THOMAS MURRAY

CANADA

Public CSD Rating Report

CDS Clearing and Depository Services Inc

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Thomas Murray CSD Public Rating for: CDS Clearing and Depository Services Inc is AA

CSD Rating	Overall Rating	Asset Commitment Risk	Liquidity Risk	Counterparty Risk	Financial Risk	Operational Risk	Asset Servicing Risk
Canada CDS Rating:	AA	AA+	AA	AA	AA	AA+	AA-

The outlook for the rating is: Stable

Overall Risk Summary

Thomas Murray has affirmed CDS Clearing and Depository Services Inc. (CDS)'s overall central securities depository risk rating at AA, which means 'very low risk'. The rating is a weighted average of six different risk components comprising Asset Commitment Risk, Liquidity Risk, Counterparty Risk, Financial Risk, Operational Risk and Asset Servicing Risk.

The asset commitment periods are short in all processing cycles due to the lack of pre-funding requirements and the simultaneous exchange of securities against credit, which is final at the time of settlement. Credit can be used immediately to settle another transaction and securities can be used immediately to meet collateral obligations or for settlement of other transactions. The introduction of the new real-time continuous net settlement (CNS) has reduced the asset commitment period for both buyers and sellers from an average of 15 minutes (previous intra-day CNS cycles) to a few seconds as the exchange of securities and cash now takes place in real-time.

Liquidity Risk is mitigated by the use of netting procedures for CNS settlements and trade-for-trade (TFT) transactions settled in the overnight BNS batch, the credit provided by extenders of credit, and an active securities borrowing and lending market between market participants. However, the lack of a standardised fails management procedure in the event of a securities shortfall and the current buy-in fee structure that charges the receiver instead of the defaulting party may impact settlement liquidity.

CDS addresses Counterparty Risk by operating a sophisticated settlement risk model, to protect participants against the risk of default of other participants in clearing, settlement and depository services. The model is based on loss-sharing arrangements designed in a way in which the defaulter's collateral is sufficient to cover its obligations in the vast majority of cases. The risk model was further strengthened by the enhancements to CDS's Enterprise Risk Management (ERM) programme during 2010 and 2011.
To strengthen the New York Link service (refer to section below on Role of the Depository), CDS put additional measures in place such as increased collateral requirements, soft caps for participants and an increase to its US credit facility to protect itself in the event of a default or a participant's shortfall.

In Asset Servicing risk, the main weakness continues to be the manual collection of information for some corporate actions, especially for optional events. However, the distribution of entitlement and corporate action information has been enhanced due to: (i) the implementation of SWIFT MT564/566/568 messaging; and (ii) a memorandum of understanding with the major transfer agent to provide information and undertake paying functions (expected to be extended to additional transfer agents in the near future).

CDS's Financial Risk is low given its capacity to generate and diversify revenues. In its role as a not-for-profit organisation, CDS has rebated excess profits back to participants in addition to several price discounts that have remained in place during 2011. Other subsidiaries such as CDS INC. CDS Solutions and CDS Innovations Inc. are also profitable and contribute to the overall earnings.

The main financial exposure comes from operational claims. CDS limits its liability under the terms and conditions of its Rules for losses, which arise from late, inaccurate or incomplete information or other errors, to the limit of its insurance coverage or recovery from a third party. Financial resources for other unexpected events are available in the form of paid-in capital and reserves, strong earnings, explicit (contractual) or implicit support from shareholders or members, insurance coverage, and reducing participant rebates.

Operational risk continues to be very low with comprehensive internal and external audits as well as detailed and tested DRP and BCP plans. CDS's system capacity planning appears to be adequate and currently can handle up to 4.8 million trades per day without impact on service levels. CDS consolidated its infrastructure in a single network provider, which has many built in redundancy features including monitored excess capacity targets, multiple access points to the building, and strong support arrangements. The strength of the redundancy arrangements offsets the concentration risk.

Outlook Summary

The outlook for CDS is 'Stable', which reflects that there are no imminent changes that may alter the Overall rating at this stage. However, the outlook for asset servicing risk is positive given the different projects that CDS has underway to improve the efficiency and automation in the corporate actions area. This includes a new bulletins re-design that will enhance the disclosure of corporate actions information as well as the performance tracking to distribute information to participants; and the inclusion of additional transfer agents as paying agents for interest and dividends with options.

In addition, CDS has a number of projects currently under consideration that could reduce the Counterparty Risk exposure for participants. These include the synchronisation the USD and CAD payment exchanges and the transfer of novation time from beginning of T+3 to T+1.

Role of the Depository

CDS Clearing and Depository Services Inc. (CDS), a subsidiary of The Canadian Depository for Securities Limited, is the sole central securities depository in the Canadian market. CDS provides depository, clearing and settlement services for securities in Canada. CDS is a private business organisation incorporated federally in June 1970 under the Canadian Corporations Act and continued under section 181 of the successor Canada Business Corporations Act of 30 July 1980.

Equity and debt securities are mostly dematerialised within CDS. The majority of outstanding physical certificates are non-transferable issues largely issued before 2003. CDS has several projects underway to achieve near to full dematerialisation by 2014, which includes disincentives for producing new issues in certificated form. Domestic federal securities are recorded in book-entry form by the Bank of Canada and are cleared and settled by book-entry through CDS. Canadian dollar cash settles on a net basis at the end of the day via the Canadian Payment Association's LVTS payment system and USD via Fed-wire through a process called payment exchange.

International clearing and settlement of US transactions through DTC Direct and New York Link support OTC and exchange trades via a link with the National Securities Clearing Corporation (NSCC) for CNS settlements in New York Link and the Depository Trust Company (DTC) for trade-for-trade settlement.

Risk Summary	Risk
Overall Risk	AA
Asset Commitment Risk Asset commitment risk exposure for CDSX settlement processes is negligible as: (i) securities are transferred either through the overnight Continuous Net Settlement (CNS)/Batch Net Settlement (BNS) batch processing or in real-time throughout most of the day; and (ii) payment finality is under-pinned by guaranteed LVTS payments and is therefore immediate upon real-time settlement. Arguably the major exposure is for payment banks (extenders of credit) who extend lines of credit to receivers intra-day but only receive finality of cash at payment exchange between 4.00pm and 5.00pm.	AA+
Liquidity Risk Liquidity risk exposure within the various settlement processes is contained by the system design which incorporates, for example, sophisticated netting models for both inter-broker settlement and OTC settlement, availability of credit facilities, the LVTS payment system, and the availability of stock lending between participants. However, there are no established fails management procedures in place in the event of a securities shortfall. The market appears to be heavily dependent on the two extenders of credit for liquidity in order to settle the whole market.	AA
Counterparty Risk Counterparty risk exposure for CDSX eligible transactions is contained by the use of an effective DVP system for equities and debt, application and enforcement of membership criteria based on members' financial soundness, and sophisticated risk containment measures (including net debit limits and collateral). Broker-to-broker transactions settled through CNS and FINet have CDS as the counterparty using a risk model based on loss-sharing arrangements. However, for CNS settlements, CDS only becomes the central counterparty in the morning of SD leaving participants exposed to each other between T+0 and T+2.	AA
Asset Servicing Risk CDS receives corporate action information from most sources electronically, but has to manually gather information from others. CDS verifies incoming information and provides a central source of corporate action information accessible electronically by its participants through the system. Participants' voluntary corporate action instructions are sent via the electronic system and validated. Claims for mandatory distribution events on outstanding trades and positions are automatically generated and settled by the system. CDS limits its liability under the terms and conditions of its Rules for losses, which arise from late, inaccurate or incomplete information or other errors, to the limit of its insurance coverage or recovery from a third party. CDS has a participant claims process for such losses, and claims have been limited over the last few years. CDS provides a passive proxy voting service as participants have to deal directly with the issuer/transfer agent once the information is received.	AA-
Financial Risk CDS provides a central counterparty service for all transactions eligible for CNS and FINet processing. CDS's resources are not exposed for its role as central counterparty due to the loss sharing arrangements explicit in their Rules. However, CDS operates risk management processes, liens on participants' assets in their general and restricted Collateral Accounts, and guarantee funds to protect participants against a default. CDS may be subject to claims for operational errors. CDS limits its liability under the terms and conditions of its Rules for losses, which arise from late, inaccurate or incomplete information or other errors to the limit of its insurance coverage or recovery from a third party. CDS has a participant claims process for such losses, and claims have been limited over the last few years. Financial resources for other unexpected events are available in the form of paid-in capital and reserves, strong earnings, implicit support from shareholders or participants, insurance coverage, and reducing participant rebates.	AA
Operational Risk Operational risk exposures are well-identified and contained by CDS. The depository employs full operational risk controls and procedures on clearing, settlement and depository processes and is subject to external audit of these operational controls by KPMG in the form of a 5970 review. High standards are maintained on IT system development and audit. CDS maintains a high standard of readiness in preparation for DRP and BCP events through planning and testing.	AA+
CSD on CSD Credit Risk International links exist with NSCC and DTC in the US and other overseas CSDs. As a participant of NSCC and DTCC, CDS has an obligation to meet any participant failure to perform that can not be immediately met by other participants. CDS mitigates its exposure by imposing collateral requirements on participants and the	Links Exist

maintenance of adequate credit facilities. The Financial Risk assessment of each of these entities should be read in conjunction with this report (where available).	

Asset Commitment Risk

Summary

Low Asset Commitment Risk exposure exists within the CDSX settlement process. Transactions processed through CDSX have different processing cycles with transfer of securities against a credit facility with cash immediately available to participants. Final cash settlement between participants' designated bankers occurs through the Large Value Transfer System (LVTS) with finality in Central Bank money between 4.00 pm and 5.00 pm on settlement date [SD]. However, participants' cash balances are reflected in ledger accounts within CDSX. Eligible participants can transfer positive funds to their LVTS account with the Bank of Canada against their CDSX cash balances at any time during the day. Hence, for direct participants in CDSX there is negligible asset commitment risk, with the sole exposure being for payment banks (extenders of credit) who extend lines of credit to receivers intra-day but only receive finality of cash at payment exchange.

Processing Cycles

Most equities are traded on-exchange while bonds are mainly traded OTC. Trade data is sent to CDS by the various exchanges, the Alternative Trading System (ATS) operators, the Virtual Matching Utility (VMU) operators and by the operators of participant back-office systems (OTC trades only). Exchange trades and trades from VMU operators are locked in; other trades are affirmed intraday on a real-time basis via proprietary communication links. Investment Industry Regulatory Organization of Canada (IIROC) members are required to use CDS's Broker-to-Broker Trade Matching service facility for OTC trades. A rule imposing requirements on institutional trade details for matching exists (National Instrument 24-101) and requires that 90% of institutional trades must be matched by 12.00pm on T+1,. CDS maintains a message standard that allows institutional trade matching utilities to send CDSX matched institutional trades. CDS has an operational link with the Omgeo Central Trade Manager (Omgeo CTM) which allows CDS to receive matched trades in both Canadian domestic and cross-border securities through a single interface.

CDSX has four distinct trade settlement processes:

(i) Overnight CNS/BNS Settlement
(ii) Real-time CNS;
iii) Real-time Trade for Trade Settlement (TFT); and
(iv) FINet Intraday Settlement.

Trades that are targeted for settlement in CNS are settled in either the overnight CNS/BNS process or the intraday real-time CNS process. Participants can select between the CNS and TFT settlement processes though 99% of OTC trades settle TFT and over 90% of exchange trades settle CNS. A brief description of each settlement process can be seen below:

i) Overnight CNS/BNS batch

The CNS/BNS process is a batch settlement process that increases settlement efficiency by combining the settlement of trades targeted to settle by CNS,TFT or FINet. The goal of the combined process is to allow CNS, FINet and TFT activities to net against each other and to reduce participants' requirements for securities positions, funds, cap, credit and collateral. Settlement in the CNS/BNS batch takes place overnight between 4.00am and 5.00am on a multilateral net basis.

A trade is 'available' for settlement if it has reached value date, is in a confirmed status, and both parties "release" the trade for settlement. CNS settlement will be attempted for an 'available' trade for the first time in the CNS/BNS process. A trade will not settle if the buyer has insufficient funds, the seller has insufficient securities, or either party has insufficient Aggregate Collateral Value (ACV - refer to 'Risk Containment Model' under Counterparty Risk).

ii) Real-time Continuous Net Settlement

After CNS/BNS processing is complete, any net outstanding CNS positions are available for settlement during the real-time CNS. The real-time Continues Net Settlement process allows participants to settle outstanding CNS trades from 7.00am until payment exchange at 4.00pm, providing extra time to move positions between the two settlement environments.

CNS buy-in update notification messages will be received throughout the day as outstanding CNS buy-ins are effected by the real-time CNS settlement process.

iii) Real-time Trade-for-Trade (TFT) Process

Any trade in any security is eligible for TFT settlement. However, TFT is mainly used for settlement of OTC trades including broker to custodian transactions. Settlement takes place on a real-time basis in two different sessions: from 12.00am to 4.00am (mainly used for pledging of securities) and from 7.00am to 4.00pm, both against a credit limit monitored by CDS through ledger accounts. TFT settlement also occurs in the overnight CNS/BNS cycle. Between 7.30pm and 12.30am trades are accepted and queued for processing.
However, any trades targeted for TFT are first sent to the overnight BNS batch to maximise liquidity. If unsettled, they then go to

the intraday TFT process on a bilateral basis.

Free-of-Payment (FOP) transactions can also be settled between 4.15pm and 7.30pm SD (i.e. after payment exchange system close), but this facility is normally used to settle same-day pending trades that miss the 4.00pm payment exchange cut-off.

iv) FINet Settlement Cycle

The FINet intraday and end-of-day netting processes allow eligible debt securities (Government of Canada bonds and treasury bills and provincial bonds, bills and notes) to be netted against netted trades that have the same security/value date combination as the trade being netted. This netting process pools securities transactions and offsets buys and sells to produce one long or short position in the security/value date combination for each participant.
FINet operates two daily netting cycles as follows:

- Intraday, beginning at approximately 2.00 pm. This cycle nets eligible trades regardless of their value dates.
- End-of-day, beginning at approximately 5.30 pm. This cycle nets eligible trades regardless of their value dates. Participants can modify the settlement control indicator, account type and number, tag number and memo text on their netted trades.

Trades targeted for FINet settlement are first sent to the overnight BNS batch to minimise liquidity requirements. Any unsettled trades are then transferred to the FINet cycles for settlement, also on a net basis.

In all settlement processes operated by CDS, securities are transferred at the time of settlement across participants' accounts. Cash settlement takes place against any combination of the following: a) a fully collateralised cap; b) a line of credit provided by a participant collateral pool or one of the commercial banks ('extenders of credit') or; c) against a positive funds balance. The actual exchange of funds takes place at the end of the day (between 4.00pm and 5.00pm) when payment exchange takes place (see 'Cash' below). Lines of credit can be changed during the course of the business day (usually if an increase is required) by agreement between the participant and their extender of credit.

Cash

Cash credit balances are usable at any time during the processing day. CDSX payment risk monitoring ensures that there is sufficient collateral in a participant's general account to support its funds account debit. Actual net cash movements ('Payment Exchange') between CDS and participant's designated bankers (LVTS participants) occur via the LVTS through an end-of-day cash transfer batch between 4.00pm - 5.00pm SD.

CDSX calculates the participants' final net cash positions and runs both a US and Canadian dollar payment exchange. For Canadian dollars, payments are made via LVTS; US dollars via Fedwire. CDS is currently working on the synchronisation of USD and CAD payment exchanges.

Participants' designated payment banks are required to execute an LVTS payment to the CDS account with the Bank of Canada(the central bank), and CDS executes payments to participants' designated payment banks from the same account. The cash processing cycle (payment exchange) occurs between 4.00pm and 5.00pm.

Asset Commitment Periods

There is negligible Asset Commitment Risk for the majority of participants, since securities are settled in real-time, and long-cash positions can be used intraday. Payment banks (extenders of credit) who extend lines of credit to receivers intraday, receive finality of cash at payment exchange extending the asset commitment period for these participants.

Irrevocability

Securities and cash transfers become irrevocable at the point of settlement in the CDSX book-entry system. Netting and novation of FINet transactions are also irrevocable.

CDS becomes central counterparty at the time of novation for CNS trades (in the morning of T+3) and FINet (at midnight on T+0), and guarantees the settlement of securities as well as cash sides of the trade. Once the trade is settled in CDSX, the obligation to make and the right to receive payment on payment exchange is between the participants and CDS. CDS allows participants to operate accounts at NSCC and DTC for the New York Link and DTC Direct services, and is ultimately responsible for settlement of the participants' obligations at NSCC and/or DTC.

Finality

CDSX participants receive intraday finality on deliveries of securities and payment of funds when CDS makes the debit and credit entries in the CDSX system. Funds transfers between extenders of credit (payment banks) are final after settlement within the LVTS between 4.00pm - 5.00pm SD for CDSX settlement. Settlement in US Dollars through Fedwire is made with same day value.

Asset Commitment Risk - Key Indicators			
Irrevocable commitment to the processing cycle			
	Transaction Type	***Start***	***Finish***

Securities	TFT (night) CNS/BNS Batch TFT (day) Real-time CNS FINet – 1st cycle FINet – 2nd cycle	12.30am SD 4.00am SD 7.00am SD 7.00am SD 2.00pm 5.30pm	4.00am SD 5.00am SD 4.00pm SD 4.00pm SD 2.30pm 6.00pm
Cash	LVTS Payment Exchange	4.00pm SD	5.00pm SD

Comments (i.e., on pre-funding and irrevocability)

Participants who do not belong to the collateralised category credit rings are not provided any system operating cap and are required to either pre-fund their settlement activity or to receive lines of credit from the extenders of credit.

Securities processing cycle outlined

In the real-time TFT system, securities are transferred from the selling counterparty to the buyer between 7.00am - 4.00pm and 12.30am and 4.00am SD. Securities are not blocked for any given period before settlement.

In the intra-day CNS system securities are netted throughout the day to maximise liquidity.

Cash processing cycle outlined

Positive balances in CDSX cash ledger accounts may be withdrawn by participants. End-of-day cash ledger account balances are settled by participants' designated bankers. Final funds transfer for CDSX settlement is via a batch cycle in the LVTS system at 4.00pm.

The Bank of Canada guarantees that settlement of LVTS will occur provided there is sufficient collateral in the collateral pools. Because the LVTS is risk-proofed to cover the default of the single largest net debtor, the guarantee will only be called on in the unlikely event that more than one participant defaults on the same day, and the collateral pledged by participants is insufficient to cover the obligations of the defaulters.

Liquidity Risk

Summary

Liquidity Risk within the settlement systems of CDS is very low due to an active bilateral securities lending market, immediate availability of securities upon settlement, high netting efficiency for cash, and access to credit facilities. Short-term settlement failure is also mitigated by the existence of participant guarantee funds for CNS and FINet services in which CDS acts as a central counterparty. However, there are no fails management procedures in place in the event of securities shortfalls. In addition, the market appears to rely heavily on extenders of credit to provide intraday liquidity for settlement.

Processing Model

Matching

CDS maintains a Matched Institutional Trade Interface that allows domestic institutional trades to be received in CDSX as matched/confirmed by an external matching utility. There is also a broker-broker trade matching utility within CDSX. CDS provides an automated real-time trade matching facility for non-exchange trades. The facility supports greater levels of STP increasing efficiency, reducing risks and lowering costs. Trade match reports are available twice daily.

CSA's National Instrument 24-101 set targets for trade matching. The targets were phased in over 3 years. The current target is to match 90% of institutional trades by 12 noon on T+1 (the target to have trades matched by 11.59pm on T+0 has been suspended). Although this target has not been achieved in the market, the improved timing for matched trades has helped reduce the fail rate.

All immobilised or dematerialised stock within CDS is immediately available for onward delivery upon settlement. For CDSX transferred securities this effectively means in real-time.

Securities and cash funding for CNS (inter-broker) settlement benefits from (BIS Model 3) multilateral netting which reduces the liquidity requirements for effective settlement. TFT trades settle securities on a gross basis, however payment is settled net via payment exchange with finality of payment as settlement occurs. Although CDSX settlement is gross (BIS Model 1), the real-time nature of the processing allows for securities to be turned around same day.

Fails Management

CDS facilitates the buy-in process for outstanding CNS positions and FINet trades only. In the event of a lack of securities in CNS, buyers can request an intent to buy-in to CDS from the end of SD, which then forwards the details to the seller(s). The seller then has two days to deliver the securities before the buy-in is executed on the exchange. Actual buy-ins are not common in the market, but when they occur, these are generally issued within five days of the fail. Between June 2010 and July 2011 there were 579,809 notifications of intent but only 2,681 actual buy-ins (however this represents a significant increase from last year). Although buy-ins may act as discouragement to fails, the fee structure currently applied places the main charge of the intent to buy-in to the receiver instead of the deliverer.

A fine of CAD 1,000 is charged by CDS for the failure to provide sufficient collateral or funding by the deadline (1.00pm) to support the settlement of a CNS buy trade and for outstanding FINet trades. However, these issues come up rarely and for each there is an investigation with senior management at the participant firm to determine the reason for the delay in collateral posting.

Unconfirmed TFT trades remain in the system for 10 days before they are removed. Confirmed unsettled trades in both CNS and TFT, are carried forward to the next settlement date. There are no other mechanisms in place to force settlement of outstanding trades although the majority settle within a few days as they are netted in the BNS/CNS batch, which has high netting efficiency levels.

CDS is the counterparty for all CCP positions, and therefore CDS has instituted a number of processes to mitigate the risk of CCP obligations that fail to settle on value date, including mark to markets, penalties and buy-ins.

Daily mark-to-market valuations are collected and distributed to reflect changes in the market price of the security to be delivered/received in outstanding CCP positions. When the "to receive" participant fails to settle its outstanding CCP position on value date, CDS imposes a penalty (known as a "fail mark") on that participant; the fail mark is paid to the "to deliver" participant(s) affected by the failure. When the "to deliver" participant fails to settle its outstanding CCP position on value date, there is a buy-in process. The participant who has a "to receive" CCP position that is outstanding past value date initiates the process, and is then given an enhanced settlement priority to ensure that the failed trade is settled as soon as the securities are available. In addition, the "to deliver" participant is put on notice that a buy-in could be executed if they do not make the delivery. If a buy-in is executed, it is done by CDS on behalf of the "to receive" participant, and the "to deliver" participant is obligated to pay for the cost of the buy-in.

Overall, the fail rate is low – 1.1% for CNS trades to 31 August 2011 but higher 4.9% for TFT trades in July/August 2011 (rate based on cumulative outstanding fails over 10 days).

Credit Facilities

Participants operate against credit limits for settlement within CDSX. Credit facilities are available through commercial banks which can be raised intraday if necessary and/or collateralised credit rings in the form of limit caps.

The caps for the extenders of credit are adjusted quarterly. They are set at a level that provides sufficient headroom to meet the expected needs of market participants.

CDS does not extend credit to participants but this is consistent with market practice of most CSDs.

Securities Lending

Stock lending is permitted within the market but is external to CDS. There is an active stock lending market among brokers, banks and other financial institutions. There are no restrictions on stock lending for non-residents. CDS processes stock loan transactions, but takes no active part in the loan process.

The amendments to NASD-Rule 3370-Prompt Receipt and Delivery of Securities restricts members or persons associated with a NASD member from executing a short sale on a NASD regulated market unless they are able to provide assurance that they will receive delivery of, or have the ability to borrow, the securities by settlement date.

In March 2011, the IIROC proposed to lift the current restriction of "tick test", where a short sale is at a price lower than the previous sale price.

The stock lending and borrowing market in Canada appears to be very active. However, having a centralised facility with a pool of securities ready to be borrowed and standardised terms could be beneficial for the market and could help further reduce fails in the market.

Registration Model

For the initial immobilisation of securities, a registrar re-registers the security into the name of the depository central nominee, CDS & Co., so rendering securities eligible for use within the depository. Legal transfer of title occurs once securities balances are transferred within the books of CDS or on re-registration by the transfer agent for securities held outside of CDS.

Where the issuer has no established transfer agent or registration arrangements in place, CDS will directly coordinate security registration with the issuer. Where there is a transfer agent for a security, deposits are confirmed by the transfer agent before the participant is credited with the deposited quantity. Confirmation of a deposit takes place within 48 hours although there are also "rush deposit" facilities available to participants. In rare cases, it is possible for a deposit to be subsequently found by the transfer agent to have been invalid. In such a situation, the deposited quantity is reversed from the depositing participant's ledger position. If this reversal results in a negative (i.e., short) position in the participant's funds account, the participant's cash settlement position is charged with 150% of the market value of the position in question. The short position is marked-to-market on a regular basis until such time as the participant makes good on the position. When the short position is covered, the cash collateral taken against the short position is credited back to the participant.

Deposited securities

In excess of 90% of publicly traded securities are immobilised or dematerialised at CDS. In terms of dematerialisation, the option to hold a physical certificate will continue but the use of a nominee-name book-entry central securities depository is the first choice for holding securities for financial intermediaries and their clients.
The value of physical holding at CDS at July 2011 was CAD 1,364 billion (compared to CAD 1,302 billion at June 2010), which represents around 35% of total value on deposit at CDS. However, significant progress has been made in reducing the number of certificates in the vault from 210,000 to under 57,000 at July 2011.

CDS has a strategy to dematerialise nearly all securities by 2014 in two ways. First, CDS plans to eliminate most of the physical certificates in its vault by converting Non Transferable Issues (NTIs) into electronic form. These certificates are for defunct companies and represent 70% of the certificates currently in the vaults. Once identified, NTIs that have been non-transferable for at least seven consecutive years would be destroyed after an electronic image has been made in order to keep a proof of existence. Second, CDS plans to reduce the flow of new physical issues into the depository through the new Book-Entry Only (BEO) Securities Services Agreement (BEO SSA), advocating new trust indenture language, and disincentive pricing for issuing in certificated form. At the end of October 2011, there were 54,733 issues (out of a total 13,838 issues covered by the BEO SSA and all former agreements).

As of August 2011, CDS has shredded approximately 160,000 NTI certificates representing about 75% of the physical certificates in the vault. CDS has also continued to promote electronic closings, book entry only issues, and more use of the legal documentation promoting dematerialisation.

Progress has been slowed with the absence of federal government legislation that mandates dematerialisation. However, all but three provinces/territories have adopted the Provincial Securities Transfer Act that exempts issuers of uncertified securities from an obligation to provide a certificate at a later date at the request of the investor.

Deposit and Withdrawal of securities

There are very few transactions in equities which involve securities held outside the depository.

CDS tracks the values of deposits at the transaction level. In 2010, there were 269,300 deposits and 73,700 withdrawals (compared to 233,000 deposits and 77,300 withdrawals in 2009).

CDS has prohibited the physical withdrawal of securities after 31 October 2011 where an active direct registration service is available in Canada.

Electronic Creation and Deposit of Securities by Participant Issuers
CDS provides a money market function which allows approved participant issuers to use the CDS system following specific guidelines to electronically create and deposit short term money market instruments. This process allows the near immediate creation and trading in short term debt instruments issued by the issuer.

Liquidity Risk - Key Indicators

Settlement Models

CDSX - Model 1 - Gross simultaneous settlement of securities and funds (TFT settlements).

CDSX - Model 2 - Gross settlement of securities against net settlement of funds/credit.

CNS and FINet- Model 3 - Net simultaneous transfer of securities and funds (CNS settlements).

Processing Periods

Overnight (by batch)
Yes

End of day
Yes

Batch daylight processing
No

Real-time and on-line
Yes

Other
No

Comments

There is real-time on-line and batch settlement through CDSX.

The end of day process is available: LVTS cash settlement for extenders of credit through Central Bank.

Credit Facilities

Central bank money used to settle cash elements of trades
Yes

Credit facilities provided by the CSD
No

Credit facilities provided by commercial banks
Yes

Comments

Intra-day finality of book-entry is established by the Rules of CDS, with Central Bank finality at the end of the day on SD.

Stock Lending

Is stock lending permitted in the market

Yes

Are stock lending facilities provided by the CSD?

No

Are stock lending facilities provided by commercial banks/brokers?

Yes

Comments

CDS does not act as principal for securities lending, but securities lending is facilitated through CDS.

Transfer of Securities

Are securities deliveries achieved by book-entry?

Yes

Registration of Securities

Period of time required to register a holding?

Immediate upon settlement on CDS's books. Re-registration on the transfer agent's shareholders register are handled by the transfer agent.

Counterparty Risk

Summary

Low counterparty risk exposure exists for participants settling transactions through CDS, but it is possible exposure could arise in two areas:

1. For CDSX eligible transactions, participants are exposed to the other members of the credit ring collateral pool. However, the chance of losses arising from credit exposures between participants is reduced because most participants' funds obligations are guaranteed by their extender of credit as well as by the use of an effective securities settlement system which has efficient cash netting with finality guaranteed by collateral. In addition, the risk model is designed in a way that the collateral posted by the defaulter should be sufficient to cover their obligations in the vast majority of cases. Risk exposure is further mitigated by the application and enforcement of membership criteria based on members' financial soundness.

Should a default occur, timely remedy is sought by exercising legal claims on the collateral provided by the defaulting member. In addition, all members are subject to credit limits (in CAD settlements) which help to contain any potential loss. Transactions settling in CDSX are final upon settlement in real-time (both for cash and securities movements) during the day, but the net cash movements between CDS and designated payment banks only occur upon payment exchange at the end of the day. Extenders of credit and members of the defaulter's credit ring have an intraday lien on securities held by participants in certain accounts in CDSX (although this lien is in place, securities can be transferred in and out of these accounts in real-time as long as the overall collateral requirement is continuously met). Payment risk exposure is mitigated by ensuring that negative cash balances are fully collateralised at all times as described above. This is achieved through payment risk edits, which are applied to all transactions settling in CDSX.

Any residual losses are covered by the surviving participants in the credit ring. For these pools, the confidence levels are based on haircuts on the debt securities pledged to the pools which historically have provided a confidence level in excess of 99%, although they are not regularly tested.

2. For clearing using the CNS and FINet services, credit exposure is on CDS, which assumes the role of a central counterparty. However, for CNS settlements, CDS only becomes the central counterparty in the morning of SD (T+3) leaving the two original counterparty participants exposed to each other (only for market risk, not principal risk), during the first two days after trading. The risk between participants and their clients is managed directly through their agreements. An analysis of the risks associated with CDS standing in as the central counterparty is blended under the analysis of financial risk (Refer to Financial Risk).

For unsettled trades in CDS's central counterparty services (CNS and FINet), the replacement cost risk is mitigated by means of a collateral pool of assets that the participant maintains at CDS that is structured to cover potential participants' share losses 99% of the time in CNS and 97% of the time in FINet.

Participant Counterparty Risk

Counterparty risk exposure to another participant of CDS arises from the loss sharing arrangements used by CDS. However, the exposure is limited by the existence of an effective securities settlement system known as CDSX. Within CDSX, securities settle on a real-time trade-for-trade basis from 7.00am to 4.00pm (payment exchange); from 12.30am to 4.00am against payment; and from 4.00pm to 7.30pm securities-only transactions are processed. Trades may be submitted between 7.30pm and 12.30am.

CNS runs a real-time settlement facility from 7.00am to 4.00pm to try to settle long and short CNS outstanding positions. CNS/Batch Net Settlement (CNS/BNS) runs the CNS process during overnight processing. At approximately 4.00 am, both CNS and TFT transactions are processed and cash netted to try to maximise settlements. In summary, CDSX is a system for securities and irrevocable credit balances, with actual net cash transfers between designated paying agents, via the Large Value Transfer System, occurring in an end-of-day batch cycle between 4.00pm and 5.00pm SD.

The maximum level at which a member can maintain a negative funds/cash balance is based on the cap amount assigned to a participant according to a formula in the Rules and Procedures and/or the line(s) of credit established by the extenders of credit. Full CDSX participation is limited to the Central Bank, Extenders of Credit, Federated participants, settlement agents and receivers of credit (investment dealers etc). Extenders of credit are restricted by incorporation status, bank license requirements, capitalisation, and relationships with the Canadian Payments Association (CPA).

Risk Containment Model

The risk model for CDSX settlement includes the following principal features:

System Operating Caps - established for each extender and receiver of credit, settlement agent and active federated participant to limit the aggregate value of transactions which may be effected at any one time. Receivers may also be capped by the Receivers-of-Credit Collateral Pool (contribution x leverage = cap).
The caps for extenders of credit are adjusted each quarter as a result of changes to extender credit rings and capital.

Maximum Exposure Point (MEP) - the sum of the credit extended and funds used by each extender during the business day. CDS uses a defined methodology to regularly calculate each extender's proportionate amount of credit ring collateral pool contribution. Loss allocation is restricted to the members of each credit ring.

Lines of Credit - provided by extenders to receivers of credit to guarantee funds for the settlement of pledges and trades. At present, there are only two extenders of credit providing credit to participants other than to their own wholly owned broker/dealer and custodian subsidiaries.

CDSX Collateral - collateral maintained by credit ring collateral pool members to provide coverage of intraday risk until LVTS payment exchange is completed. Only the most liquid types of assets are permitted as collateral in the credit rings and collateral pools. During the last year, CDS made some changes to the haircuts applied to debt securities to harmonise them with the Bank of Canada's haircut rates.

CDS conducts stress testing on a weekly basis using historical data to affirm the resilience of the risk model (adequacy of the collateral requirements), by calculating potential loss impacts on the collateral rings under a number of different scenarios Currently, 86 scenarios are used.

LVTS - procedures within LVTS guarantee that there will be enough collateral supplied by LTVS participants (i.e., banks) to generate the necessary liquidity to permit settlement on the books of the Bank of Canada for the payment obligation of any participating financial institution that defaults on its obligations. At the beginning of each day, LTVS participants pledge to the Bank of Canada appropriate collateral security with a value sufficient to cover the largest single permitted net debit position from a single participant in LVTS, thus providing the Bank of Canada with sufficient collateral to make available the necessary liquidity to settle the system even in the event that one of the LVTS participants defaults. The Bank of Canada also guarantees settlement of the system in the extremely unlikely circumstance that more than one participant fails during the LVTS operating day. The guarantee will only be called on in the event of the unanticipated failure of more than one participant on the same day during LVTS operating hours, with the failing participants in a net owing position vis-à-vis the system, and if the amount owed by the failing participants exceeds the value of collateral that has been pledged to the Bank of Canada. Payments confirmed by LVTS are irrevocable (i.e., it would never be unwound due to settlement problems under the Payment Clearing and Settlement Act). Assurance (by BOC) of LVTS payments provide clients with finality and irrevocability for each payment received intraday.

Aggregate Collateral Value (ACV) - Securities in a participant's general account are the primary source of collateral, which can be used by its extender to obtain liquidity to make a payment on behalf of the defaulting party. Settlement of transactions that would cause a participant's payment obligations to exceed the collateral value of securities in its general account available to cover these payment obligations are prevented. This applies to all participants.

If the ACV is greater than its payment obligation, a participant may move securities out of its general account into its segregated account intraday. If the ACV is forecast to become less than its payment obligation, the participant may move securities from the segregated account to the general account to increase the amount of available ACV.

Sector limits - CDSX eligible securities used in the calculation of ACV are classified into security "types" (i.e., sectors) with the maximum collateral value within each sector being limited to a percentage of the relevant participant's system operating cap. This limitation of collateral value by sector applies to certain systemically-important participants.

Delivery Versus Payment

For CDSX settlement, while securities move during the day and actual cash transfers occur at day-end on a net basis, credit received intraday is immediately redeemable for good funds and the transaction is considered final during settlement intra-day according to the Payment, Clearing and Settlement Act.

The exchange of securities versus credit during the different cycles takes place simultaneously.

While settlement in central bank funds only occurs at the end of the day during payment exchange, prior transactions cannot be unwound or reversed anytime once the securities have been transferred. CDSX is a true DVP system with irrevocable funds transfer through the LVTS system.

Role of Central Counterparty (CCP)

CDS operates two central counterparty (CCP) clearing services: Continuous Net Settlement (CNS) for the settlement of equity trades executed on a recognised exchange or ATS, and FINet for Canadian federal and provincial government bonds, and treasury bills. CDS becomes the central counterparty for these trades via novation. In the CCP services, novation occurs as soon as the transactions are netted, which can occur prior to SD for FINet trades (normally at the end of TD) and in the morning of SD for CNS trades.

CDS transfers its exposure as a CCP to its participants via the loss sharing arrangements established in the CCP Participant Funds. In the event of default, the defaulter's collateral should be sufficient to cover the resulting losses in 99% of the cases for CNS and 97% of cases in FINet. Any losses in excess of the collateral requirement of the defaulter are borne by the surviving participants in the service.

For the CCP services, CDS manages two participant funds: the CNS Participant Fund and the FINet Participant Fund. Participants are exposed to a potentially unlimited loss as survivors in one of the CCP services resulting from another participant's default where the defaulter's own collateral was insufficient. However, there is a withdrawal option for participants of these funds in order to limit their loss allocation due to the default of one or more members of the fund. Withdrawal is possible by paying an additional 500% or 700% of the participant's collateral requirements in that CCP service if the participant is withdrawing from FINet or CNS, respectively.

All trades and outstanding positions in the CCP services are marked-to-market daily to cover the potential loss between the original trade price and the current price which could result if there were a default by a participant. Participants must contribute to the CCP funds to cover the marked-to-market payment owed by a participant in the event of default.

A cap is applied to the replacement cost risk arising from the outstanding positions that any participant can create in aggregate across all CCP services in which a participant is a member. Once this cap is reached, additional processes are activated within CDS including informing the appropriate regulators of the event and the collection of additional collateral.

Currently, the CNS service is widely used while the FINet service is only utilised by a small number of participants. A new fixed income CCP service is being introduced by the Canadian Derivatives Clearing Corporation and will link to CDSX. As a result, FINet is expected to be discontinued once the new fixed income facility is fully introduced in the Canadian market.

Participant Criteria

Within participant groups and within services, all participants are subjected to the same controls and regulations. Participants are required to sign standard agreements that cover their use of the different services. Specific and well-defined requirements exist for all categories. CDS requires that the participants provide evidence of their financial ability to meet their CDS obligations, the sufficiency of their personnel, the suitability of their computer equipment, and their ability to satisfy other standards which CDS may establish.

Participant eligibility requirements are the same regardless of the market in which the member is trading. Membership criteria are clearly defined in the CDS rules for the seven categories of participant: (i) extenders of credit, (ii) settlement agents,(iii) receivers of credit, (iv) federated participant, (v) transfer agents, (vi) ATON (Account Transfer Online Notification service) participants, and (vii) the Bank of Canada.

Participants must be a regulated financial institution, a government body, a foreign institution, the Bank of Canada, a transfer agent, ACT or an ATON participant. Foreign institutions must have minimum capital of CAD 1 million or be able to provide satisfactory evidence of financial strength to CDS.

Participants are classified into the following groups with these respective minimum capital requirements:
Extenders of Credit - CAD 1 billion
Federated Participant - CAD 1 billion in aggregate of federation and federated members
Settlement Agents - CAD 100 million
Bank of Canada - No minimum capital requirement
Transfer Agents - Perform the 'depositary agent' and/or entitlements processor roles as well as a 'validator' role (no minimum capital requirements, but have a maximum of CAD 10 million for the processing of entitlements)
ACT Participant – No minimum capital requirement, this is a limited purpose participant that uses the ACT service for the matching of cross-border trades.
ATON Participant – No minimum capital requirement, this is a limited purpose participant that can deliver and receive securities related to the transfer of client accounts.
Receiver of credit - any other qualified participant (minimum capital requirement as required by its regulatory authority).

Participant Concentration

As at June 2011, CDS had 97 participant entities.

All major banks and brokers are direct and active CDS participants, giving the depository the widest possible participant base. However, around 30% of domestic transactions in the market flow through the top six most active participants ",. The percentage of the largest participant accounts for only 7% by value. Although there does not appear to be a significant level of concentration in the market by single participants, the Canadian banking system is heavily concentrated and the largest groups operate a bank, broker/dealer, and/or custodian subsidiaries, This represents some degree of concentration in the market but it is unlikely to create a significant impact on counterparty risk.

There are currently six 'extenders of credit' although only two of them are currently active in the market as extenders to other than their own subsidiary companies. There is a potential for cost increases for participants if one of the banks was to withdraw as an extender to third parties. However, CDS developed a contingency plan in the event that extenders of credit decided to withdraw their credit facilities to receivers of credit by CDS 'virtually' extending credit to participants using the collateral available in the receivers of credit collateral pool. In this case, CDS would be leveraging collateral to provide credit as well as a settlement guarantee increasing the risk in the market.

Financial Compliance/Surveillance

Any applicant meeting the requirements for participation as described in CDS Participant Rules and which meets its primary regulator's or self regulatory organisation's (SRO) financial standards is considered to have met the financial requirements for participation. CDS has a policy of requiring its participants to demonstrate on an ongoing basis that they comply with the financial standards established by their primary regulator. This may be accomplished by the establishment of a memorandum of understanding (MOU) between CDS and the primary regulator or the SRO or the provision of appropriate evidence of good standing on a regular basis. CDS's role in ongoing credit risk assessment includes, but is not limited to, regular verification of each participant's compliance with participation standards in the Rules and membership standards for any credit ring of which a participant may be a member. No members have been suspended for failing to meet CDS standards over the last three years.

Under its role as a CCP, CDS executes active surveillance on participants' failure to settle exposures (i.e., the replacement cost risk posed by any participant) resulting from outstanding positions in CNS and FINet. The collateral requirement of each participant's exposure is calculated by the system. CDS staff monitor any shortfall in the collateral posted by participants between 11.00am and 1.00pm daily. This ensures collateral sufficiency throughout the day to cover the obligations of each participant. There is a possibility that participants can be below their collateral requirement prior to 11.00am but CDS charges a fine if participants are late with their collateral requirement. If there is insufficient collateral after 1.00pm, CDS declares the participant in default.

Guarantee Funds

CDS operates collateral pools/credit rings for each of the participant categories(except for Bank of Canada). Each collateral pool is kept separate, and generally operates so that on the failure of a participant, the survivors guarantee payment obligations of the defaulter. This occurs on the same day of default since the defaulting participant's payment obligation must be fulfilled that day. Since participants' payment obligations are collateralised, the survivors in the collateral pools/credit rings have undisputed prior claim to the defaulter's collateral. For any residual losses, the failing institution's contribution to the fund must first be used to cover any deficit in the service. After that, collateral of other participants in the credit ring of the service or category is used.

In 2010, CDS increased its credit facilities and collateral requirements for the New York Link service to ensure its credit and liquidity exposures were adequately mitigated. Participants in this service may also be required to pre-fund their NSCC payment obligations from time to time.

Counterparty Risk - Key indicators
Capacity of CSD Agent only
Surveillance of participants by CSD Yes
Settlement assurance Yes, for CNS, FINet, NY Link and DTC Direct transactions.
Participation criteria Yes
Minimum Capital (local currency) Extenders of credit - CAD 1 billion Federated Participant – CAD 1 billion in aggregate of federation and federated members Settlement agents - CAD 100 million Canadian regulated financial institutions (including brokers) - in accordance with minimum regulatory requirement Foreign institutions – CAD 1 million or other evidence of financial stability.
Size of Guarantee Fund - (Name, local currency, Euro and USD - (millions)) Participant Funds (at 30 June 2011 in CAD) CNS Participant Fund: CAD 82,656,931 FINet Participant Fund: CAD 38,621,194 NSCC Participant Fund for New York Link: USD 88,528,499 CDS participant fund for New York Link: USD 54,849,853 CDS participant fund for DTC Direct Link: USD 10,000,001 Collateral Pools (at 30 June 2011)Extenders of Credit Collateral Pool: CAD 2,140,000,000 Settlement Agents Collateral Pool: CAD 204,200,000 Federated Participant Collateral Pool: CAD 214,848,000

Contributing CAD Receivers of Credit Collateral Pool: CAD 18,126,977
Contributing USD Receivers of Credit Collateral Pool: USD 10,000,015

Does the CSD act as a central counterparty

Yes

Comments

Participation criteria also depends on a participant’s role (e.g., Extender of Credit, Settlement Agents, etc).

CDS acts as central counterparty for exchange trades in CNS, and for Government of Canada bonds, provincially-issued debt instruments and treasury bills in FINet.

Participant Concentration (Local Currency Millions)

Value of transactions in the market by top 10% of participants

30% for top six largest participants.

Volume of transactions by top 10% of participants

30% for top six largest.

Volume of largest individual participant

7% flow through the largest participant.

Asset Servicing Risk

Summary

CDS receives corporate action information from various sources: Issuers (who are legally obliged to provide corporate action information to securities holders, such as the depository as nominee, and SEDAR, a publicly accessible issuer information repository that CDS INC. manages for the Canadian securities regulators), Transfer Agents, Information Vendors, Press, Stock Exchanges, and DTCC. CDS limits its liability in this area under the terms and conditions of its Rules for losses, which arise from late, inaccurate or incomplete information or other errors, to the limit of its insurance coverage or recovery from a third party. CDS has a participant claims process for such losses, and claims have been limited over the last few years. CDS provides a passive proxy voting service; participants have to deal directly with the issuer/transfer agent once the information is received.

Information processing

There is no central source of market information and market participants, including CDS, have to actively look for information. CDS electronically captures about 80% of corporate action event information regarding Canadian securities from Computershare and TSX in electronic form, and 100% of corporate action information of DTCC-eligible securities.

Issuers/transfer agents are legally obliged to supply CDS as a registered shareholder with certain corporate action event information, and CDS proactively gathers information from the System for Electronic Document Analysis and Retrieval (SEDAR), which is manually collected, the stock exchanges, issuers, registrars and the press. CDS will verify this information with information providers, Newswires, Transfer Agents and other sources, unless the information is received from SEDAR or the Stock Exchange. Source documents are manually input and disseminated within 24 hours (usually within 1 to 2 hours) to CDS participants who are holding securities on behalf of beneficial holders. Around 60% of the electronic messages received are processed without repair and auto-populated in the CDS system.

CDS will notify all participants, regardless of their holdings, about mandatory as well as optional corporate actions. In fiscal year 2010, 100% of notifications were made within 24 hours of receipt of information via web-based bulletins (with prospectuses attached if the event type was filed on SEDAR and the participant elected to use this enhanced service) and broadcast via messages through the depository's proprietary electronic system. In addition, event information can be viewed online on the system or is available to participants via batch feeds. CDS currently has a project underway to further improve the management and timely release of information to participants.

CDS uses SWIFT MT564/566/568 ISO15022 compliant message types to distribute all entitlement event and corporate action information. Provision of these message types is in line with CDS's strategy to create efficiencies for CDS and its participants. The MT564/566/568 messaging streamlines the bulletin release process for CDS and for its participants by providing participants with an automated means of processing entitlements on an STP basis. Based on the participant value on deposit report for June 2010, subscribers to MT564/566/568 hold approximately 52% of value on deposits.

CDS Rule 4.2 describes the extent of CDS's liability for any type of loss that CDS may cause a participant.

Instruction processing

Participants send corporate action instructions to CDS via the proprietary electronic system. Validation, as to sufficiency of securities position or funds, for voluntary events is done by the system when an instruction is received. When an instruction has not been received close to the deadline, CDS does not undertake to advise the participant, although it may provide a courtesy call. The system does not accept instructions submitted after the deadline though the system allows the participant to have default standing instructions.

Depositary Agents (typically transfer agents) have the capability to take the role of depositary agent in CDS's system. Tender instructions and shares will move from the participant's ledger straight into the depositary agent's ledger which constitutes a legal tender, supporting extending instruction deadlines up to the legal expiry of the offer during the hours CDS's system is up and running (7.00am – 7.30pm). The previous cut-off of 4 hours will not apply if the depositary agent is set up in the system.

Claims for mandatory distribution events on outstanding trades and positions are automatically generated and settled by the system. CDS has an automated facility for processing withdrawal instructions where withdrawal rights are part of the terms and conditions and where instructions are received prior to the withdrawal right expiry date and time.

CDS limits its liability under the terms and conditions of its Rules, for losses which arise from missed corporate action deadlines where instructions have been received within published deadlines. CDS has a claims process for such losses, and claims have been limited over the last few years.

CDS ensures that the allocation of securities and cash resulting from Corporate Actions are made through their proprietary system upon release of payment by the paying agent. A significant proportion of payments from issuers were previously received via cheque (around 6% by value, 55% by volume in 2010). From November 2011, only electronic payment of entitlements from the paying agents will be accepted.

Payments are made in same day funds, increasingly via the Large Value Transfer System (LVTS) -. Once payment is received from the issuer, corporate actions staff will manually match the payment to their records and once this is completed, CDS distributes the payments to participants via the CDSX payment process. Payment confirmations are sent via SWIFT MT566 messages, The distribution of entitlement funds occurs on pay date. When payment is executed late, CDS will pay interest on any money retained overnight only if they are able to obtain interest on this money. In fiscal year 2010, 99.9% of income and 99.9% of corporate action (where predetermined) entitlements were credited on due date. The late payments were due to the lack of funding in a timely manner.

From 11 August 2010, a major transfer agent has been using a new functionality to act as the paying agent, via its designated banker, for its issuer clients' dividend and interest payments. The integrity of the process is supported by information matching and reconciliation processes that ensure payments can be duly verified prior to release (either manually or automatically). CDS also has initiatives underway to broaden this functionality and improve the efficiency and extend the use of electronic links with transfer agents for the direct execution of payments and allocation of securities through the CDS's system. As these services are extended to additional TAs, the payment process and instruction processing will be more automated and efficient.

Proxy Voting

CDS provides a passive proxy voting service as participants have to deal directly with the issuer/transfer agent once the information is received. CDS sends participants notifications of general meetings but does not accept proxy voting instructions. The depository provides the announcement of all meetings but will not attend meetings on participants' behalf.

Participants' holdings do not need to be re-registered to attain voting eligibility, nor are positions frozen around meeting dates. Issuers are obligated to inform CDS of meeting dates, which CDS then provides each week, as a regulatory requirement, to 2 of the main national newspapers. An electronic data file subscription service is available from CDS.

Other services

CDS assists Canadian participants investing in US securities by transmitting information on rates to be withheld by the IRS and distributing the net payment to participants. It also withholds tax on behalf of American investors investing in Canadian securities.

CDS operates a new added value Dividend Eligibility Reporting Service through a centralised repository managed by CDS. This service provides participants with an efficient option to obtain important information on the eligibility of dividend payments (by issuer) for tax credits.

Since 2009, CDS operated the Corporate Action Liability Management Service (CALMS). This service is a new web-based, on-line, electronic service for the submission and tracking of liability notifications/letters of liability for corporate action events between participants and draws automated corporate action event and other information for CDSX eligible securities directly from CDS. Alternatively, a manual paper/fax based exchange of letters of liability is required.

In 2010, CDS introduced daily warrant subscription alerts and warrants subscription advice services. This service should lead to cost savings for participants that use CDSX functionality to exercise warrants on a daily basis. The phase out of manual subscription processing of withdrawing warrants from CDS and delivering certificates and funds to the transfer agent will reduce the cost and risk associated with manual processing.

IIROC has adopted a proposal to implement a US method of Due Bill tracking process system for eligible entitlements, which allows securities to carry their appropriate value until the entitlement event has been processed. The Investment Industry Association of Canada (IIAC) has been working with the Financial Administrators Section (FAS) Operations Committee of IIROC and the CDS on the Due Bill system, which is expected to be launched in January 2012. The new system will allow a standardised approach for the booking of an eligible entitlement.

Asset Servicing Risk - Key indicators
Information processing
Securities covered Depository eligible securities
Information sources used SEDAR, Issuers, Transfer Agents, Stock Exchange, Depository, registrars & press
Information provided in English Yes
Number of Events during last full year

Dividends
23,300 (year ending 31 October 2010)

Interest & Redemptions
108,000 (year ending 31 October 2010)

Corporate actions
19,900 (year ending 31 October 2010)

Notification via
Proprietary, electronic and email

SWIFT message types
MT564, MT566 and MT568

Notification within
24 hours

Information processing comments
Money market maturities totalled 24,553

Instruction processing

Use of depository
Market practice and IDA regulation

Settlement on due date
Yes

Optional corporate actions supported
Yes

Cash account credited
Yes

Central paying agent
No

Entitlements based on
Ledger positions and Outstanding trades

Proxy voting services

On-line
No

Outsourced
No

Announcement of meetings
Yes

Elections (Voting)
No

Results reporting
No

Financial Risk

Summary

Financial resources are in the form of paid-in capital and reserves, strong earnings, implicit support from shareholders or participants, insurance coverage and access to credit. In the case of credit losses, supplemental resources can be found in the form of guarantee funds and collateral protection.

CDS acts as the central counterparty (CCP) for on-exchange transactions eligible for CNS processing, and for future-dated trades in federal and provincial Government of Canada bonds and treasury bills in FINet. However, CDS's resources at risk are limited despite its role as CCP given the loss-sharing arrangements backed by collateral that are in place.

Potential calls on CDS's financial resources could arise as result of the following:
- Investment in operational infrastructure,
- Unforeseen, system and software developments and operational losses
- Claims against CDS
- Operational losses for which CDS has assumed liability,
- Losses for which a public Court has considered CDS accountable.

The Canadian Central Bank provides no explicit guarantee for CDS. The net amount owing to CDS is settled at the end of day via LVTS payments, which are final and irrevocable. Although CDS does have a liquidity facility in place with the Bank of Canada, the Bank will only provide liquidity in certain narrow and highly unlikely circumstances where CDS has sufficient collateral pledged by participants to cover its liquidity requirements but the markets have closed (preventing CDS from selling the securities) and its commercial banker is unwilling to provide CDS with immediate funds in exchange for the securities.

Financial and other Resources

Capital Structure

A profit of CAD 1.8 million in 2010 following losses in earlier years gave rise to retained earnings, and thus total shareholder's equity has increased to CAD 41.45 million. Before this, it faced a slight decrease over the past 3 years with some small variations in the level of un-appropriated reserves. At 31 October 2009, the shareholders equity was CAD 39.6 million compared to CAD 41.2 million at 31 October 2008 - CAD 42.7 million in 2007, CAD 41.544 million in 2006 and CAD 44.6 million in 2005. There has not been no additional share issue and therefore, both common shares and preference shares capital have remained stable around CAD 8.7 million and CAD 10 million, respectively, over the last five years,.

CDS is wholly owned by The Canadian Depository for Securities Limited (CDS Limited), the holding company for the CDS Group. CDS Limited is owned by the major Canadian chartered banks (66.7%), the Investment Industry Regulatory Organization of Canada (15.2%) and the Toronto Stock Exchange (18.1%). Due to its not-for-profit status, CDS does not directly pay dividends but rather returns money in the form of rebates to participants. In order to increase capital, CDS would have to raise it like any other privately-held corporation by issuing additional shares, borrowing, or increasing its retained earnings by reducing or eliminating rebates to participants. There are no shareholders, bankers or investors who are legally bound to provide capital to CDS. No capital calls have been made in the past 20 years. No government body has an ownership stake and hence direct government support has to be discounted.

Although CDS's capital is not significant relative to assets under custody, its resources are primarily only at risk for claims due to a failure by CDS to follow operational procedures that causes a loss to a participant. CDS limits its liability under the terms and conditions of its rules for such losses to the point that they are covered by insurance or a third party. CDS is not financially liable in its role as central counterparty for CNS and FINet trades since residual (uncollateralised) losses caused by a default of a participant in the system are assumed by the other members of the respective credit ring pools and participants funds.

Earnings Performance

As a not for profit entity, CDS operates with a priority to provide customers with cost efficient services rather than a return on shareholder equity. Accordingly, CDS structures its financial strategy to required cash recovery rather than a specific profit. CDS has the flexibility to raise or lower fees as required, although it has mainly reduced fees and provided discounts which it has combined with the granting of rebates to participants over the last 7 years. CDS's policy is to rebate any excess profits back to participants after provision for any investment has been made. A rebate of CAD 7 million was paid in the year 2010 (CAD 8.5 million in 2009, CAD 11 million in 2008, CAD 8 million in 2007, CAD 19 million in 2006) and was netted against the domestic clearing and settlement, depository, international and courier revenues in the consolidated statement of operations. Including rebates and discounts, CDS returned CAD 14.2 million in 2010 and CAD 12.6 million to participants in 2009.

. CDS has reported a small profit of CAD1.8 million in 2010 following small losses in 2009 and 2008 after a profit in 2007. The profit stems from a substantial decrease in operating expenses and a slight increase in revenues. Expenses decreased from CAD 78.9 million in 2009 to CAD 72.8 million in 2010.
In 2010, CDS's net operating revenue was CAD 76.9 million compared to CAD 76.8 in 2009, (CAD 82 million in 2008, CAD 91.9

million in 2007, CAD 88.3 million in 2006, and CAD 94.1 million in 2005).. Although revenues are stable there have been changes in the contribution rate from the different services offered in part to a rebalancing of fees charged

During the 2010 fiscal year, which ended on 31 October 2010, 37.3% of revenues were obtained from depository services, 17% from clearing services, 3.9% from settlement, 5.1% from international, 5.3% from SEDAR, 8.1% from NRD, 4.3% from SEDI, 3.5% from courier, 4.2% from ATON and 11.3% from other services.

The low profits and earlier losses reported in four out of the past five years (2005, 2006, 2008 and 2009) do not represent a threat to CDS's financial sustainability; it limits its ability to accumulate reserves for systems and other developments, and large unforeseen financial shocks. In particular, in order to protect its income against volatility in transaction volumes, CDS invoices and collects a transaction volatility premium (TVP) (currently set at 7%) for use in the event of unexpected declines in transaction volumes. Since the inception of the transaction volatility premium in 1992, and with the exception of using the TVP to fund the development of CDSX in one instance, 100% of the value of premiums collected has been refunded annually to CDS participants.

Guarantee Funds (Central Counterparty Funds Only)

CDS manages two guarantee funds, whose size is detailed in the Counterparty Risk section. These apply to trades for which CDS acts as the CCP:

- FINet for government and provincial debt transactions
- CNS for on-exchange equity transactions

From 1 November 2009, CDS has had access to a higher value of collateral posted by New York Link participants, as the National Securities Clearing Corporation (NSCC) now holds all the risk based margin (RBM).

Access to Credit

CDS has a committed USD200 million line of credit in place. This can be used to cover any liquidity requirement necessary to guarantee settlement on the New York link, a default in case the collateral posted by the participant is not immediately available to cover the default (e.g. the collateral is with the extender of credit and the extender will pay CDS on behalf of the defaulter). and general cash flow requirements or to cover a liability claim that was not fully covered by the insurance arrangements or to cover insurance deductibles.
The adequacy of this arrangement is tested monthly against adverse scenarios and is sufficient to cover all but extreme liquidity needs through the course of normal business.

Insurance

CDS makes full disclosure of its insurance policy to its participants but limits further disclosure to the public. However, CDS does have extensive insurance coverage that includes insurance for the loss of securities including electronic securities, computer fraud, directors' liability, errors and omissions by staff, damage to building and equipment and others. The insurance limits and deductibles vary in size for the different types of cover. The policies are reviewed by the Audit/Risk committee and the Board of Directors on a regular basis to ensure the policies are appropriate for the organisation and to approve any changes to the policies.

Potential Claims on Financial Resources

Credit Loss

CDS does not provide credit facilities to its participants.

Central Counterparty Exposure

CDS is not exposed to credit losses as a result of its role as central counterparty for trades involving government fixed income securities and equities since it operates a loss sharing arrangement for market participants. In order to protect participants against a default in the system, CDS maintains an active risk mitigation function. In the event of a payment default, CDS has a lien on delivered securities for which it makes payments. Participants pay CDS at end of day or vice versa. Payments to DTC and NSCC are made through same-day fund settlement using US Federal Reserve's Fedwire. However, as sponsor of its participants in this link, notwithstanding the collateral and loss sharing arrangements with participants, CDS has a day of default liquidity exposure to cover a participant's position in the event of a default, if other participants are unable to immediately do so. CDS now has access to additional collateral provided by participants of the NY Link to use as collateral for their credit facility if required.

Liability for Operational Losses

CDS has a participant claims process in place to review participant claims for losses due to operational errors by CDS. The board establishes a maximum limit for payments to be made pursuant to this process which is currently set at CAD 120,000 for a six-month period for budget purposes. In 2009, there were two claims with no payments made and to July 2010, CDS paid out CAD 17,856 on four claims. In 2010, CDS settled a large claim from a participant arising from an entitlement processing event, which was dealt with outside of the participant claims process. Up to September 2011, CDS paid out CAD1,954 on four claims CDS Rule 4.2 describes the extent of CDS's liability for any type of loss that CDS may cause a participant.

The depository accepts liability for losses caused by CDS to a participant to the extent recoverable under CDS's insurance policies or from third parties.

Investment in Infrastructure

In 2010, CDS set aside a system development, enhancement and maintenance budget of CAD 6.6 million.
CDS have an on-going strategy to monitor capacity and invest accordingly in modern efficient equipment in order to ensure low maintenance costs, negligible downtime, adequate capacity and fast processing speeds.

Each quarterly development release is monitored by the strategic development review committee. Some of the main projects developed by CDS and detailed in the 2011 CDS Development Program (August 2011 release) include; (i) Depository initiatives to support the Transfer Agents' direct execution of corporate events (payments and allocation of securities) through the CDS system; (ii) Clearing and settlement initiatives to develop the continuous net settlement intraday process (completed), implement a U.S.-style due bill tracking initiative, and an interface to CDCC fixed income netting in which all transactions and settlement will flow through CDS systems; and (iii) information service initiatives that will enhance the delivery of corporate action information generally, and information on the tax treatment of corporate actions. .
Annually, CDSX maintenance and enhancements typically take place in four separate implementations in February, May, August and November. Additional implementations are scheduled as required for initiatives that do not conform to the regular release schedule.

The main infrastructure project in 2010 was the upgrade of the mainframes to a newer version as well as the introduction of a new storage system known as virtual tapes. The cost of the mainframe upgrade was CAD 3.5 million while the cost of the virtual tapes development was under CAD 1 million. Capacity upgrades were also made through 2011 to servers and storage to accommodate business growth.

In 2008, CDS renewed its maintenance contract with Tata Consulting Services for development and support of CDSX for a further 5 years.

Financial Risk - Key indicators

Ownership of the CSD

	Number - Domestic	Number - Foreign	Total Percentage
Central Bank	0	0	0
Stock Exchange	1	0	18.1
Participant banks	6	0	66.7
Broker/dealers	n/a	0	15.2
Mutual funds	0	0	0
Private clients	0	0	0
Others	0	0	0

Comments

The following participant banks are common shareholders of CDS, holding in aggregate 66.7% of the issued common shares:

- Bank of Montreal
- The Toronto Dominion Bank
- National Bank of Canada
- Canadian Imperial Bank of Commerce
- Royal Bank of Canada
- Bank of Nova Scotia

The remaining (33.3%) is held by the TMX Group (18.1%) and the Investment Industry Regulatory Organisation of Canada (IIROC) (15.2%).

Statistics

	Capital structure Local Currency
Issued capital	8,661,000
Surplus	17,000
Reserves	10,000,000
Retained earnings	32,771,000

Total	41,499,000

Comments

Statistics as at 31 October 2010 in CAD.

Lines of stock

	2007	2008	2009	2010	2011
Lines of stock	77,900	80,511	76,921	77,480	-
% Stock Exchange transactions cleared & settled through CSD	100	100	100	100	-
Total value of securities under custody	CAD 3,371 billion	CAD 2,964 billion	CAD 3,305 billion	CAD3,710 billion	-

Comments

figures for year ended 31 October.

Equities

	2007	2008	2009	2010	2011
Market Value	CAD 1,596 billion	CAD 1,075 billion	CAD 2,004	CAD 1,572	-
% of issued securities in the CSD	97 (est)	95 (est)	95 (est)	95 (est)	-
% of market capitalisation in the CSD	97 (est)	97 (est)	97 (est)	97 (est)	-

Comments

figures for year ended 31 October

Fixed Income

	2007	2008	2009	2010	2011
Market Value	CAD 1,779 billion	CAD 1,889 billion	CAD 1,301 billion	2,138	-
% of issued securities in the CSD	>95% (est)	>95% (est)	>95% (est)	>95% (est)	-
% of market capitalisation in the CSD	99.9 (est)	99.9 (est)	99.9 (est)	99.9(est)	-

Comments

Fixed income figures also include values for Money Market instruments.
Figures are for year ended 31 October

Money Markets

	2007	2008	2009	2010	2011
Market Value	N/A	N/A	N/A	N/A	-
% of issued securities in the CSD	N/A	N/A	N/A	N/A	-
% of market capitalisation in the CSD	N/A	N/A	N/A	N/A	-

Comments

Figures for Money Market instruments are included in the figures for fixed income.

Expenses

	2007	2008	2009	2010	2011
Expenses as % total operating revenue	102	99	98	88.4%	-

Operational Risk

Summary

CDS maintains a well-defined and comprehensive system of internal controls and safeguards. Depository, clearing, data processing and business continuity key controls and related procedures, which are consistent with CDS's business, exist and have been satisfactorily tested by internal as well as independent external auditors. Other operational risk controls and systems exist which are all regularly reviewed by the internal risk committee and Internal Audit group within CDS.

Key controls exist within CDS which help to minimise operational risk exposure categorised as:

- Safeguarding assets which are consistent with controls expected to be found in a depository which operates a clearing function.
- Depository controls surrounding CDSX-eligible securities.
- Clearing controls surrounding settlement including payment exchange.
- Data processing controls surrounding computer operations, systems performance, capacity planning, systems development and maintenance and change controls.
- Business continuity controls including programmes necessary to ensure the smooth running of CDS.

Independent reviews of controls are provided by the internal audit department and the annual external audits executed by KPMG LLP in the form of a 5970 report (Canadian equivalent of the SAS 70 report). The latest report covered the period between 1 August 2009 and 31 July 2010.

Depository controls

Physical security

Depository controls within CDS are aimed at protecting participants' securities on deposit against loss and inappropriate disposition. All certificates are held in secure vaults at CDS or at approved custodians. Underlying certificates are subject to an annual physical count confirmed by external audit.

There are tight controls around CDS's vaults that employ a variety of security measures.

CDS operates under a logical segregation of duties which restrict people from having access to both certificates and ledgers. Transport of certificates is via armoured courier which provides a high level of security. Security in the premises is enhanced with real-time surveillance using cameras with motion detectors.

Equities and corporate debt - Government of Canada domestic debt issues, provincial treasury bills, provincial bond, municipal bonds, commercial paper and bankers acceptances, mortgage backed securities, equities and corporate debt are CDSX-eligible. Domestic federal securities are recorded in book-entry form by the Bank of Canada and are cleared and settled by book-entry through CDS. Provincial treasury bills, commercial paper, banker acceptances, mortgage backed securities, equities and corporate debt are typically dematerialised.

CDS does not allow participants to withdraw physical certificates of non-transferable/defunct issues (NTIs). The immobilisation of NTIs at the CDS only has a limited effect on the operational risk exposure related to these securities, as these are issues of companies that are no longer traded in the market. From 1 November 2011, it is expected that no withdrawals will be allowed for market participants if there is an active direct registration system (DRS) programme in place with their transfer agent in Canada.

Annual independent audit reports as at June 2011 confirmed that the physical certificates, non-certificated inventory positions and packages of securities were matched to book-entry oly positions and participant ledger records of securities maintained by CDS.

Access to the building is restricted and is controlled by security guards with continuous monitoring of security cameras (cameras are employed across different branches). Remote monitoring of the regional offices from Toronto has been available since May 2008. Access is controlled with electronic cards and entrance to some areas is only permitted to specific employees. There are also alarms inside the building to warn against unauthorised entrances.

Participant Created Electronic Security

Issuers of money market securities are able to electronically create their own securities and deposit these directly into the CDS depository. CDS has introduced measures approved by the regulators that ensure the integrity of the securities created. The measures include: (i) defined procedures that must be followed by each issuer and audits of those processes; (ii) checks on value and maturity dates and other security particulars.

Reconciliations

At the end of each working day CDS runs an automated process to compare the electronic (NCI) ledger positions and the inventory held by CDS. If a discrepancy exists, an exception report is generated and the problem should be resolved the following working day.

For physical securities held at the subcustodian on behalf of CDS, a monthly report is sent by the relevant custodian and CDS manually reconciles it against CDS's records. If a discrepancy exists, it is input in a discrepancy log and the situation resolved by the relevant CDS staff. If the error came from the custodian, the situation is referred to them for correction.

Automatic daily reconciliations also take place with transfer agents for dematerialised securities. Discrepancies are reported in the transfer agent's Reconciliation Exception Report.
CDS maintains procedures to internally escalate outstanding unreconciled items after 5 days.

Transfer agents acting as paying agents for dividend and interest payment effectively reconcile any unmatched payments and adjust the events in NCS accordingly.

Risk Management

There is a specific risk management department that is in charge of designing the risk management policies for CDS which are discussed within the risk management committee, chaired by the Chief Risk Officer and attended by the managers of the different departments. Risk management policies are also discussed within the Risk Advisory Committee, attended by participants and CDS's regulators as observers.
The integrity of the risk framework is built upon a complete library of identified risks and associated controls and procedures that are regularly reviewed in relation to the level of risk they pose. Responsibility for the risk and processes in CDS is layered with the first line of defence being the business unit supported by sound procedures and staff training. The second line is Risk Committee with oversight and review responsibilities supported by the internal and external audits.

Each division is responsible for assessing the risks involved in its area based on the probability of occurrence and the potential financial impact. Rankings are assigned for each process under a standard procedure to try to ensure that the risks are consistently assessed across CDS. In addition, CDS has a process to develop and review procedures for new processes and manage procedural breakdowns that lead to errors and claims.

Audits

There is an internal audit division that reports to the President & CEO and to the Board of Directors. The Chief Auditor leads the department that comprises teams covering IT audit and operational audit. The department has 15 staff including 8 IT audit staff.

The mission of the internal audit is to provide an independent, objective assurance as to the quality and effectiveness of CDS's controls, operational and management processes and to provide value-added consulting services designed to improve CDS's operations and functions. The internal audit department also evaluates and improves the effectiveness of risk management, internal control and the governance process.

Internal audit also supports the work of the external auditors by providing their opinions on CDS's controls. In fact, the internal audit plan and the plan presented by the external auditors are coordinated and complementary. The internal audit plan is established every year and covers the main areas to be audited and the schedule. In 2008, CDS widened the scope of their internal audit to include all business risks. Control risks were prioritised under a three-tier programme. The frequency of the audit (annually, two yearly and five yearly), varies according to the tier in which the risk is classified. Internal audit also use data analytics and monthly monitoring of key controls to enhance the effectiveness of their audit process.

The results of the internal audits are provided to the management of CDS as well as to CDS's Board and are discussed during audit/risk committee meetings. The review of CDS's internal controls structure, business continuity programme and other audit issues is executed by the audit/risk committee.

CDS has also appointed an external auditor, KPMG, which complements the work executed by the internal audit division and provides an independent view on the controls undertaken by CDS and CDS INC. KPMG has acted as CDS's external auditors for 30 years and was recently reappointed. It is now CDS's policy to undertake a contestable review of the appointment of its external auditors every six years, although there is no policy to change the existing auditor after a specific period of time. The external audit team is periodically changed.

The review on controls is undertaken under a 5970 report (the Canadian equivalent of the SAS-70 report), which in 2008, was extended to cover new activities such as some processes associated with managing CDS's financial risk model.

The external auditors also report to the management of CDS and participate in the audit/risk committee which is a subcommittee of the board of directors. The external auditor could meet separately with a particular participant at the request of the participant to discuss the findings of the report. The reports are also available to the regulators of CDS such as the Autorité des Marchés

Financiers (AMF), Ontario Securities Commission (OSC) and Bank of Canada (BoC).

As part of the external audit process, there are visits throughout the year with concentration over July, August and September while the 5970 report is being prepared.

CDS also commissioned a comprehensive review of its enterprise risk management (ERM) program by an independent firm at the conclusion of their money market project in early 2010. The review indicated that CDS's ERM program was aligned with best practices and was more mature than programs usually found in the financial services sector.

Staff training

There is a specific budget allocated to staff training of approximately 2% of CDS's revenues (CAD 898,715 in 2010) which is allocated across the different areas.

In order to apply for a training course, employees have to complete an application form, which is submitted to the managers for approval. The manager must then send the form to the Human Resources department for processing and final approval.

CDS developed a training programme for new employees, which includes two courses: Overview of the Canadian Capital Markets (attended by 16 employees) and CDS's Role in the Canadian Capital Markets (attended by 69 employees). These courses were developed together with the Canadian Securities Institute.
The Customer Service Division has delivered a series of five courses which were developed in-house to promote an understanding of the Canadian capital market. These courses are widely attended by employees and are also being offered to external parties. The courses are:

-Clearing and settlement processing in Canada
-Depository processing Canada
-Corporate actions processing in Canada
-International securities transactions processing in Canada
-Financial risk management in CDS's settlement

CDS also ran a risk awareness training programme which was well attended by employees.

CDS maintain corporate HR policies on all staffing matters including: staff training, staff selection to minimise risk of criminal activity and fraud, a Code of Business Conduct and Confidentiality to protect its reputation. There is a leadership programme to develop talent and support the on-going strength of the business.

Clearing controls

Instruction Receipt and Processing

Settlement instructions are sent by participants to CDSX in various electronic forms and are classified as on-exchange (exchange) or OTC (non-exchange). Details of on-exchange transactions are received in a batch file from the relevant exchange or ATS in a confirmed status.

Off-exchange transactions are entered, modified and deleted through online screens, real-time messages or batch processing. Transactions can be electronically matched by CDS's Trade Matching service, or alternatively manually entered by one party and then confirmed by the counterparty. All broker participants are required by IIROC Regulation 800.49 to use the matching service. If there is a discrepancy in the trade details, participants can modify or delete the trade.

CDSX calculates and submits settlement obligations to participants daily for trades executed on trade date (TD). Trades coming from the exchanges are "locked in" on TD and transferred to CDS at the end of T+0. However, in the rare situation that both parties to a trade agree to amend the trade, participants can, on TD+1, request an amendment to a trade reported to CDS from a domestic exchange or ATS by faxing the relevant forms to CDS from authorised representatives of both buyer and seller. Requests are then verified and authorised by a CDS control analyst and once the correction is made, a second analyst verifies the details of the request. Participants can match transactions before processing and can verify through CDS systems access that transactions were executed as per their instructions. In the CDSX system, all collateral requirements must be in place before payment exchange can be concluded on any given day.

SWIFT ISO 15022 messaging standards are applied for its links to Euroclear France, Japan Securities Depository Center Inc. (JASDEC) and Skandinaviska Enskilda Banken AB. SWIFT ISO 15022 messaging standards are also applied to corporate actions and messaging to/from virtual matching utilities.

Collateral management

Collateral pool calculations are electronically determined but manually maintained and monitored using the Collateral Management System (CMS) which is integrated into the CDSX platform.

Reporting

Participants are able to check in real-time the status of each trade they have input in the system. Using this system they can track whether a particular trade is pending and the reasons for this status. In addition, participants receive a batch report with detailed information at the end of each batch cycle and at the end of the business day. These reports detail their account movements, the list of settled, failed and partially settled transactions, details of loans, and details of collateral movements.

Intra-day messages or outbound files are generated for participants subscribing to either information service. A settled transaction report is available intra-day on request. Participants are not currently able to customise reports on line, although they can request specific reports from CDS and acquire electronically selected data streams.

Data processing controls

Data processing

CDS provides its own data centre operation in a secure space leased from a data centre provider. Control procedures exist to monitor changes to software, disaster prevention mechanisms, data storage and retention of files, program libraries, and systems software.

CDS's data centre runs on a 24/7 basis, and has appropriate fast response support arrangements in place. Computers operators working on 12-hour shifts monitor data centre activities. Computer operators follow daily checklists of the activities to be executed during each shift.

The tasks executed by the computer operators as well as the timing of job completions are monitored including the submission of the daily shift turnover log to senior IT managers for review. The CDSX daytime and evening time deliverables summary (including target, and actual completion and variances) is produced daily.

Security

CDS employs industry standard network security measures including high-level information security policies for firewall remote access, network component configuration management and Internet usage. Dedicated test systems exist in segregated environments to allow testing of the various systems without impact on any production environments.
CDS regularly uses third parties (ethical hackers) for vulnerability assessments. A network perimeter test was conducted in 2010 and 2011 and an independent consultant validated the effectiveness of CDS's perimeter security infrastructure - the results stated that there were no critical findings.

A password (using ISO 17799 standards) is required to log-in to the system. Passwords must be changed every 30 days. There is a decentralised model whereby each participant administers their own access, although it is CDS's policy that each unique password must only be used by the registered person.

CDS has a single network supported by Canada's largest service provider with full Canadian coverage. The network has multiple access points to the building and support is provided on a high priority 24/7 support arrangement. Capacity over the network is monitored and a high level of redundancy is targeted.

Participants' and remote employees' connections are protected by running on private networks, either using dedicated circuits or VPN.

Passwords are also used by CDS employees to access the system. There are restrictions in terms of data access.

Data Zaps

A data zap is any change to application or control data that is conducted outside of a production application to add, change or delete data. Intervention is required at times to bypass control or application programming defects, which cause or will cause an interruption to the processing schedule. The defect is identified for correction.

In 2010, CDS executed only four datazaps. For effectiveness management purposes, a threshold level of four data zaps per month has been set and is regularly reviewed by senior management.

Disaster Recovery/Business Continuity Procedures

CDS maintains an off-site processing centre and an off-site disaster recovery site. CDS's disaster recovery centre employs synchronous data mirroring to protect against the loss of transactional data. Critical systems are recovered in 2 hours, 4 hours, 8 hours or 24 hours depending on the requirements of the relevant process. The DRP site is under surveillance by the data centre provider and is located around 23 kms from the main centre.

In the event that CDS's offices become inaccessible, CDS has a range of options that can be used depending on need. CDS has split its core operation into two geographic regions, Toronto and Montreal. There are 60 people located in Montreal who would be able to revise priorities and undertake the processing of all critical activities if the main office in Toronto became unavailable, and vice versa. For corporate divisions, CDS has both permanent and as-required capabilities at a commercial business recovery site. Lastly, CDS is in a position to rely on certain employees working remotely (from home) in order to execute their daily activities. The computer systems can be brought up and managed remotely. CDS has a practice that key employees work from home regularly to verify that the connection works and all activities can be executed this way. Through these various business contingency options, CDS is able to run operations remotely for an extended period of time.

Software changes can be made remotely while hardware changes require the physical presence of IT staff in order to take place.

On 11 November 2009, CDS conducted a surprise corporate BCP test at its Toronto head office with participation from all staff at that location (approx. 300). For the tests all factors such as network connectivity, functionality of the alternative work site and remote computing users operated as specified in CDS's BCP. In addition to the annual corporate test, each department at CDS is required to conduct their own independent business continuity arrangement tests. During the 2010 G-20 Summit in Toronto CDS applied its BCP test in a live environment over three days. All CDS critical and non-critical operations were carried out successfully, without delay or interruption during this time. No surprise tests have been made in 2011.

CDS conducts semi-annual disaster recovery tests. The last test took place in September 2011 and included major participants with a successful outcome. The audited test demonstrated CDS systems (online and business functionality, network failover, file transfer and participant connectivity) were recovered within predetermined recovery time objectives without failure. Regular reviews with IT department are undertaken to help ensure the disaster recovery plan is current. Updates to technology or processes are immediately incorporated into the DRP plan, as are required changes identified as a result of the tests. The back-up data centre is "warm" and has a UPS and a Diesel generator. There are also back ups for digital and analogue lines. Communication is via fibre optic and there is redundant communication with most participants and other infrastructure providers.

Data is stored in real-time in the back up centre. Additionally, CDS implemented a Data Library Management whereby data is also stored in virtual and physical tapes on a daily basis. Application and data back ups are shipped to an independent third party for storage. CDS implements retention of back up data, based on approved, application-specific back up policies and procedures which are periodically updated.

In the event of unavailability of CDS offices, physical securities held in the vault cannot be withdrawn. In these instances, CDS will work with participants, transfer agents and regulators to ensure that no rights of security ownership are adversely affected.

CDS Contingency Planning Services provides terminal access, office space and general support to participants who are temporarily unable to access CDS systems for whatever reason. CDS has also implemented the Participant Shared (Terminal) Access programme to enable different CDS participants to share CDS terminals in the event of a systems breakdown or disaster affecting their access to CDS. Once the participants have reached an agreement on the conditions of the sharing arrangement, CDS allocates appropriate segregated user Ids to the terminals to allow for multiple user access.

CDS has also arranged additional business continuity office space 40km from Toronto that can accommodate up to 50 employees on a dedicated basis and an additional 50 employees on a shared basis. This site has real-time camera surveillance that is monitored remotely.

Depository Liability

CDS is only liable to participants in respect to the operations of services. CDS takes no liability for any third parties (including any client or customer of a participant, any person on whose behalf a participant was acting in any capacity, or any other person claiming through or against such persons).

CDS is only liable to participants with respect to the operation of its services and maintains insurance coverage at a level determined by the board of directors. CDS does not accept liability for losses triggered by reconciliation errors with registrars or issuers, or from force majeure events.

The extent of CDS's liability for participant losses and for loss of securities are detailed in Rules 4.2.3 and 4.2.4. CDS accepts liability for losses caused by CDS subject to the limitations in Rule 4.2.5 (Limitation of Participant Recovery) and 4.2.9 (Exclusion of CDS Liability).

Rule 4.2.5 states: The maximum total amount payable by CDS to all Participants for any Participant Loss or Loss of Securities shall be the net amount recovered by CDS from its insurers or any other Person in respect of the Participant Loss or Loss of Securities. In the event of a Participant Loss or Loss of Securities, CDS shall make a claim under any applicable policy of insurance and against any Person responsible for the Participant Loss or Loss of Securities, if CDS considers it commercially reasonable to make such a claim.

Rule 4.2.9 states: The amount payable by CDS for any Participant Loss or Loss of Securities shall be limited to the amount payable pursuant to Rule 4.2.5 and shall not exceed that amount in any circumstances, including a Participant Loss or Loss of Securities arising from or in any way connected with a breach (including a fundamental breach) of the Legal Documents, or a Participant Loss or Loss of Securities arising from or in any way connected with any negligent or reckless act or omission of CDS or any fraudulent, negligent, reckless or willful act or omission of any director, officer, employee, agent or contractor of CDS, whether or not the possibility of such Participant Loss or Loss of Securities was disclosed to or reasonably could have been foreseen by CDS.

Rule 4.2.4 applies only to CDSX and not to cross-border services. CDS shall be liable to its participants for a loss of securities, subject to the limitations set out in Rules 4.2.5 and 4.2.9. A loss of securities means any circumstance in which CDS would be unable to deliver to all participants all securities held by CDS for them, including:

-The theft, destruction or mysterious disappearance of any certificate or other instrument evidencing securities;
-The determination that any security is a defective security;
-The determination that the registration of any security in the name of CDS, a nominee, a custodian or a nominee of a custodian, is invalid, improper, defective, subject to any adverse claim or privilege or cannot be effectively and right-fully transferred.

For claims against CDS deemed to be valid, CDS has set a limitation on the maximum liability amount of CAD 120,000 every six months (CAD 240,000 per annum), which is a board-approved annual budgetary guideline. If there were one or more participant losses in excess of CAD 120,000 in a six month period, the board would be called upon to exercise its discretion and would not necessarily be constrained by their previously established budgetary guideline. If the participant is not satisfied with the outcome under the claims process and brings a suit against CDS, this claim will be subject to the rules which state that they are limited to the net amount recovered by CDS from its insurers or any other person in respect of the participant loss. If a participant suffers a loss caused by CDS which is uninsured or unrecoverable by CDS, then the board may, in its sole discretion, make good on the loss to the participant from CDS retained earnings or contingency reserves.

Systems Performance

Systems performance within CDS is monitored through a series of procedures, controls and indicators to monitor stress in the system including, for example, pre-established targets and standards, critical early warning indicators including system responses times, cycle processing times, critical job run times, periodic reviews of operational performance statistics and capacity planning.

CDS experienced a sudden spike in on-exchange trades in July 2011, which saw the number of daily trades peak around 3.1 million trades. Due to the capacity planning activities carried out by the company, CDS was able to successfully meet the required deliverables without any capacity related issues. CDS implemented system operational changes and hardware improvements which have extended CDS's tested capacity to 4.8 million trades a day.

System uptime of 99.9% was achieved in 2010. There were no whole days where the system was disrupted nor settlement not completed. This compares with system availability of 100% in 2009, 99.96% in 2008 (99.92% in 2007 and 100% in 2005 and 2006). System up time year to date in 2011 is 100%. .

Operational Risk - Key indicators
Control objectives identified by the CSD match standard objectives Yes
Key controls and procedures are identified by the CSD Yes
Independent evidence exists that key controls and procedures have operated effectively through the last year Yes
Material errors have been identified No

CSD on CSD (Credit) Risk

Summary

CSD on CSD (credit) risk exposure to DTC must be assessed by reading the Financial Risk assessment of that entity contained in its respective Thomas Murray Depository Report. CDS sponsors participants into the New York Link and DTC Direct services, and is responsible for the settlement of their obligations through these links.

CDS's major cross-border depository link is with the US depository, Depository Trust Co. and its sister company, the National Securities Clearing Corporation. In 1998, the CDS link to the DTC was enhanced with DTC becoming a CDS participant for USD trades and in 2006 for CAD transactions. Transfers are executed as regular movements at the CDS terminals.

CSD - CSD Links

CDS has full settlement and custody links with the NSCC and DTC, and custody-only links with Euroclear France, SEB, CAVALI and JASDEC.

All CDS participants became eligible to use any of the Canada-US cross-border channels for against payment transactions in October 2001. CDS offers its participants 2 different Canada-US cross-border links: the New York Link and DTC Direct.

In the New York Link service, CDS sponsors participants for direct membership in NSCC and DTC. In DTC Direct, CDS sponsors participants into DTC only. For both links, CDS is responsible for settlement of participants' obligations at NSCC and DTC respectively. Participants indemnify CDS for its obligations to NSCC or DTC associated with their activities in New York Link and DTC Direct through a settlement bank credit ring and collateralisation of a participant fund based on risk-based margining (RBM). CDS also has cross-border move functionality with DTC, which is on an FOP basis only.

CDS has a one-way free of payment link with CAVALI, the Peruvian CSD (i.e. CAVALI is a participant in CDS).

Processing Cycles

DTC and NSCC operate within the same time zone as CDS and operate a similar daytime multi-batch system (CNS) to that used for equities by CDS.

Certain messages between CDS and the Depository Trust Company (DTC) are processed on a real-time basis. In order to support the messaging facility, all Northbound cross-border movements submitted through DTC must reference the receiving CDS Participant's CUID as the third party.

CSD on CSD (Credit Risk) - Key indicators

International Links: List of international links established and/or planned by the CSD

USA: DTC and NSCC - settlement and custody
France: Euroclear France - custody only
Japan: JASDEC - custody only
Peru: CAVALI - custody only

Governance and Regulation

Management and governance of the depository

CDS is a private business incorporated federally on 9 June 1970 under the Canadian Corporations Act and continued under section 181 of the successor Canada Business Corporations Act. Although CDS is a privately held company, not bound by stringent company disclosure regulations, the policy of CDS is to observe the highest standards and best practices of corporate governance and disclosures established by the securities regulators in Canada. These are clearly articulated in CDS's Corporate Governance Manual, and assist CDS in operating effectively in the best interests of the Canadian capital markets.
CDS has guidelines with respect to the appointment of directors which are made in accordance with a Pooling Agreement among CDS shareholders. CDS has had a Pooling Agreement since 1981. The Pooling Agreement provides for bank shareholders to appoint six directors, TSX Inc. to appoint two directors, IIROC to appoint one and the CDS Board of Directors appoint five independent directors. CDS's president and chief executive officer is also a member of the board.

The CDS board of directors consists of 15 directors, 9 from shareholders, 1 from CDS management, and 5 independent directors. There are 3 committees that directors have membership on; the Governance/Human Resources Committee, the Audit/Risk Committee and the Finance Committee.

The Governance/Human Resources Committee is responsible for the supervision of human resources and compensation issues.

The Audit/Risk Committee reviews the quality, integrity and timeliness of financial reporting as well as CDS's risk management and insurance programmes. It is also in charge of reviewing CDS's internal controls, business continuity programme and audit issues. It also reviews and reports to the board, management's recommendation for the appointment of the external auditor, the terms of engagement and the appropriateness and reasonableness of the proposed audit fee.

The Finance committee monitors the financial performance of CDS and provides financial management and direction of the business and affairs of CDS.

In addition to the board and its three committees, CDS has internal and external committees as follows:

External Committees:

-Strategic Development Review Committee, which includes four separate subcommittees for issues relating to debt, equity, entitlements and tax.
-Risk Advisory Committee, which reviews and recommends enhancements to the CDS Financial Risk Model.

Internal Committees:

-Strategy group
-Enterprise steering committee-Risk management committee
-Operations committee

Regulatory and independent examination of the depository

CDS is regulated by the Ontario Securities Commission and is a recognised clearing agency under section 21.2 of the Ontario Securities Act and in the province of Quebec, under section 169 and 170 of the Quebec Securities Act, regulated by the AMF de Quebec. Recognition as a clearing agency is essential to conducting securities and depository activities and to effecting securities transfers and pledges by book-entry in the records of CDS. Under federal Protection of Securities Regulations, CDS is specifically authorised to act as a prescribed custodian of securities for federally incorporated financial institutions such as banks, trust and loan companies, insurance companies and pension funds. CDSX was designated as a clearing and settlement system subject to the provisions of Part 1 of the Payment Clearing and Settlement Act 1996 which provides for the formal oversight of CDS by the Bank of Canada.

The Depository Bills and Notes Act, 1998, section 85 of the provincial Securities Transfer Act, section 10.2 of the Quebec Securities Act and other provincial legislation govern the immobilisation and book-entry deliveries of corporate money market paper, government debt and corporate securities.

Under the Canadian Securities Administrators' National Instrument 81-102, CDS is an approved securities depository and clearing agency in Canada, with which a Canadian custodian of mutual funds may deposit securities.

Based on the Clearing and Depository Controls at CDS (2010), CDS Report on Internal Controls and Safeguards 2005, management state that: "CDS Clearing co-operates with the federal and provincial superintendents of financial institutions, who regulate banks and trust companies." CDS abides by the terms of a Regulatory Oversight Agreement entered into with Canada's central bank, the Bank of Canada.

Under the rules of the stock exchanges in Canada and the Investment Industry Regulatory Organization of Canada (IIROC), CDS is defined as the clearing corporation for each exchange; trades in listed securities are to be settled through CDS; and delivery of securities to settlement agents on behalf of clients is to be made through securities depositories (effectively, therefore, CDS).

An independent audit of the financial statements of CDS, in accordance with generally accepted auditing standards, takes place annually. In addition, an independent audit of certain specified internal control objectives and internal control procedures relating to the depository and clearing system is carried out by KPMG LLP. (Refer to Operational Risk section). In addition, CDS is subject to periodic regulatory oversight reviews.

Internal controls and procedures for safeguarding investments

The control structure maintained by the management of CDS integrates management, financial, operational, data processing and business continuity control systems and mechanisms to protect the assets of participants. CDS has well-defined internal control objectives and related internal control procedures.

Operational controls are audited annually by internal and external auditors. Most of these controls and procedures have been described earlier in this evaluation.

CDS has an internal audit group responsible for independent appraisal of the adequacy and effectiveness of internal controls. All operations and computer systems relating to CDS itself and its participants' assets entrusted to CDS's care are subject to internal audit appraisal.

An Audit/Risk Committee of the board of directors exists. Members are appointed annually by the board of directors of CDS. CDS governance practices require that at least one member must be independent (not representing a shareholder or participant) and no member shall be from the management of CDS. External auditors of CDS are invited to attend all Audit/Risk Committee meetings. The Audit/Risk Committee is responsible for reviewing all audited financial statements intended for circulation among the shareholders and reporting on these statements to the full board. In addition, the Committee is required to review the risk management and insurance programmes of CDS at least annually.

Other legal protection mechanisms

N/A

About the Depository

Name and Address

CDS Clearing and Depository Services Inc.
85 Richmond Street West
Toronto, Ontario M5H 2C9
Canada

Website

www.cds.ca

Date of establishment

9 June 1970

Date commenced operations

1973

Legal status

Incorporated under Section 181 of the Canada Business Corporations Act

Type of legal entity

Private company

Regulated by

Ontario Securities Commission, Autorite des marches financiers (AMF) de Quebec and federally by the central bank through the Payments Clearing and Settlements Act.

Is use of the CSD required?

	Settlement	Safekeeping

Segregation of Assets at the Depository

Depository assets from participants

Yes

Participant assets from clients

Yes

Eligible Securities Depository under SEC Rule 17f-7

System of central handling of securities

Yes

Regulated by a financial regulatory authority

Yes

Holds assets of all participants on equivalent terms

Yes

Identifies and segregates participant assets

Yes

Periodic reports to participants

Yes

Periodic examination by a regulator or independent accountant

Yes

By Law	No	No
By Market Practice	Yes	Yes

How securities are held
Equities and some fixed income are immobilised, money markets and government debt are dematerialised

Domestic eligible participants
96 (Banks 11, Brokers 58, Central Bank 1, and others 26).

Foreign eligible participants
4 (Brokers - 1, Others - 3 Cavali, JASDEC and DTC)

Ownership
CDS Limited (holding company) which is owned by the major Canadian chartered banks (66.7%), TMX (18.1%), and IIROC (15.2%).

Internal Safety Measures

Participant Eligibility Criteria

Minimum Capital Standards
Yes

Financial Aspects

Ability to raise capital/borrow
Yes

Committed lines of credit in place
Yes

Publish audit financials
Yes

Take lien on stock held
Yes

Central Bank Guarantee
No

Other third party guarantee
No

Third party insurance
Yes

Safeguard Facilities

Offsite Backup
Yes

Disaster Recovery

Disaster Recovery Plan
Yes

Services Provided

Matching

Pre-matching services
No

Matching services
Yes

Clearing

Clearing services
Yes

Securities Settlement

Book-entry settlement
Yes

Fails management
Yes

Cash Settlement

Internal cash settlement
No

Stock Lending

Securities lending for fails coverage
No

Comments
Settled through CDS but CDS does not act as principal

Asset Servicing

Notifications
Yes

Back-up power generator
Yes

UPS (Uninterruptible power supply)
Yes

Securities processing
Yes

Paying agent
No

Central registrar
No

Proxy voting services
No

Comments
CDS is central registrar for some Book-Entry Only (BEO) issues

Communications

Electronic communications
Yes

Reporting Services

Electronic reporting
Yes

Reporting of every movement
Yes

Regular statement of securities deposited
Yes

Definition

-

Publication Date

The publication date represented here is November 2011. This is the date that the assessment report has been reviewed by third parties including the CSD. The report is updated on an on-going basis throughout the year as new information is received and should be read in conjunction with the relevant newsflashes issued since the publication date.

RISK EXPOSURE DEFINITIONS

Asset Commitment Risk - The period of time from when control of securities or cash is given up until receipt of countervalue. This risk concerns the time period during which a participant's assets, either cash or stock, are frozen within the CSD and payment system pending final settlement of the underlying transaction(s). Following settlement, the risk period is extended until the transfer of funds and stock becomes irrevocable. It excludes any periods when assets, cash or stock, are committed to a market participant including brokers, banks and custodians, not caused by CSD processing.

Liquidity Risk - The risk that insufficient securities and or funds are available to meet commitments; the obligation will be covered some time later. This is where for certain technical reasons (e.g., stock out on loan, stock in course of registration, turn round of recently deposited stock is not possible) one or both parties to the trade has a shortfall in the amount of funds (credit line) or unencumbered stock available to meet settlement obligations when due. These shortfalls may lead to settlement 'fails' but do not normally lead to a default.

RATING SCALE

AAA	Extremely low risk
AA+	Very low risk
AA	
AA-	
A+	Low risk
A	
A-	
BBB	Acceptable risk
BB	Less than acceptable risk
B	Quite high risk
CCC	High risk
N/R	No rating has been given due to insufficient information

Contact:

Thomas Murray Depository Service
Horatio House,

Counterparty Risk - The risk that a counterparty (i.e., a participant) will not settle its obligations for full value at any time. This is simply the total default of a direct participant of the CSD. This is the event when a participant is unable to meet its financial liability to other participants. This risk only goes as far as direct participants of the CSD and excludes clients of direct participants that default on liabilities to such participants, even if such a default should systemically cause the direct participant to subsequently default.

Asset Servicing Risk - The risk that a participant may incur a loss arising from missed or inaccurate information provided by the depository, or from incorrectly executed instructions, in respect of corporate actions and proxy voting. This risk arises when a participant places reliance on the information a depository provides or when the participant instructs the depository to carry out an economic transaction on its behalf. If the depository fails either to provide the information or to carry out the instruction correctly then the participant may suffer a loss for which the depository may not accept liability. The depository may provide these services on a commercial basis, without statutory immunity, or it may provide the service as part of its statutory role, possibly with some level of protection from liability. This risk is likely to become much higher when international securities are included in the service.

Financial Risk - The ability of the CSD to operate as a financially viable company. This risk concerns the financial strength of the depository and if its financial resources are sufficient to meet the on-going operation of the organisation. This risk also includes where the CSD may act as central counterparty, or otherwise acts in a Principal capacity.

Operational Risk - The risk that deficiencies in information systems or internal controls, human errors or management failures will result in losses. The risk of loss due to breakdowns or weaknesses in internal controls and procedures. Internal factors to be considered in the assessment include ensuring the CSD has formalised procedures established for its main services. The CSD should have identified control objectives and related key controls to ensure operation and proper control of established procedures. Systems and procedures should be tested periodically. There should be external audit processes in place to provide third-party audit evidence of the adequacy of the controls.

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Names of analysts available on request.

Report Date

Canada

1 December 2011