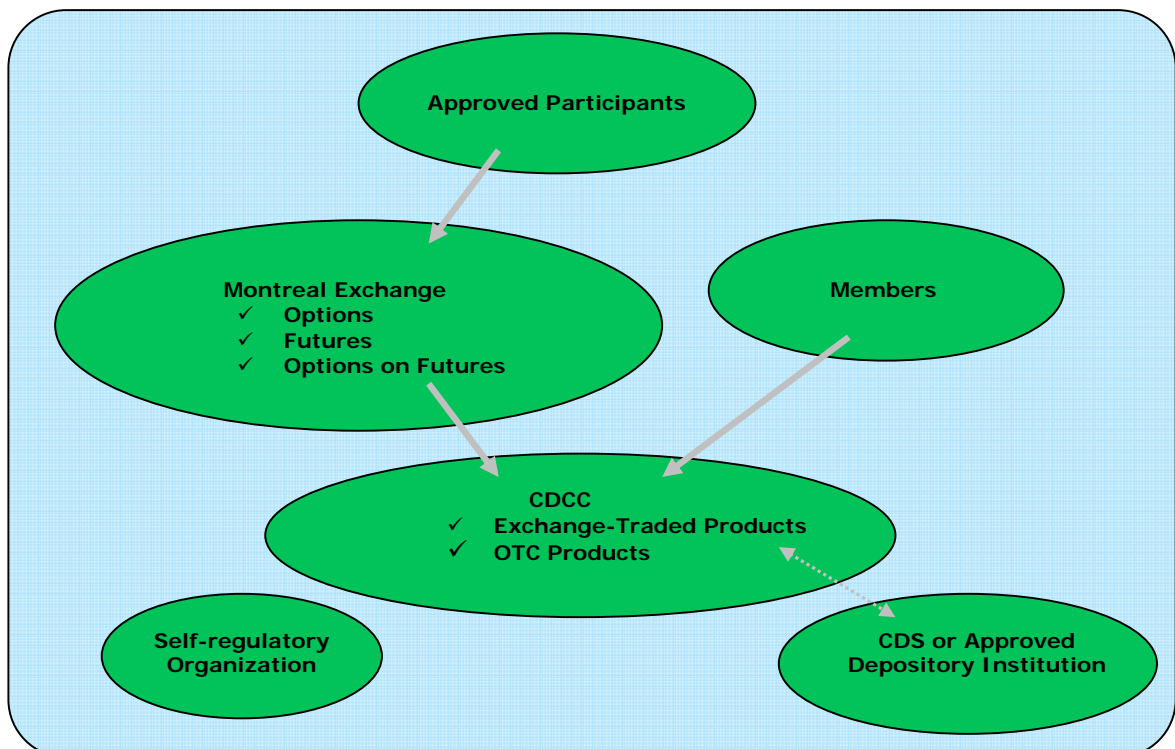


Risk Management at the CDCC

The department of risk management at the CDCC employs a rigorous methodology in order to cover potential risks. The CDCC follows the recommendations for central counterparties established by the Bank for International Settlements¹ regarding:

- ✓ Participation requirements;
- ✓ Margin requirements;
- ✓ Financial resources;
- ✓ Default procedures;
- ✓ Efficiency;
- ✓ Transparency;
- ✓ Governance;
- ✓ Regulation and oversight;
- ✓ Measurement and management of credit exposures;
- ✓ Custody and investment risks;
- ✓ Operational risk;
- ✓ Legal risk;
- ✓ Physical deliveries;
- ✓ Money settlements.

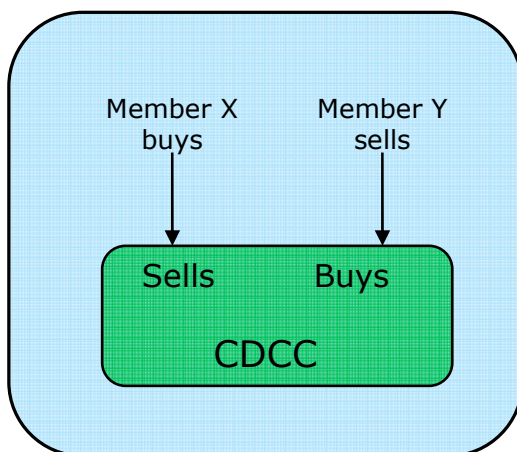
In addition, the CDCC studies the practices used at other clearing corporations in order to meet industry standards as well as customer needs, with respect to its own legal environment.



¹: <http://www.bis.org/publ/cpss61.htm>

Role of the CDCC as a Central Counterparty

- ✓ Oversees the integrity and stability of the markets cleared by the CDCC;
- ✓ Ensures that margin requirements are sufficient to cover potential exposures in extreme but plausible market conditions;
- ✓ Interposes itself between the buyers and sellers of all cleared contracts (financial and over-the-counter products);



- ✓ CDCC adheres to the same rigorous standards regarding regulation and dissemination of information as self-regulatory organizations (SRO);
- ✓ Protects all members of the Clearing Corporation against counterparty risk and, indirectly, their clients as well;
- ✓ The CDCC respect this guarantee by ensuring its ability to quickly transfer, close out or hedge the positions of a defaulting member;
- ✓ Ensures settlement of all exchange operations and evaluates daily the market value of the members' positions;
- ✓ Facilitates the settlement of transactions between participating members.

The capacity of the CDCC to manage clearing operations securely and with high integrity is measured by the AA rating by S&P maintained since November 2002.

How to Become Member of the CDCC

To be able to clear exchange-traded or over-the-counter transactions at CDCC, a clearing member must:

- ✓ Be a member or approved participant of an authorized Canadian exchange or a chartered Canadian bank (see Annexe 1);
- ✓ Be a member in good standing of The Canadian Depository for Securities Limited (CDS);
- ✓ Retain a minimum capital of \$250 000;
- ✓ A Clearing Member that intends to clear physically settled OTC transactions must ensure that it and/or its client is in good standing and remains as such at all times with the appropriate Market Centres and/or Delivery Agents;
- ✓ Be approved by the Board of the CDCC.

See section [Rules](#) (Rule A-1A) for more details concerning the eligibility criteria for membership at the CDCC.

Admission procedure:

- ✓ The Corporation may verify and validate if the financial situation of a new member is adequate and confirm if the member has sufficient capital.
- ✓ The Corporation ensures that the new members have an acceptable operational situation, administered by competent personnel.



Once the admission procedure is completed:

- ✓ The members of CDCC must meet the minimum capital requirements of the Investment Dealers Association of Canada (IDA). Bank members must conform to the capital requirements of the Office of the Superintendent of Financial Institutions Canada (OSFI).
- ✓ Every month, the CDCC examines the financial reports from its members (every third month for the banks), noting and investigating any abnormal trends.
- ✓ If a member does not meet criteria of financial solidity, the CDCC has the right to require additional margin.
- ✓ The Clearing Members must submit a verified annual financial report to CDCC as well as a corporate organisational chart.

Converge

Converge is the clearing service for over-the-counter derivatives. Within the current framework of CDCC, Converge registers, confirms, administers and regulates the OTC operations of the derivatives market participants. Converge is available for more than 400 underlying securities, offering:

- The registration of flexible operations;
- The settlement in cash or physical delivery;
- Expiration dates of up to five years;
- A wide range of exercise prices;
- American or European exercise types.

The participants that trade over-the-counter can enter their operations in Converge. The result is a combined register of derivatives traded at the exchange and OTC, offering the same advantages as the exchange-traded contracts concerning reduced risk and low cost :

- Protected anonymity;
- Daily evaluation of mark to market value;
- Portfolio margin system SPAN® for all open positions;
- Capital efficiencies;
- Reduced operational and general fees;
- Policy for managing corporate actions affecting the underlyings.

Admission

The direct users of Converge must be Clearing Members of the CDCC. Participants of the institutional derivative market can benefit from the advantages of Converge by becoming clients of current clearing members.

For more detailed information about the possibilities of becoming a member of the CDCC and a direct user of Converge, write to operations@cdcc.ca.

Access

Converge is secure and easy to use application that clearing members can access through their existing clearing application. There are no additional system requirements or supplementary profiles required to use Converge which reduces the costs and efforts to access this service.

Submitting Transactions

Transactions can be submitted easily and efficiently. The Clearing Members execute their own side of the operation by using the trade entry-screens of Converge. The application Converge will then do the matching, the validation and the confirmation of the details for the concerned counterparties.

Types of Acceptable Instruments
Specifications for OTC Derivative Instruments on Securities

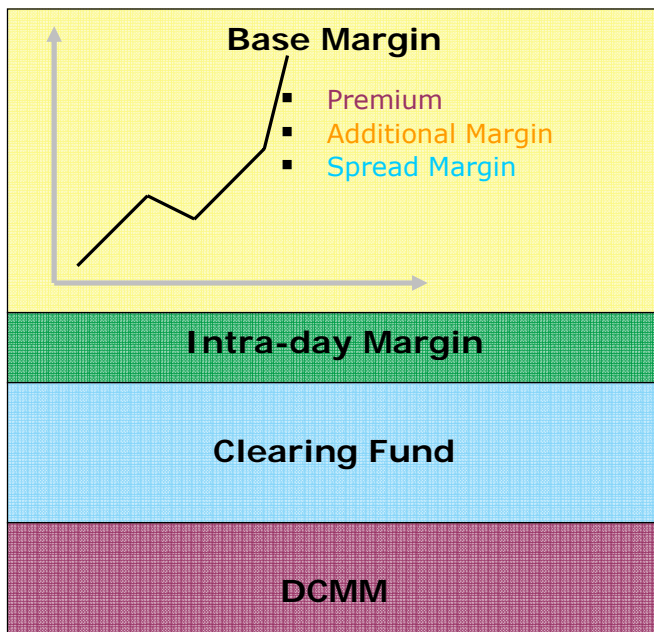
Characteristic	Description
Underlying Interest (UI)	Refer to the Options Eligible List.
Transactional Centre	Bilateral
Product Type	Option
Type of Option	Call or Put
Type of instrument / exercise	Maximum 5 years
Profile	s.o.
Exercise Rule	American or European
Exercise Price	All
Base	s.o.
Type of Settlement	In cash or physical
Measurement Unit/ Negotiation Unit	100
Settlement Currency	CAD
Settlement Rule	Current month (CM) – OTC DI on securities: t+1 in cash, t+3 in physical.
Reference Index	Opening and closing level of UI.
Adjustment Frequency	Daily
Quantity of Reference	Minimum of 750 contracts if the UI is a stock and 1500 contracts if UI is an FTB/Index.

Risk Margining

The clearing members must guarantee their obligations primarily with margin deposits. These funds limit the potential losses if a clearing member defaults and prevent risk exposure spreading to other non-defaulting members. This margin requirement is calculated daily for client, firm and market-maker accounts by the SPAN^{®2} software. SPAN[®] is the most widely used risk management calculation tool by clearing corporations around the world. The risk parameters for different margin types are tested and validated on a regular basis by the CDCC.

The margin requirements are settled before the market opening on the morning of the working day following the day of operations. These payments are irrevocable and conform to industry standards.

Margin Types



Base Margin

The base margin consists of three elements:

- ✓ The **premium** (*calculated for options and options on futures*);
- ✓ The **additional margin** (*calculated for options, futures and options on futures*);
- ✓ The **spread margin** (*only calculated for futures positions*).

Premium

The premium represents the liquidation cost of all options contracts on the market.

Additional Margin

The additional margin aims to cover potential price fluctuations. It represents the difference between the current market value of a position and the worst case liquidating value obtained by varying the margin intervals according to different scenarios. The simulated liquidation values are based on a well-known pricing model (Barone-Adesi and Whaley). They depend on, along with other variables, the historical volatility of the underlying, determined as the highest volatility during the last 20, 90 or 260 days. This volatility is used to determine the margin intervals. The methodology uses a confidence interval of three standard deviations (99.7%) and two days' liquidation period.

² Developed by the [Chicago Mercantile Exchange](#) (CME)

Spread Margin

The spread margin is calculated only for futures positions. The margin calculation takes into consideration the buyer positions on futures contracts for one expiry month with seller positions on futures contracts for another expiry month. This spread margin is a fixed dollar amount, based on the expected variations between expiry months of different contracts. A margin relief is also offered between futures contracts on interest rates of two and ten years.

Intra-day Margin

The intra-day margin covers the daily movements that exceed the thresholds fixed by the CDCC. The Clearing Corporation can make intra-day margin calls depending on the market's volatility. Furthermore, CDCC does not make margin calls after a certain hour in the afternoon when market liquidity is limited.

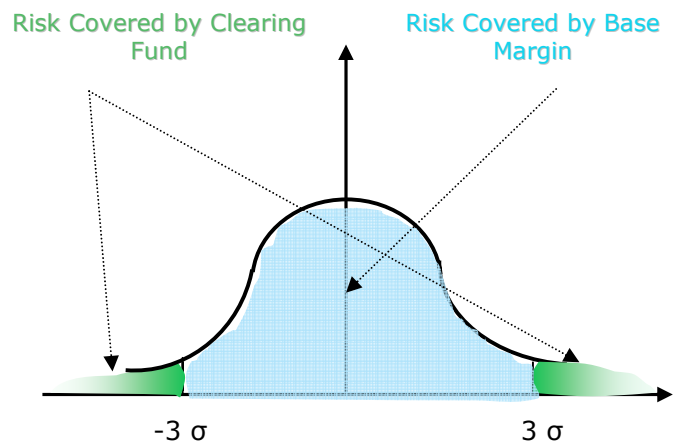
These three types of margins are used to alert the CDCC about market movements in normal conditions. The manner in which these margin requirements are estimated is in line with the recommendations from the Bank for International Settlements³.

Clearing Fund

Definition

The Clearing Fund is a reserve fund that is established in order to cover a default where the collateral on deposit no longer covers the margin requirements of a defaulting clearing member.

The Clearing Fund is a shared obligation between all clearing members which covers the residual risks not covered by the regular margin fund. The fact that extreme market conditions can prevent efficient liquidation of the positions of a defaulting member is taken into consideration by these requirements.



The Clearing Fund-requirement applies to members of the CDCC that clear exchange-traded and/or OTC derivative contracts.

How is the Contribution to the Clearing Fund Calculated?

The CDCC makes a call for a contribution to the Clearing Fund to every Clearing Member on a monthly basis and/or if a Clearing Member were to default.

The contribution is based on the uncovered residual risk which is defined as the difference between an extreme but plausible market scenario and the regular margin fund. The two calculations are based on the open positions from the previous day. The CDCC determines the size of the Clearing Fund based on the maximum uncovered residual risk.

The contribution of every Clearing Member is then determined as a weighted function of its own uncovered risk in relation to the total uncovered risk of all members.

The uncovered risk is computed every day for each Clearing Member and the corresponding amounts are determined by the average uncovered risk during the last 60 days.

³ [Bank for International Settlements](#)

The contribution of the Clearing Members to this fund is a function of the sum of their relative contributions in transactions of exchange-traded and over-the-counter products.

For more detailed information, see Rule A-6 (of section [Rules](#)).

DCMM

Credit risk monitoring was reviewed at CDCC following the change in Clearing Fund methodology (February, 2006).

CDCC has implemented a daily capital margin monitoring (DCMM) in order to evaluate the credit risk of its members.

Through the DCMM, the member's capital level and its daily margin level are compared using the Clearing Member's Net Allowable Assets as a measure of capital.

A margin call corresponding to the difference between the base margin and the net allowable asset results when the ratio of Margin Requirement/Net Allowable Assets exceeds 100%.

This new approach is even more efficient than the previous one in identifying the credit risks of weakly capitalized members.



Financial Resources

The CDCC ensures that it always has sufficient financial resources in case of facing an extreme, but plausible market event.

For this purpose, the CDCC has a \$30 MN credit facility, a clear acceptance policy for collateral, and has established default procedures.

If a Clearing Member were to default, the CDCC would take over the obligations of the defaulting member. Nevertheless, the commitments of the defaulting member to its own clients are still maintained.

Within the frame of its default plan, the CDCC has established rules and procedures of default management which explain the way defaults are treated and

how the losses would be distributed between non-defaulting members if necessary. On a regular basis, the CDCC performs default simulations with the help of members in order to evaluate its procedures.

Default situations are described in section [Rules](#) (Rule A-1A and A-4) and in section *Default Management* in the present document.



Approved Collateral

Margin Fund requirements can be deposited to CDCC through CDS or paid to an approved depository institution. The latter commits to provide a receipt to guarantee CDCC that it can obtain the margin funds on demand. These funds cover all required margin types and can easily be transferred if needed. The guarantees are limited to assets that have minimal liquidity and market risks. The haircuts are updated on a regular basis and reflect the market risk, credit risk, liquidity risk, and possible currency risk. For more detailed information, see section [Rules](#) (Rule A-7).

Forms of Margin	Eligible Assets	Employed Value	Haircuts		
			CAD	U.S.	Prov.
Cash	Canadian dollars	Nominal	0%	N/A	N/A
Government Securities	Canadian Treasury bills, Canadian Bonds (including real return bonds and excluding Canada Savings bonds), U.S. Treasury Bills, U.S. Treasury Bonds (including <i>TIPS</i>), and certain Provincial Bonds with a maturity of : ⁴ <ul style="list-style-type: none"> • 1 year or less • 1 – 5 years • 5 – 10 years • 10 years and more 	Market Market Market Market	1,0% 2,0% 3,5% 6,0%	4,5% 5,5% 6,5% 9,0%	2,0% 3,0% 4,5% 9,0%
Letters of Credit	Shall be emitted by financial institutions that meet certain requirements regarding capital sufficiency, as established in the rules of the CDCC. ⁵	Nominal	0%	N/A	N/A
Banker's Acceptances	Shall be accepted by financial institutions recognized as issuers of letters of credit. ⁶	Nominal	15%	N/A	N/A
Valued Securities	Securities listed on a Canadian exchange, evaluated at \$10 or more. No more than 10% of the total margin requirement against all accounts combined may be covered by any one valued security.	Market	50%	N/A	N/A

⁴ In any case, CDCC has the right to revise the market value received from the data provider in order to reflect the proper market value.

⁵ Every financial institution, that is authorized to issue letters of credit and banker's acceptances on behalf of Clearing Members, is restricted by an upper limit of the amount to issue. In order to limit the credit risk, the letters of credit shall be issued by a bank or another organization which has provided no more than 50% of the total capital of the clearing member. See [Rules](#) (Rule A-709).

⁶ Idem 5

Inter-month Spreads

The CDCC offers a margin reduction for the inter-month spreads and is therefore capable of reducing the margin on the products listed below. An inter-month spread is a transaction where the member takes both a buyer and seller position on the same type of product or on different products⁷.

BAX	CGB	ONX
SXA	SXF	SXH
	SXY	SXB

For more information on these products, see the web page of the Montreal Exchange.

http://www.m-x.ca/produits_en/produits_d_inter_court_en.php
http://www.m-x.ca/produits_en/produits_d_indices_cat_en.php

It is possible to obtain a margin reduction on "butterfly" transactions on the BAX contract. A butterfly trade is a spread strategy that combines a long and a short straddle and that requires three separate positions, which may have different expiration dates.

The inter-month spreads are also available between futures contracts of 10 years (CGB) and 2 years (CGZ).

To know the exact margin requirements for the inter-month spreads, see notices on this subject (http://www.cdcc.ca/publi_notices_en.php).

Settlement

At the time of settlement of a transaction, the CDCC uses a system of delivery versus payment which reduces the settlement risk. The CDCC has a credit facility that guarantees the right to use margins if the buyer defaults. The rules of the CDCC clearly define the obligations of the Clearing Corporation. If the CDCC needs to step in to deliver, it ensures its ability to cover the liquidity and settlement risks.

⁷ Available between CGB and CGZ contracts.

Default Management

If a clearing member is in a default situation, the CDCC has the right to implement the following actions:

- ✓ The Corporation can transfer the positions to non-defaulting members that are interested in these positions;
- ✓ The Corporation can close out the positions of the defaulting member;
- ✓ The Corporation can create a liquidating settlement account in order to meet any transfer or liquidation expenses;
- ✓ If there is a shortfall, the member's contribution to the Clearing Fund will be used and if this contribution does not cover the entire shortfall, the contributions to the Clearing Fund from other non-defaulting members will be used as well;
- ✓ A second contribution to the Clearing Fund, of approximately the same size as the first one, will be demanded from all of the non-defaulting Clearing Members if the deficit still remains after the first contribution;
- ✓ Following these procedures, the non-defaulting members can withdraw their membership to the CDCC.
- ✓ The CDCC can use credit lines from two major banks in order to have access to liquidity;
- ✓ Additionally, the CDCC can borrow assets to meet the delivery obligations when managing a defaulting member.

Since its establishment, the CDCC has never experienced a default situation.

System

The CDCC uses an IBM INTRACS/400 server platform. The central computer receives directly compatible trading information in real time from the Exchange, limiting the manual operations and consequently assuring the integrity of the process. This is performed in a secure information environment.

All communicated information from the Exchange is verified against the established rules at the CDCC. If these rules are followed, the operation is accepted and the positions of the members are immediately updated.

Business Continuity

The CDCC has a contingency plan which ensures the continuation of the Clearing Corporation's activities. These plans are evaluated and tested periodically in order to replace the current system in less than two hours. This time limit meets the norm of CDCC's peers in several jurisdictions.

In addition, the Corporation has established a rigorous internal control program which is verified regularly by external auditors that produce semi-annual rapports to the Board of CDCC.

The rigour and conservatism behind these risk procedures have contributed to AA credit rating issued by S&P since November 2002.

For more detailed information, see section [Rules](#) (Rule A-4).

Legal / Regulation

Since 2002, when law S-40 was passed, CDCC has been ensured the right to be exempt from a normal bankruptcy "stay" in respect of the assets of a defaulting member.

The CDCC is a self-regulatory organization, supervised by the "Autorité des marchés financiers" (AMF) in the same way as the Montreal Exchange.

The rules of the CDCC were designed to ensure a high level of enforceability. They are well defined, coherent and easily accessible for the public and the Clearing Members on the Corporation's website, like all other publications distributed by the CDCC. The novation process, collateral management, default and non-conformity processes, as well as other important aspects are clearly defined and updated when needed.

Governance

The CDCC has its own Board that is administered by competent and dedicated managers. In addition, the Risk Management Department has maintained its own consultative risk management committee.

Information

For more information, do not hesitate to contact us:

MONTREAL
Tour de la Bourse
800, Square Victoria
3rd floor
Montréal (Québec)
H4Z 1A9
tel. : (514) 871-4949 X 505
fax : (514) 871-3530

NATIONAL BANK OF CANADA

BLACKMONT CAPITAL INC.

BMO NESBITT BURNS LIMITED

CANACCORD CAPITAL CORPORATION

DUNDEE SECURITIES CORPORATION

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DEUTSCHE BANK SECURITIES LIMITES

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