Clearing and Settlement Systems

Learn about clearing and settlement systems such as: **CDS Clearing and Depository Services Inc.**: Operator of CDSX, **The CLS Bank**, **Canadian Derivatives Clearing Corporation** (CDCC), and **LCH.Clearnet Limited's SwapClear Service** (SwapClear).

CDS Clearing and Depository Services Inc.: Operator of CDSX

CDS Clearing and Depository Services Inc. (CDS) is a subsidiary of the Canadian Depository for Securities Limited, a for-profit corporation owned by the TMX Group. CDS owns and operates CDSX, implemented in 2003, which clears and settles eligible exchange-traded and over-the-counter equity, debt and money market transactions. CDS's depository service provides facilities to deposit and withdraw depository-eligible securities, manage related ledger positions, and use these positions for various business functions.

CDS and its participants are subject to the legislation and regulations of different jurisdictions. At the federal level, CDSX has been designated under the PCSA and is therefore subject to oversight by the Bank of Canada. At the provincial level, CDS is regulated by Quebec's Autorité des marchés financiers (AMF), the British Columbia Securities Commission (BCSC), and the Ontario Securities Commission (OSC). The Bank coordinates its oversight of CDS with these other regulators pursuant to a **Memorandum of Understanding**. In addition, CDS reports as required to the Canadian Securities Administrators (CSA), an umbrella organization of provincial and territorial securities regulators. Finally, CDS co-operates with federal and provincial financial institution regulators that oversee CDS participants.

Clearing and settlement

In CDSX, trade transactions are entered by one party and confirmed by the other party. These transactions can be entered into CDSX either via file transmission or by direct access. Once a transaction clears the risk-control edits, the transaction between the counterparties is settled on a delivery-versus-payment basis through entries to the counterparties' CDSX accounts. CDSX nets payment obligations between CDS and participants, which are then settled at the end of the day through designated bankers, with payments made through the Large Value Transfer System (LVTS) to the CDS settlement account held at the Bank of Canada. Special procedures have been developed to allow securities that are held in CDSX to secure CDSX intraday payment obligations to be used as collateral to make the LVTS payments. CDS retains a prior claim on these securities until the LVTS payment is made. LVTS payments are final and irrevocable, allowing final settlement of CDS to occur once all the payment obligations have been received. After settlement, securities that were held in accounts with restricted access become available for use without restriction.

Risk management

The risk-containment model developed in CDSX runs in real time and is designed to protect CDS from the intraday failure of a participant. The risk-containment model ensures each participant provides sufficient collateral to fully and simultaneously cover their net obligation to CDS to a confidence level of at least 99 percent.

There are two types of participants in CDSX: receivers of credit and extenders of credit. The receivers of credit are the majority of institutions participating in the system, and they may receive lines of credit from extenders that enable them to purchase securities during the day. Extenders of credit also collateralize their own intraday payment obligations plus those of receivers of credit to which they have extended lines of credit. At the end of the day, the extenders of credit are required to make payments to the clearing house to cover securities bought on their own behalf and on behalf of their customers. Receivers of credit grant their extender a security interest in the securities delivered to them on that day. If an extender is required to make payment for a receiver that is unable to fulfill its end-of-day payment obligation, the extender is entitled to take book entry delivery of those securities (the so-called delivered or "unpaid-for" securities). The amount that each participant can owe the system is capped.

CDSX operates as a delivery-versus-payment (DVP) type II system (see "**Delivery Versus Payment in Securities Settlement Systems**;" Bank for International Settlements, 1992). Transactions that have settled intraday in CDSX cannot be unwound.

CDSX incorporates a variety of risk-control mechanisms in its design and operations:

- CDSX is a real-time on-line facility with the position of each participant calculated on a transaction-by-transaction basis.
- CDSX has been designed to operate on a DVP (value-for-value) basis. There is gross, or item-by-item, settlement for securities transfers throughout the day and, at the same time, there is continuous netting and novation to the CDS of corresponding payment obligations.
- The net debit payment positions of all participants vis-à-vis CDSX are subject to "system operating caps," i.e., ceilings, with the cap linked to the size of each participant's regulatory capital.
- The Aggregate Collateral Value (ACV) procedure ensures that any default will be fully collateralized at all times by securities. The system rejects transactions that would cause a participant's payment obligation to exceed the value of the securities available and pledged as collateral to cover that payment obligation. The ACV tracks the value of a participant's collateral in real time.
- The usable value of securities as collateral in the system is the market value of each security less a certain amount (a haircut) to account for day-to-day variability in the market price.
- Any transactions that would put a participant outside the limits imposed by the collateralization requirement or system operating caps are placed in a "pending" status until a change would allow the transaction to settle within these limits.
- All participants in CDSX can calculate exactly their maximum risk exposure at any given time.
- At the end of the day, the net amounts owed and owing between the CDS and the participants are settled by using the LVTS.
- The system does not permit the reversal or unwinding of transactions as a means of dealing with participant failure.

- The Bank of Canada acts as settlement agent for CDS in the LVTS, with respect to payment obligations in CDSX. The Bank of Canada, in carrying out this daily function, receives payments from participants that owe money to CDS and makes payments to participants entitled to receive money from CDS. With the Bank acting as settlement agent, so-called “banker risk” is eliminated for CDSX and its participants. Banker risk refers to the possible failure of a private sector institution acting as settlement agent for a clearing and settlement system. (There is no liquidity or credit risk to the Bank of Canada from carrying out this function because the LVTS is used to make end-of-day CDSX payments, and the Bank will make an LVTS payment on behalf of CDS only if there is a sufficient balance in the CDS account to cover the amount of the payment.)

For CDS’s CCP service (CNS), the process has additional risk-management features that require each CNS participant to contribute margin collateral to cover the participant’s own risks to CDS for their specific CNS activities. If a participant fails to fulfill any of its obligations to CDS in CNS, CDS may suspend the participant and initiate both the CDSX default procedures and the related CCP close-out procedures. The close-out procedures use a defaulter-pays model, and the value of the CNS collateral that CDS has received from the defaulting participant is expected to be sufficient to cover any CCP loss generated by the default of that participant. If it is not sufficient, the survivors share in the losses, as supported by a pre-funded default fund.

The CLS Bank

The **Continuous Linked Settlement (CLS) Bank** is an initiative undertaken by the international banking industry to reduce and control the risks associated with the settlement of foreign exchange transactions. The CLS Bank began operations in September 2002. It is wholly owned by CLS Group, whose shareholders are some of the world's largest foreign exchange trading banks, including a number of Canadian banks. The CLS Bank offers a real-time electronic system designed to link a number of national payments systems and to simultaneously settle on its books the foreign exchange transactions submitted by its member banks. The CLS Bank is a special-service bank under U.S. federal law and is supervised by the Federal Reserve Bank of New York, which is working with oversight authorities in countries whose currencies are included in the CLS arrangements. The Canadian dollar is one of these currencies, and the Bank of Canada has designated the CLS Bank under the PCSA. The Bank of Canada conducts its oversight largely through participation in a multilateral arrangement for oversight co-operation led by the Federal Reserve Bank of New York.

The focus of the Bank's oversight is on the safety of the arrangements to settle the Canadian-dollar portion of foreign exchange transactions.

Canadian Derivatives Clearing Corporation (CDCC)

The **Canadian Derivatives Clearing Corporation (CDCC)** was established in 1975 as a not-for-profit corporation. Today, it is a for-profit corporation solely owned by the Montréal Exchange (MX), which is itself owned by the TMX Group. Through its clearing system, called the Canadian Derivatives Clearing Service (CDCS), CDCC provides a central counterparty (CCP) service for all equity derivatives, index derivatives, and interest rate derivatives traded on the MX. Since 21 February 2012, CDCC has also operated a fixed-income CCP service as part of CDCS.

CDCC also acts as CCP for over-the-counter equity options contracts traded on its Converge® platform.

At the federal level, the Bank of Canada oversees CDCS under the Payment Clearing and Settlement Act. At the provincial level, CDCC is regulated by Quebec's Autorité des marchés financiers (AMF), the Ontario Securities Commission (OSC) and the British Columbia Securities Commission (BCSC). CDCC also co-operates with federal and provincial financial institution regulators that oversee CDCC participants. As well, to support clearing derivatives contracts that are registered for sale to U.S. residents, CDCC files documentation in accordance with the requirements of the Securities and Exchange Commission.

LCH.Clearnet Limited's SwapClear Service (SwapClear)

Established in the United Kingdom in 1999, **SwapClear** is a global system for the central clearing of interest rate swaps (IRS) and other over-the-counter (OTC) interest rate derivatives denominated in multiple currencies, including the Canadian dollar.

The Canadian IRS market [1] is central to the Canadian financial system because of its critical role in allowing banks, governments, corporations and institutional investors to manage their interest rate risk. Central clearing improves the market's ability to absorb financial shocks, reducing the potential for disruptions to be transmitted through the financial system.

SwapClear is operated by LCH.Clearnet Limited (LCH), which also provides central clearing services for a diverse range of financial and commodities markets. LCH is a subsidiary of LCH.Clearnet Group Limited, a U.K.-based holding company owned by its users and various exchanges. It is authorized to operate as a CCP to offer services and activities in the European Union and is supervised by the Bank of England.

SwapClear was designated by the Bank of Canada, effective 2 April 2013, as a systemically important system under the Payment Clearing and Settlement Act and also falls under the purview of the Ontario Securities Commission and Quebec's Autorité des marchés financiers. The Bank of Canada conducts its oversight largely through participation in a multilateral arrangement for oversight co-operation led by SwapClear's lead regulator, the Bank of England.

Footnotes

1. The "Canadian IRS market" refers to the Canadian-dollar IRS market and the portion of foreign currency IRS transacted by Canadian participants.[←]