payments system more generally. In 2010, the Minister established a Task Force for the Payments System Review, launching a process that culminated in a number of legislative changes to the *Canadian Payments Act* and the *Payments Clearing and Settlement Act (PCSA)* in December 2014. These amendments reflected the CPA's status as a public purpose corporation and were to ensure alignment with governance best practices. They reinforced the accountability of the CPA to the Minister and expanded the Minister's power to issue a directive in any situation if it is in the public interest to do so.

2. BANK OF CANADA

The Bank of Canada also has regulatory responsibilities under the PCSA. These include, specifically, overseeing payments systems designated as having the potential to pose systemic risk and, under the 2014 amendments, designating and overseeing systems that have the potential to pose "payments system risk" (prominent payments systems). A designated system is subject to risk standards established by the Bank of Canada and closely aligned with the PFMIs.²

The two core national payment systems have been designated and as such are overseen by the Bank of Canada: the LVTS is a systemically important system and the ACSS is a prominent payment system.

¹ The Principles for Financial Market Infrastructures (established in April 2012 and updated 11 December 2015, by the Bank for International Settlements (BIS) Committee on Payments and Market Infrastructure and the Technical Committee of the International Organization of Securities Commissions (IOSCO)) are part of 112 key standards that the international community considers essential to strengthening and preserving financial stability.

² Notice - 1 February 2016, 11:00 (ET) *Completion of Public Consultations: Bank of Canada's Criteria and Risk-Management Standards for Prominent Payment Systems*; <http://www.bankofcanada.ca/2016/02/completion-public-consultations-bank-canada-criteria/>.

B. Canadian Payments Association

The Canadian Payments Association operates the two core national systems for the clearing and settlement of Canadian Dollar payments.

1. AUTHORITY

The CPA, created by an Act of Parliament in 1980, has a mandate to:

- Establish and operate national systems for the clearing and settlement of payments and other arrangements for the making or exchange of payments;
- Facilitate interaction with other payments-related systems or arrangements; and
- Facilitate the development of new payments methods and technologies.

In fulfilling its mandate, the CPA has a public policy objective to “promote the efficiency, safety, and soundness of its clearing and settlement systems and take into account the interests of users.”

The CPA, through its Board of Directors, sets bylaws, rules, and standards that govern members’ participation in the ACSS and LVTS and outlines corresponding procedures.³

The CPA does not determine which services the member provides, or the pricing of those services.⁴

2. STRATEGIC DIRECTION

The CPA has embarked on a modernization initiative to create a world leading payments system for Canada.

The Canadian Payments Association is in the midst of a significant modernization initiative for the core national payments clearing and settlement framework and infrastructure “to ensure they continue to meet the demands of users and deliver innovation.”⁵

One of the first steps in this initiative was the development of an analytic framework. The purpose of this framework is to provide a tool to balance the public policy objectives of safety and soundness, efficiency, and

³ See Appendix 1 for a list of members.

⁴ List of LVTS and ACSS participants provided in Appendix 1.

⁵ *Modernizing Canada’s payments system, Canadian Payments Association launches Initiatives to Support Modernization of Canada’s Payments System*; https://www.cdnpay.ca/imis15/eng/Our_Strategy/Modernization/eng/strategy/modernization.aspx?hkey=33f38308-600b-4e98-93cd-b46c7d38ef43.

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end-user interests given the defining attributes of a payments system (access, functionality, interoperability, timeliness of payments, and risk management).⁶

In its 2015-2020 strategic plan, the CPA acknowledged the initiatives underway, working with industry and stakeholders to develop a shared vision and identify the payments capabilities to support this vision. The intention is to pinpoint user needs and priorities, catalog future requirements, and develop an understanding of the implications of the planned changes.

The CPA has held a series of workshops and interviews to identify end-user needs. Feedback highlighted the following end-user needs: near real-time good funds and payments status notification; provision of detailed payments information; privacy and security of personal, business, and payments data; national and international interoperability; and innovative products and services. “A modern payments system that is fast, flexible and secure, promotes innovation and strengthens Canada’s competitive position” is the vision for the Canadian Payments Ecosystem.⁷

The next steps identified were a renewal of the CPA’s clearing and settlement infrastructure to:

- Enable the “go-forward view”;
- Support evolving regulatory requirements and promote the achievement of public policy objectives; and
- Establish ISO 20022 as the foundation for Canada’s payments ecosystem.

The CPA has adopted the ISO 20022 standards and plans a phased implementation, beginning with automated funds transfer (AFT), followed by electronic data interchange (EDI), and LVTS. ⁸ ISO 20022 provides for standardized messaging across sectors, additional remittance data to accompany a payments message, and greater domestic and global interoperability.⁹

⁶ Canadian Payments Association Discussion Paper No. 2—September 2015. *Public Policy Objectives and the Next Generation of CPA systems: An Analytic Framework*.

⁷ Developing a vision for the Canadian payments ecosystem, Draft for consultation, 20 April 2016.

⁸ *CPA Leads Transition to Electronic Payments with Launch of Global Messaging Standard in Canada*. Press release cdnpay.ca/imis15/eng/Publications/News/eng/res/ns/ISO20022_Launch.aspx

⁹ *Adoption of ISO 20022 for Payments and Extended Remittance Information in Canada*, January 2016; cdnpay.ca/imis15/pdf/SWIFT_ISO20022_CPA_Remittance_Whitepaper.pdf.

C. Canadian Payments System Infrastructure

Virtually all payments in Canadian dollars are ultimately settled through one of the two national payments systems targeted for modernization: LVTS and ACSS.

1. NATIONAL PAYMENTS SYSTEMS

Virtually all payments in Canadian Dollars are ultimately settled through one of the two national payments systems: the ACSS (introduced in 1984) and the LVTS (1999). While these systems have been upgraded periodically, they are both targeted in the modernization plan, in part to take advantage of the possibilities emanating from changes in technology and to more fully adapt to meet end-user needs.¹⁰

a) ACSS

The ACSS is the system through which the majority of payments items are cleared (i.e. the exchange and reconciliation of payments items resulting in the transfer of funds from one financial institution to another). Items and transactions cleared through the ACSS include cheques and paper items, AFT, debits (e.g. pre-authorized debits), AFT credits (e.g. direct deposit), ABM transactions, Point of Sale (POS) debits and credits, EDI, and electronic remittances (bill payment).

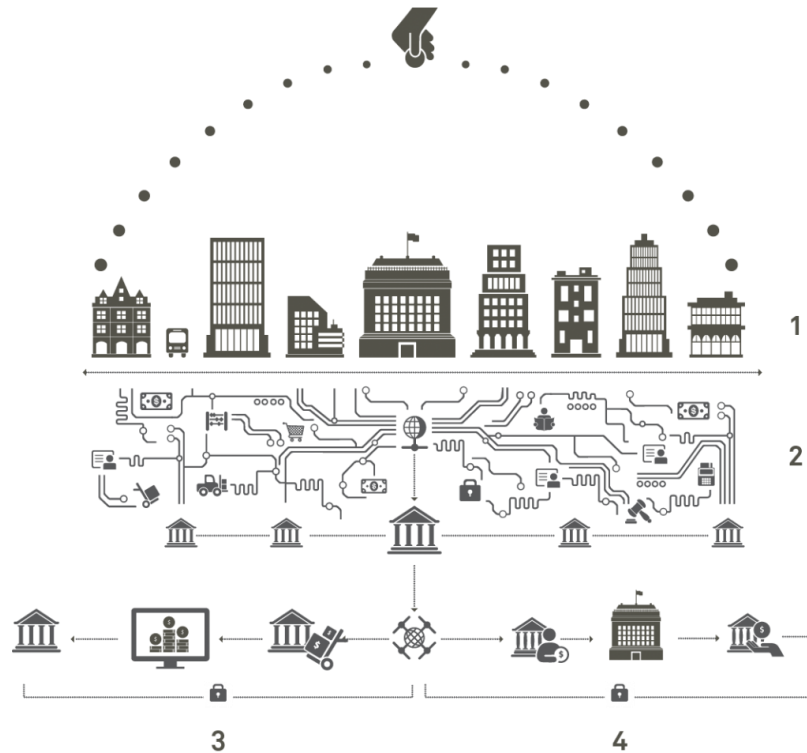
EDI payments must be transacted by 17:00 ET on the payment date. The ACSS settles through the LVTS; settlement is effected through transfers of net “due to” or “due from” direct ACSS participants on the next business day (T +1) by noon.

Financial institutions that are direct participants in the ACSS handle the clearing on behalf of their customer accounts, and on behalf of their indirect clearers’ accounts (i.e. other CPA members who do not participate directly).¹¹

¹⁰ Canadian Payments Association Launches Initiatives to Support Modernization of Canada’s Payments System, 10 August 2015 CPA press release.

¹¹ Eligibility for Direct Clearer status is governed by CPA Rule D4. One of the criteria is that the applicant has a payment items volume of no less than 0.5% of the total national volume of Payment Items during the last completed fiscal year.

Figure 1 – Canadian ACSS Payments System Infrastructure¹²



- 1 – Payment initiation: Millions of times each day, Canadians make or receive payments through their bank accounts that result in one financial institution owing money to another (unless both the payee and payer are clients transacting through accounts at the same financial institution).
- 2 – Exchange: Following CPA rules and standards, and using the CPA Services Network, financial institutions exchange electronic payments messages and paper payments items (such as cheques) to make these payments happen.
- 3 – Clearing (ACSS): High volume, lower-value payments between financial institutions are tracked and reconciled, and amounts owing to or by each financial institution as a result of daily customer activity (clearing balances) are calculated.
- 4 – Settlement through LVTS: Based on clearing balances, wire transfer payments are made between financial institutions and the Bank of Canada to settle the ACSS clearing balances with guaranteed finality.

While the majority of transactions go through the ACSS, the value of these transactions is proportionately small. In 2015, ACSS volume was roughly 7 billion for a value of \$6.5 trillion (11% of total payment value).¹³

Since the ACSS has been designated as a clearing and settlement system that has the potential to pose payments system risk, it is subject to the Bank of Canada’s *Risk Management Standards for Prominent Payment Systems*, including same-day settlement.¹⁴ This implies changes to the interface between ACSS and the LVTS,

¹² Source: CPA 2014 Annual Report (modified)

¹³ Flow of Payment Items Through the Automated Clearing Settlement System; https://www.cdnpay.ca/imis15/eng/Publications/Statistics/eng/res/acss_annual_archives2012-2014.aspx.

¹⁴ Criteria and Risk-Management Standards for Prominent Payment Systems; <http://www.bankofcanada.ca/wp-content/uploads/2016/02/criteria-risk-management-standards.pdf>.

necessitating changes in timing. One option that could be considered is an extension of operating hours in the LVTS.

b) LVTS

The LVTS is an electronic funds transfer system for high-value and time-critical payments through which payments transferred are final and irrevocable. Settlement of the system occurs after the end of the payments cycle (i.e. 18:30 ET) on a multilateral net basis on the books of the Bank of Canada.

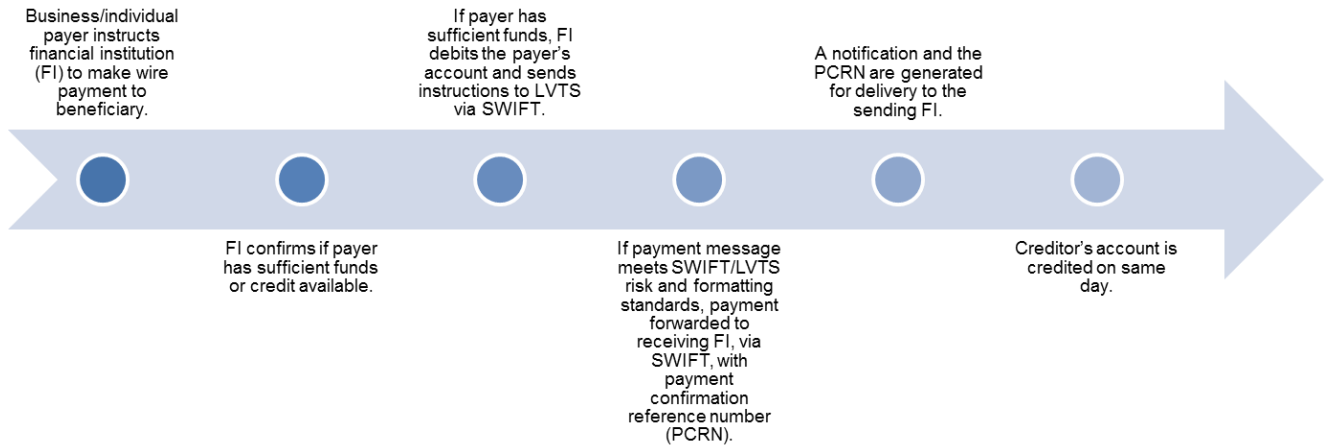
Payments are final and irrevocable because settlement of LVTS is guaranteed through a combination of sufficient collateral apportioned to the LVTS by participants to cover the largest net debit position of a single participant and a residual guarantee by the Bank of Canada. (In a Real-Time Gross Settlement System (RTGS), payments are final and irrevocable because there are sufficient funds or available credit in the sender's account.)

Payments through the LVTS by direct participants include:

- Interbank payments;
- Third party payments (on behalf of customers or other financial institutions);
- Settlement of two other "systemically important" systems designated under the PCSA:
- CDSX, the securities settlement system;
- CDCS, the central clearing counterparty for exchange-traded derivatives products;
- The Canadian Dollar leg of foreign exchange transactions through CLS, the global settlement system for foreign exchange transactions in 18 currencies;
- The Canadian Dollar leg of other foreign exchange payments (e.g. through correspondent banking relationships);
- Final settlement of ACSS; and
- The Bank of Canada's transactions on its own and on its clients', including the Government of Canada, behalf.

Payments instruments in the LVTS are electronic messages through the Society for Worldwide Interbank Financial Telecommunication (SWIFT) network using two message types for transactions on behalf of a non-financial customer or those between financial institutions. Currently, standards for providing appropriate remittance data accompanying these message types do not facilitate end-to-end processing. The eventual implementation of the ISO 20022 standard will address this shortcoming.

Figure 2 – LVTS Payments Flows¹⁵



There is a key interdependency with CDSX. Not only is final settlement of CDSX made through LVTS transfers, but also it is the system where securities pledging activity to support the operations of the LVTS occurs. Therefore, the hours of operation between the CDSX and the LVTS are closely coordinated. For example, CDSX opens at 00:30 ET to support pledging activity for the settlement of the CLS (see Figure 3 below) and is available in the early morning for pledging activity required for opening of the LVTS, remaining open beyond payment exchange to support any pledging activity associated with final settlement of the LVTS.

In contrast to the ACSS, volumes of transaction are relatively small, but the value of these larger and/or time sensitive payments is a large majority of the total payments value. 2015 volume was roughly 8 million and the value \$43 trillion (89%).¹⁶

2. OTHER RELEVANT CPA PAYMENTS SYSTEM

a) US Dollar Bulk Exchange (USBE)

The CPA's USBE is used for payments items in US Dollars, drawn on a US Dollar account at financial institutions in Canada, but settled in the US. It provides a mechanism for tracking the exchange of US Dollar payments and calculating the resulting net balance due to/due from participants on a bilateral basis. Settlement is effected through correspondent banks in New York or through a participant's US branch or subsidiary through Fedwire/CHIPS.

US Dollar AFT transactions are entered by 14:30 ET and the final close of the bulk exchange is 14:45 ET.¹⁷ Settlement is then aligned with US payments systems (CHIPS at 17:00 ET or Fedwire at 18:30 ET).

¹⁵ The example is simplified for illustrative purposes; if third-party providers and indirect participant FIs are involved, the process becomes more complex.

¹⁶ LVTS Volume and Value Summary – 2015; https://www.cdnpay.ca/imis15/eng/Publications/Statistics/eng/res/lvts_stats.aspx.

¹⁷ CPA Rules K1 (Bulk Exchange and Settlement of US Dollar items) and K4 (US Bulk Exchange Automated System).

3. HOURS OF OPERATION

Hours of operation in the national Canadian Dollar payments systems have key interdependencies in the domestic landscape and in the global context.

Depending on how Canadian Dollar transactions are processed, there are two sets of operating hours that will affect cut-off times. If transactions are conducted through LVTS, then the closing time for third-party transactions is relevant (18:00 ET). Typically, financial institutions establish earlier cut-off times for their clients to ensure that payments can be processed internally and through the LVTS before 18:00 ET. However, if payments are processed through EDI, then the cut-off time that applies to ACSS is 17:00 ET. These are ultimately settled through ACSS on a deferred net settlement basis, with settlement the next day. In any case, the cut-off time for transactions set by the CPA for both LVTS and ACSS anchors the internal cut-off times established by the CPA-member direct participant financial institution deadline.

The following chart illustrates the current hours of operation of the LVTS and the interdependencies with the Canadian Dollar-designated clearing and settlement systems for securities and foreign exchange.

Figure 3 – Canadian Payments Systems Timelines

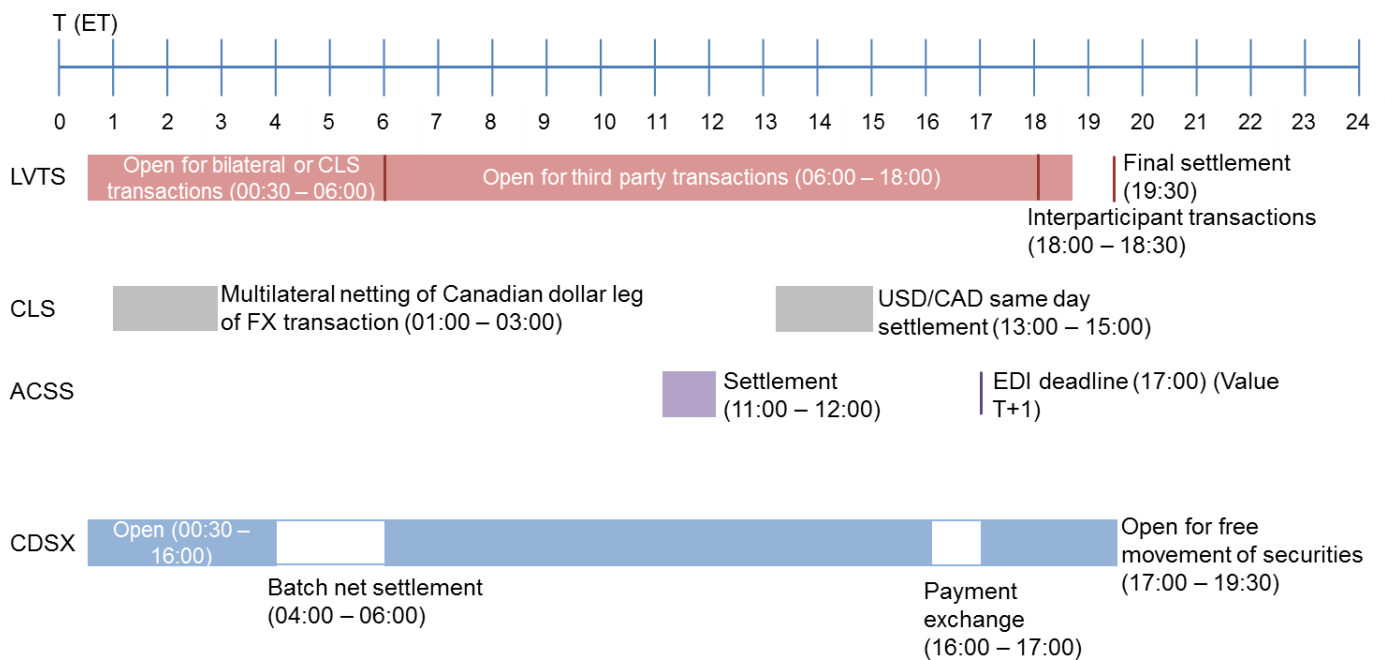
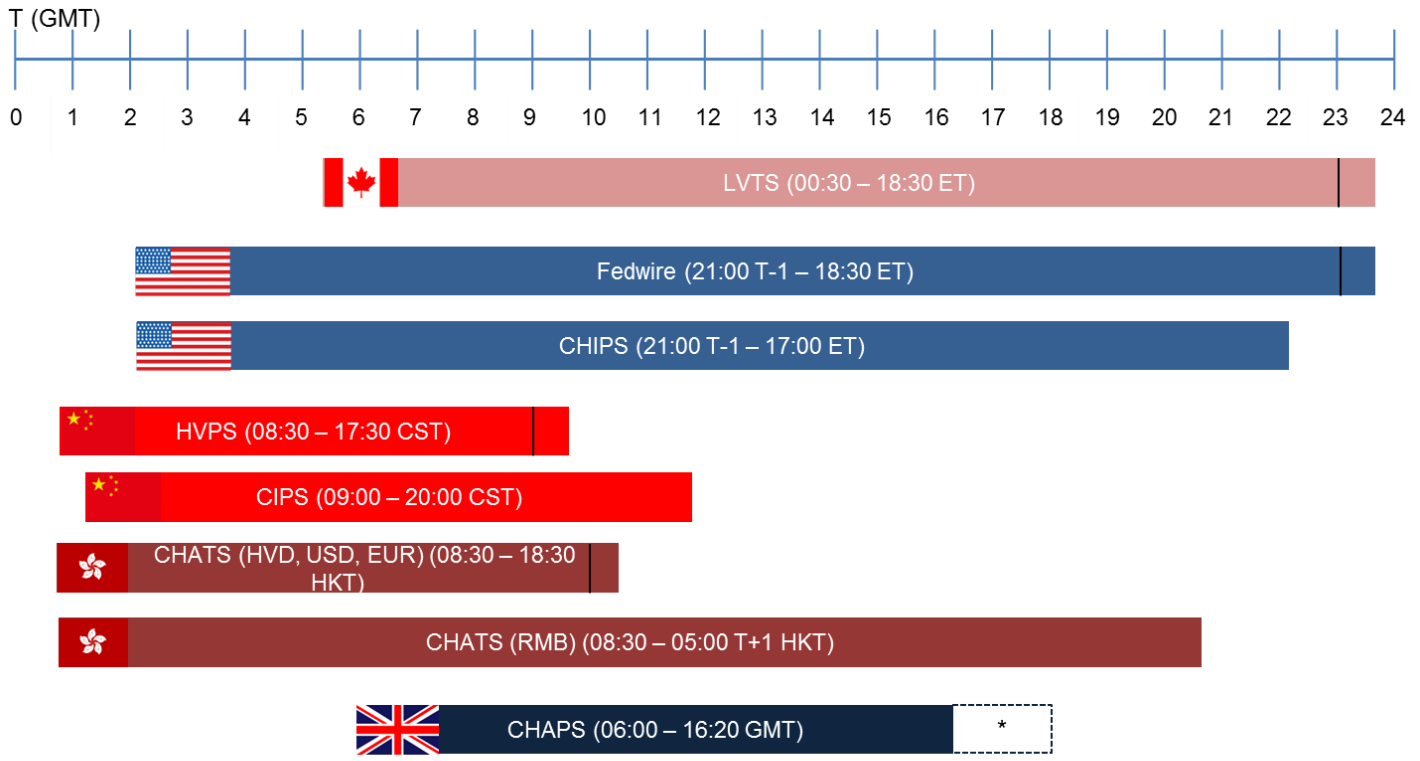


Figure 4 provides an international comparison of operating hours, for transactions between participants (interbank) and for third-party transactions (i.e. on behalf of customers).

Figure 4 – International Payments Timelines Comparison



*CHAPS will close at 18:00 starting in June 2016
 | Indicates third party transactions end 30 minutes earlier

4. FINANCIAL INSTITUTIONS

Financial institutions, and in particular CPA members that participate directly in the ACSS or LVTS, play a critical role in the payments system infrastructure.¹⁸ They provide payments accounts, instruments, and services to individuals and businesses, including domestic financial institutions that do not participate directly in LVTS and/or ACSS.¹⁹

As noted above, the deadlines established for the national payments systems anchor the deadlines established by the financial institutions for their customers. However, there is a broad range of other influences, including internal processing times, whether the customer’s financial institution is a direct participant in the payments system, and whether both accounts involved in the transaction are clients of the financial institution. If both parties to the transaction have accounts at the same financial institution, then there is an extended cut-off period (since there will be no impact on the net settlement amount due to or due from another financial institution).

¹⁸ Appendix 1, CPA participants in ACSS and LVTS.

¹⁹ Appendix 2, list of direct participants and their indirect participant accounts.

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If there is a foreign currency component, conventions from the foreign exchange market also affect the cut-off times. The following is an example of cut-off times for wire payments at a bank that offers both Canadian Dollar and US Dollar services and is a direct participant in both ACSS and LVTS.

Table 1 – Wire Payments Cut-off times established by a direct participant (illustration)

Payment Currency	Destination	Cut-off Time
CAD or USD	Domestic Internal Bank account (No currency conversion)	19:00:00 ET
CAD or USD	Domestic Internal Bank account (Currency conversion required)	18:30:00 ET
CAD	Financial Institutions in Canada	17:00:00 ET
USD	Financial Institutions in Canada	16:30:00 ET
CAD or USD	Financial Institutions in the US	16:30:00 ET
CAD or USD	Financial Institutions outside of Canada and the US	18:00:00 ET (1 business day prior)
Other Foreign Currencies	Financial Institutions in the US	16:30:00 ET (2 business days prior)
Other Foreign Currencies	Financial Institutions outside of Canada and the US	18:00:00 ET (2 business days prior)

5. BANK OF CANADA

In addition to its oversight role, the Bank of Canada is also a participant in the LVTS, transacting on its own behalf and as an agent for its clients, the largest of which is the Government of Canada. At the end of the day, the settlement of LVTS positions are on the books of the Bank of Canada and occur between the 18:30 ET end of payments exchange and 19:30 ET settlement.

III. Global Environment

The global environment drives many payments initiatives, including for example, the introduction of the Euro, risk mitigation through simultaneous cross currency foreign exchange settlement through CLS, the predominance of the US Dollar and an emerging role for the RMB.

Payments system reform is a global trend as public policy objectives of safety, soundness, efficiency, and end-user interests are revisited against a backdrop of rapid evolution, driven by technology change and globalization.²⁰ The extension of operating hours in large-value payments systems has been attributed to the globalization of financial markets. The first wave, in 1998-99, was associated with the introduction of the Euro, as a number of national systems were aligned with the Target system, the interbank payments system for the real-time processing of cross-border transfers throughout the European Union.

The second wave was associated with the launch of CLS in 2002. This multicurrency system settles payments for participants on a payment-versus-payment basis (thus eliminating foreign exchange settlement risk).²¹ In Canada and the US, this meant that the large-value payments systems were required to open for CLS settlement shortly after midnight for the Canadian Dollar and US Dollar legs respectively. There are currently 18 currencies settled in CLS (see Appendix 3), none of which is the RMB.

In 2004, the US Fedwire and CHIPS extended opening hours earlier in order to overlap with Asian financial centres, leaving closing hours unchanged.²²

A more recent change was made to CHAPS (the UK's high-value payments system). The Bank of England announced in July 2015 that the settlement day for CHAPS would be extended by 1 hour 40 minutes to 18:00 GMT in 2016 to better align the settlement day with the typical business hours of many users. This was based on an operating hours review in November 2014. In that study, it was determined that the marginal benefits of extending beyond 18:00 GMT were outweighed by the costs.

The Federal Reserve System is in the midst of a multi-faceted plan to enhance the speed, safety, and efficiency of the US payments system: *Strategies of Improving the US Payment System*. The current focus is on faster payments and payments security. As noted earlier, Fedwire and CHIPS extended their operating hours in 2004 to overlap with Asian financial centres. Opening hours were extended earlier rather than closing hours later so that the overlap occurs on the same value date (see Figure 4).

Implications associated with the development of the RMB are further addressed in section III. A. 2. below.

²⁰ 2014 Environmental Scan: Global Trends, Challenges, and Impacts on Canada, CPA July 2014.

²¹ Global Trends in Large-Value Payments, Bech, Preisig and Soramaki, FRBNY Policy Review, September 2008.

²² *Expansion of the Operating Hours for the on-Line Fedwire Funds Service, May 27, 2003*. "The impetus for the proposal to extend opening hours from 12:30 a.m. to 9 p.m. the previous calendar date was industry requests to achieve greater overlap of U.S. wholesale payment systems operating hours with those of Asia-Pacific markets, including Australia, Hong Kong, Japan, and New Zealand."

A. The Role of Foreign Currencies

1. THE US DOLLAR

Aside from Canadian Dollar clearing and settlement, the US Dollar plays an important role in the Canadian economy, particularly as they relate to exports (and therefore trade finance) and cross-border foreign exchange markets.

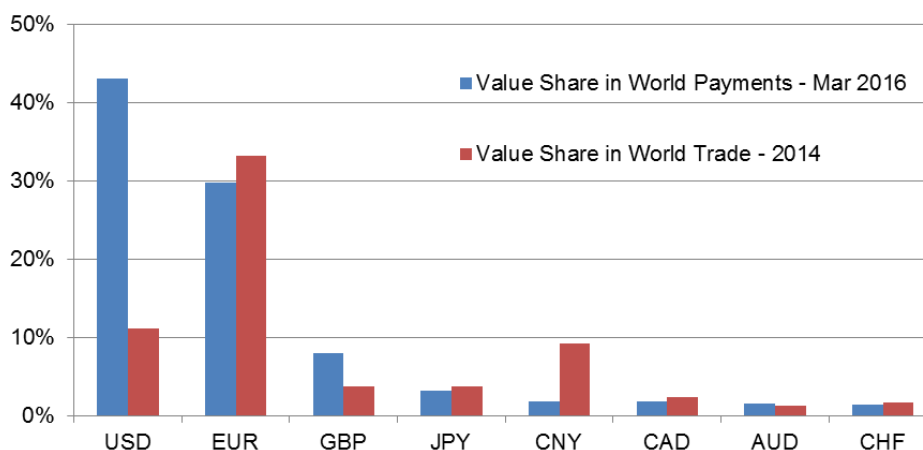
For decades, the US Dollar has been the standard currency for the pricing of many commodities, including precious metals and crude oil. Moreover, industries such as mining have a significant proportion of debt and expenses in US Dollars. As a result, many resource-based export contracts are priced in US Dollars, thus allowing the exporter to avoid currency risk.

In foreign exchange markets, the US Dollar is involved in a large proportion of trades as an intermediary currency in transactions. For example, in the case of a conversion from Canadian dollars to Japanese Yen, the transaction is generally split into two stages (Canadian Dollar/US Dollar and then US Dollar/Japanese Yen) rather than Canadian Dollar/Japanese Yen directly. The proportionately large value transacted through US Dollars relates in part to the extensive liquidity in the US Dollar, the most actively traded currency in the world.

To illustrate the preponderance of US Dollar foreign exchange transactions, a proxy measure can be derived from the semi-annual London Foreign Exchange Joint Standing Committee survey of foreign exchange transactions, where trading hours cover all relevant time zones. Using daily volume turnover in the UK foreign exchange spot markets in October 2015, paired US Dollar trades totaled US\$613,097 million (83% of total turnover), compared to Euros US\$294,617 million (40%), CNY US\$18,029 million (2.4%), and CAD US\$39,845 million (5.4%).²³

Figure 5 below further illustrates the currency share of the US Dollar in world payments, which far exceeds the US Dollar value share of world trade.

Figure 5 – Currency Share in World Payments and Country Share in World Trade²⁴



²³ Bank of England, The London Foreign Exchange Joint Standing Committee semi-annual foreign exchange survey, Oct 2015.

²⁴ Source: World Bank, SWIFT.

2. THE RENMINBI

Notwithstanding the role of the US Dollar as an intermediary currency and standard for commodity transactions in the current environment, there are developments associated with the RMB that may present opportunities in the future. The capacity to engage in extended hours would provide the necessary infrastructure to capitalize on those opportunities.

Acceptance of RMB as part of a basket of currencies for Special Drawing Rights (SDR) — a step towards acceptance as a reserve currency – and the designation of Canada as North America's trading hub for the RMB are two important developments that lead to the possibility of RMB/Canadian Dollar pairing in foreign currency transactions, thus facilitating trade opportunities.

Moreover, the progressive steps taken by Chinese authorities to gradually open up their capital markets and payments systems portend a growing role for the RMB in global transactions. For example, in 2013 British Columbia became the first foreign government to issue a RMB (dim sum) bond in a CAD \$425 million equivalent bond offering. In 2014, British Columbia raised CAD \$550 million equivalent in a follow on dim sum bond offering and in 2015 became the first foreign government to be approved to issue a CNY (panda) bond. Further, in October 2015, the People's Bank of China launched the China International Payment System (CIPS) to provide the infrastructure for cross-border RMB transactions. CIPS operates for 11 hours (9:00 – 20:00CST; i.e., Beijing Time) and allows 19 banks to clear cross-border RMB payments without using an offshore clearing centre. In March 2016, CIPS and SWIFT signed a memorandum of understanding to develop China's cross-border payments infrastructure; CIPS will use SWIFT to connect with SWIFT's global user base. CIPS also will use ISO 20022 standards.

In many countries, the value share in world payments roughly parallels the value share in world trade, illustrated above in Figure 5. The US and, to a lesser extent, the UK are exceptions, in that their value share in world payments is proportionally high. On the other hand, China's is proportionally lower, with its value share in world trade five times higher than its value share in world payments. This discrepancy has narrowing and this trend can be expected to continue over time.

IV. The Case for Extended Hours

The extension of operating hours could be an enabler of change to payments systems, creating the flexibility for financial institutions in Canada to better serve their customers, whether within Canada or cross-border, particularly in the Pacific region.

A better alignment of the payments instruction deadlines set for end-users with their preferred business hours, would facilitate end-user risk reduction and more flexibility in managing balance sheets and payments.

Businesses operating in the Pacific and Mountain time zones are currently operating at a competitive disadvantage relative to those in the Eastern time zone, as the ability to receive value on the same day is constrained by cut-off times that are established based on ET business hours. This applies to both Canadian Dollar transactions, which achieve final settlement through the CPA's systems, and for US Dollars, which will achieve final settlement in the US.

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In considering changes to the CHAPS system operating hours, the Bank of England set an objective of assessing “whether additional operating hours would enable beneficial change in payments and settlement systems that would mitigate risk or provide benefits to end-users.” In making the assessment, the Bank of England identified three drivers for change:

1. Enabling participants in certain financial market infrastructures and payments systems to meet sterling cash requirements later in the day;
2. Enabling financial market participants to undertake some funding and investment decisions later in the day; and
3. Enabling end-users to make high-value transactions later in the business day.

The last driver is the most relevant for companies operating in Western Canada, where there are transactions that would benefit from later deadlines established by banks, and extended hours in the LVTS would be a necessary condition to make those changes. Typically, these transactions involve legal or multi-step verification processes such as trade finance or large real estate transactions.

Evolving market practice has made the first two drivers less relevant for Canada. Many financial market transactions are arranged prior to the date of settlement (and high value financial market transactions generally are conducted early in the ET business day to get same-day value). In addition, with fund movement in the LVTS supported by the collateral framework, intraday requirements for funding are not as critical as they would be in a RTGS system, such as that in use in the UK, where accounts need to be prefunded before payments flow out.

While trade finance transactions often involve US Dollars and, as noted earlier, are constrained by US Fedwire cut-off times, the potential for direct Canadian Dollar/other currency (including RMB) transactions imply that Canadian Dollar cut-off times are relevant for the future in trade finance.

A. Case Studies

The following illustrative examples demonstrate how payment delays can occur in the current environment. The first involves an exporter, the second an investment dealer, and the final one a major real estate transaction.

1. TRADE FINANCE

Background:

An export Letter of Credit (LC) is commonly used in international trade whereby the exporter’s bank facilitates payment to the exporter (i.e. the risk is allocated to the issuing bank by the exporter’s bank).

The importer (e.g., a Chinese importer using a Chinese bank) provides a letter of credit. During the transaction, documents are delivered by the exporter to its Canadian bank (including, for example, bill of exchange, bill of lading, packing list, copy of shipping insurance, invoice, etc.). The Canadian bank then “negotiates” the LC and reviews the documentation, an extensive process to determine consistency with the terms of the LC. If satisfied, the Canadian bank sends the documents to the importer’s bank. The exporter then has the option to have the bill of exchange discounted by the Canadian bank, that is, receive a discounted amount rather than wait for payment by the importer’s bank upon receipt and review.

The transaction:

- Export LC drawing amount is well over USD \$10 million.
- Client presents the required documents to the bank on a Friday around midday.
- Documents are checked and found to be in order (in Vancouver).
- A request to discount the transaction is submitted at 15:51pm PT (18:51 pm ET) through Toronto to process the discount and pay the exporter.
- This is past the payment cut-off time (the bank's internal cut-off time for wire payments for USD payment to financial institutions in Canada is 16:30 ET/13:30 PT), so the discount is not processed until the following Monday, three days after the documents were couriered out.
- The goods are shipped prior to the receipt of documents under the LC, since one of the required documents is the Bill of Lading. However, the payment to the Exporter is not made in a timely manner, affecting their operations.

In another hypothetical transaction, an importer is required to make payment before taking delivery of the imported goods through a presentation of the required documents. If payment instructions are not issued prior to the cut-off time, documents are not released, resulting in the goods remaining in storage and fees being incurred.

2. INVESTMENT DEALER

One trend in the investment industry is the shift in client payment preference from cheques to wire transfers. Working back from the EDI deadline of 17:00 ET, the internal deadline for electronic payments at a West Coast investment dealer (non-CPA member) is set at 14:00 ET, or 11:00 PT, threatening to lead to bottlenecks in processing and to an inability to meet deadlines.

3. REAL ESTATE TRANSACTION

In this multi-million dollar real estate transaction, multiple steps were required before payment instructions could be issued. This included finalization of the sale/purchase agreement, credit approval for the purchaser from their bank that has centralized the credit operations in Toronto, and the ultimate issuance of payment instructions. Deadlines were not achieved for the Friday settlement and the transaction did not close until the following Monday. In this case, payment capability was constrained by Eastern business hours in two steps: credit approval and payment processing.

V. Conclusion

Countries around the world are making their payments systems more flexible in order to allow their financial institutions the opportunity to better serve their clients within an increasingly competitive global environment.

The modernization initiative of the Canadian Payments Association presents a unique opportunity to make changes to transform the existing infrastructure into one that better supports the ability of Canadians to compete in this environment, and in particular, to participate more effectively in Asian markets, where the RMB is playing an increasingly important role in global trade and currency markets.

An extension of operating hours for the Large Value Transfer System would be one element of such changes. It would facilitate the ability of financial institutions to provide more flexible arrangements for payments services, and therefore enhanced business hours, to their customers. If the LVTS were to stay open for an additional three hours to 21:30 ET (18:30 PT), this would correspond to 9:30 CST, one-half hour after the opening of the CIPS payments day for the following value date — effectively bridging the current gap in the 24-hour cycle.

As noted, an extension of LVTS hours would only be one element of the changes necessary to put Canadian businesses on a more competitive footing. Other linkages and processes within the payments system infrastructure, many of which are under the control of financial institutions, would also need to be altered. These would include upgrades in technology to maximize the benefits of recent advancements and in the standardization and interoperability benefits that ISO 20022 will offer. Changes in business processes to make the path between the initiation of a transaction and the release of payments instructions more streamlined would be another important element. For example, if a transaction requires multiple authorization (e.g. credit) or processing steps, and those steps occur in central Canada, the ability to complete transactions is therefore constrained by current Eastern business hours. Drawing from the experience of many global treasury functions, payments hubs within Canada could be created without losing the benefits of centralized functions. Specifically, hours of operations could be extended, with responsibilities transferred from personnel in central Canada to those in western Canada who, over time, could capitalize on linkages in Asia.

VI. Appendix 1

<i>LVTS Participants</i>	<i>ACSS Participants</i>
Alberta Treasury Branches	Alberta Treasury Branches
Bank of America National Association	
Bank of Canada	Bank of Canada
Bank of Montreal	Bank of Montreal
Bank of Nova Scotia	Bank of Nova Scotia
BNP Paribas	
Caisse Centrale Desjardins du Québec	Caisse Centrale Desjardins du Québec
Canadian Imperial Bank of Commerce	Canadian Imperial Bank of Commerce
Central 1 Credit Union	Central 1 Credit Union
HSBC Bank Canada	HSBC Bank Canada
ICICI Bank Canada	
Laurentian Bank of Canada	Laurentian Bank of Canada
Manulife Bank of Canada	
National Bank of Canada	National Bank of Canada
Royal Bank of Canada	Royal Bank of Canada
State Street and Trust Company	
Toronto Dominion Bank	Toronto Dominion Bank

VII. Appendix 2

LIST OF LVTS NON-PARTICIPANT MEMBERS

(Formerly LVTS Rule 6, Appendix I)

Revised: November 2, 2015

In order to facilitate the routing of LVTS payments between CPA Members, each Participant is required to provide the Association with a listing of each CPA Member which has an account(s) with the Participant and for which the Participant has agreed to act as its agent for LVTS purposes.

Bank of Montreal

- Airline Financial Credit Union Limited
- Amex Bank of Canada
- Capital One Bank (Canada Branch)
- CTC Bank Corp. (Canada)
- First Commercial Bank
- Goderich Community Credit Union Limited
- Habib Canadian Bank
- Investors Group Trust Co. Limited
- Jameson Bank
- Peoples Trust Company
- Shinhan Bank Canada
- State Bank of India (Canada)
- Sun Life Financial Trust Inc.
- United Overseas Bank Limited

The Bank of Nova Scotia

- Scotia Mortgage Corporation
- Tangerine Bank

Caisse centrale Desjardins

- Alliance des caisses populaires de l'Ontario
- Fédération des caisses Desjardins du Québec
- Fédération des caisses populaires de l'Ontario Inc.
- La Fédération des caisses populaires Acadiennes

Laurentian Bank of Canada

- B2B Bank

Royal Bank of Canada

- Bank of China (Canada)
- Industrial and Commercial Bank of China (Canada)
- Bank of Tokyo-Mitsubishi (Canada)
- Canadian Western Bank
- China Construction Bank Toronto Branch
- Citibank Canada
- Citibank N.A.
- Comerica Bank
- Community Trust Company
- Deutsche Bank AG
- Fifth Third Bank
- J.P. Morgan Chase Bank, National Association
- Korea Exchange Bank of Canada
- BofA Canada Bank
- Mega International Commercial Bank (Canada)

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- Mizuho Bank, Ltd., Canada Branch
- Royal Trust Corporation of Canada
- Sumitomo Mitsui Banking Corporation of Canada
- The Royal Bank of Scotland N.V. (Canada) Branch
- UBS AG Canada Branch
- U.S. Bank National Association

Canadian Imperial Bank of Commerce

- Amicus Bank
- CIBC Mortgage Corporation
- CIBC Trust Corporation
- The Bank of New York Mellon
- Dundalk District Credit Union Limited
- President Choice Bank
- Rabobank Nederland Canadian Branch
- Société Générale (Canada)
- Société Générale (Canada Branch)

Central 1 Credit Union

- Alterna Savings Credit Union
- Brunswick Credit Union Federation Limited
- Citizens Bank of Canada
- Community First Credit Union
- Concentra Financial Services Association
- Atlantic Central
- CS Alterna Bank
- La Fédération des caisses populaires du Manitoba
- Lambton Financial Credit Union Limited
- Meridian Credit Union
- Desjardins Credit Union Inc.
- First Nations Bank
- St Stanislaus –St. Casimer's Polish Parishes Credit Union

VIII. Appendix 3

<p>CLS Currencies:</p> <ul style="list-style-type: none">• Australian Dollar• Canadian Dollar• Danish Krone• Euro• Hong Kong Dollar• Hungarian Forint• Israeli Shekel• Japanese Yen• Korean Won	<ul style="list-style-type: none">• Mexican Peso• New Zealand Dollar• Norwegian Krone• Pound Sterling• Singapore Dollar• South African Rand• Swedish Krona• Swiss Franc• US Dollar
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IX. Appendix 4

LIST OF ACRONYMS USED

ACSS	Automated Clearing Settlement System
AFT	Automated Funds Transfer
ABM	Automated Banking Machine
BIS	Bank for International Settlement
CAD	Canadian Dollar
CDCS	Canadian Derivatives Clearing
CDS	Canadian Depository for Securities
CDSX	CDS' Clearing and Settlement System for Debt and Equity Securities
CHAPS	Clearing House Automated Payment System (GB)
CHATS	Clearing House Automated Transfer System (HK)
CHIPS	Clearing House Interbank Payments System (US)
CIPS	China International Payment System
CPA	Canadian Payments Association
CLS	Continuous Linked Settlement
CNY	Chinese Yuan Renminbi
CST	China Standard Time
EDI	Electronic Data Interchange
ET	Eastern Time
FI	Financial Institution
FX	Foreign Exchange
GMT	Greenwich Mean Time
HKD	Hong Kong Dollar
HKT	Hong Kong Time
HVPS	High Value Payment System (China)
IOSCO	International Organization of Securities Commissions
ISO	International Organization for Standardization
LC	Letter of Credit
LVTS	Large Value Transfer System
PCSA	Payments Clearing and Settlement Act
PCRN	Payment Confirmation Reference Number
PFMI	Principles for Financial Market Infrastructures
POS	Point of Sale
PT	Pacific Time
RMB	Renminbi
RTGS	Real Time Gross Settlement System
SDR	Special Drawing Rights
SWIFT	Society for Worldwide Interbank Financial Telecommunication
USBE	US Dollar Bulk Exchange
USD	US Dollar