



NOTICE TO MEMBERS

No. 2013 - 262

November 4, 2013

SELF-CERTIFICATION

AMENDMENT TO CDCC OPERATIONS MANUAL AND RISK MANUAL BANKING HOLIDAY

On July 31, 2013, the Board of Directors of the Canadian Derivatives Clearing Corporation (CDCC) has approved amendments to its Operations Manual and Risk Manual. CDCC wishes to advise Clearing Members that this amendment has been self-certified in accordance with the self-certification process as established in the *Derivatives Act* (R.S.Q., chapter I-14.01).

The purpose of the amendment is to change the methodology used to calculate the extra margin required due to Remembrance Day Holiday (Banking Holiday).

Please find enclosed the amendment which will be in effect and will be incorporated in the version of the Operations Manual of CDCC which will be available on CDCC's web site (www.cdcc.ca) as of November 4, 2013.

If you have any questions or concerns, please contact CDCC's Member Services department or direct your e-mail inquiries to cdccops@cdcc.ca.

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ADDITIONNAL MARGIN PROCESSING



**CANADIAN DERIVATIVES CLEARING CORPORATION
CORPORATION CANADIENNE DE COMPENSATION DE PRODUITS DÉRIVÉS**

OPERATIONS MANUAL

VERSION OF ~~SEPTEMBER 30~~, 2013

ADDITIONAL MARGIN PROCESSING

DIFFERENCE FUND

The Difference Fund is Margin Deposits held by CDCC as discretionary margin, such as: (1) Unsettled Items Margin, (2) Daily Capital Margin Monitoring, (3) Advance calls for settlement of losses, (4) OTCI Additional Margin, (5) ~~Banking Holidays Additional Margin~~, and ~~(6)~~ Intra-Day Margin. CDCC accepts Deposits to the Difference Fund in the forms of Margin set forth in Section A-709 of the Rules, in the proportions specified therein.

(1) Unsettled Items Margin

Security Funds, as such term is defined in Sections B-401, C-501 and D-301 of the Rules, corresponding to an amount equal to not less than 105% of the market value of the Underlying Interest which a Clearing Member has failed to timely deliver, in accordance with Sections B-412, C-517 and D-307 respectively of the Rules.

(2) Daily Capital Margin Monitoring

The amount by which the Margin requirements of a Clearing Member exceeds its capital, in accordance with Section A-710 of the Rules.

(3) Advance Calls for Settlement of Losses

An amount that CDCC estimates will be needed to meet losses resulting from particular marked conditions or price fluctuations, in accordance with Section C-303 of the Rules.

(4) OTCI Additional Margin

An amount representing the premium value collected from the Buyer before an OTCI Option is confirmed, which amount shall be available for withdrawal the morning after the Transaction has been processed, in accordance with Section D-107 of the Rules.

~~(5) Banking Holidays Additional Margin~~

~~An amount corresponding to 10% of Margin requirements is required to be posted as additional margin by Clearing Members on banking holidays, which is released on the morning of the following Business Day.~~

~~(56)~~ Intra-Day Margin

Additional margin may be requested from a Clearing Member, at CDCC's sole discretion at any time and from time to time as it deems appropriate, due to some adverse change in the market of a given Underlying Interest or in the financial position of the Clearing Member, in accordance with Section A-705 of the Rules.

Deposits, Withdrawals, Substitutions

Deposits, withdrawals and substitutions of assets (other than cash) in the Difference Fund are made in the same manner and subject to the same deadlines as Margin Fund deposits, withdrawals and substitutions of assets (other than cash), in accordance with Section 2 of this Operations Manual.

Note:

Information with respect to the Margin Fund is to be found in the Risk Manual, Schedule A of this Operations Manual.



Risk Manual

MARGIN DEPOSIT

The Corporation has three different funds for margining purposes and each serves a specific purpose:

- Margin Fund
- Difference Fund
- Clearing Fund

MARGIN FUND

The Margin Fund is composed of the Initial Margin and the Variation Margin. The Initial Margin covers the potential losses and market risk that may occur as a result of future adverse price movements across the portfolio of each Clearing Member under normal market conditions. Furthermore, in the event of a default, the Corporation is faced with closing out the defaulters' portfolio within a short period (the liquidation period). In a complementary manner, Variation Margin is a daily payment process that covers the market risk due to the change in price since the previous day, ahead of the default of one of its Clearing Members. Variation Margin is settled in cash for Futures contracts and collateralized for Options contracts, OTCI and Fixed Income Transactions.

INITIAL MARGIN

As fundamental inputs to calculate the Initial Margin, the Corporation uses the following parameters: 1) confidence level (to reflect normal market conditions), 2) assumed liquidation period and 3) historical volatility over a specific period.

Specifically, the Corporation uses three standard deviations to consider a confidence level over 99% under the normal distribution's assumption. The Corporation also considers a variable number of days as an acceptable liquidation period. The Initial Margin amount is calculated using the historical volatility of the daily price returns of the Underlying Interests for Options contracts, the daily price returns of the futures prices for Futures contracts and the yield-to-maturity (YTM) daily variation of the on-the-run security for Fixed Income Transactions. The historical volatility, combined with the liquidation period and the confidence level gives the Margin Interval (MI) as described below.

MARGIN INTERVAL (MI) CALCULATION

The Margin Interval calculations are re-evaluated regularly. However, the Corporation may use its discretion and update the Margin Intervals more frequently if necessary. The Margin Intervals are used to calculate the Initial Margin for each Derivative Instrument.

The Margin Interval (MI) is calculated using the following formula:

$$MI = 3 \times \sqrt{n} \times \text{Max}[\sigma_{20 \text{ days}}, \sigma_{90 \text{ days}}, \sigma_{260 \text{ days}}]$$

Where 'n' is the number of liquidation days¹, 'σ' is the standard deviation of the daily variation over 20, 90 and 260 days, and 3 is equivalent to 99.87% for a one-tail confidence interval under the normal distribution's assumption.

Price Scan Range (PSR) Calculation

In order to calculate the most unfavourable projected liquidation value, the Risk Engine uses the MI of the above formula to calculate the Price Scan Range (PSR) and to run several scenarios through its Risk Array calculation (for a detailed description refer to the section on **Error! Reference source not found.** below).

A Risk Array is a set of 16 scenarios defined for a particular contract specifying how a hypothetical single position will lose or gain value if the corresponding risk scenario occurs from the current situation to the near future (usually next day).

PSR is the maximum price movement reasonably likely to occur, for each Derivative Instrument or, for Options contracts, their Underlying Interest. The term PSR is used by the Risk Engine to represent the potential variation of the product value and it is calculated through the following formula:

$$\text{PSR} = \text{Underlying Interest Price} \times \text{MI} \times \text{Contract Size}.$$

¹ The Corporation uses the following number of liquidation days 'n' as follows:

- For Futures contracts and Options contracts n = 2 days;
- For OTCI options n = 5 days;
- For Fixed Income Transactions, where the Underlying Interest is issued by the Government of Canada or a federal Crown corporation n = 2 days; and
- For Fixe Income Transactions, where the Underlying Interest is issued by a provincial government or a provincial Crown corporation n = a + 2 days, where a = number of additional days.

'a' is based on a quantitative and qualitative analysis, established according to the degree of liquidity of the Underlying Interest which is derived from parameters such as but not limited to traded volume, Government of Canada/ provincial yield spreads and international guidelines. For a provincial government or provincial Crown corporation issuer 'a' is determined at least once a year and communicated to Clearing Members by written notice.

Furthermore, in anticipation of Remembrance Day (the "Banking Holiday") the Corporation will add one more day to the number of liquidation days 'n'. Hence, for Options and Futures contracts where the Underlying Interest is an Equity (i.e. Stock and ETF) or an Index the liquidation period will increase to three Business Days prior and up to the Banking Holiday, and for OTCI options, the liquidation period will increase to six Business Days prior and up to the Banking Holiday. The additional margin amount for the Banking Holiday will be released on the morning of the following Business Day.

INITIAL MARGIN CALCULATION

To calculate the Initial Margin, the Risk Engine uses the MI which is converted to the Scanning Risk parameter. The Scanning Risk parameter represents the difference between the current market value of a Derivative Instrument (for Exchange Transactions) or of an Acceptable Security (for Fixed Income Transactions) and its most unfavourable projected liquidation value obtained by varying the values of the Underlying Interest according to several scenarios representing adverse changes in normal market conditions. The Scanning Risk is always calculated at the Combined Commodity level.

For contracts belonging to the same Combined Commodity, the Risk Engine adds up the Risk Arrays results of all contracts under the same risk scenario. It should be noted that in the situation where the Risk Engine does not consider other variables, the Scanning Risk is the Initial Margin for the Combined Commodity.

However, in some cases other variables can increase or decrease the Scanning Risk. For example, variables such as the Intra-Commodity (Inter-Month) Spread Charge which tends to increase the Initial Margin and the Inter-Commodity Spread Charge which tends to decrease the Scanning Risk to take advantage of the correlations between the different constituents of the Combined Commodity. Another example is the specific case of short deeply out-of-the-money options wherein the Risk Engine calculates a minimum amount called Short Option Minimum (SOM) which otherwise attracts little or no Initial Margin. Finally, in the case of OTCI with Physical Settlement/Delivery, the Corporation calculates an additional Liquidity Interval and adds it to the Margin Interval.

It should also be noted that, as described in the following sections, the determination of the Initial Margin is slightly different for Options contracts, Futures contracts and Fixed Income Transactions. The following table summarizes the list of variables used to calculate the Initial Margin by cleared product category:

Input variables to calculate the Initial Margin	Options contracts (including OTCI options)	Futures contracts and Share Futures	Fixed Income Transactions
Scanning Risk	•	•	•
Intra-Commodity (Inter-Month) Spread Charge²		•	•
Inter-Commodity Spread Charge³		•	•
Short Option Minimum (SOM) amount	•		
Liquidity Interval⁴	•		

² Not applicable to Share Futures Contracts.

³ Idem 4

⁴ Applicable for OTCI options with Physical Settlement/Delivery only

DIFFERENCE FUND

As defined in Section 8.2 of the Operations Manual, the Difference Fund is Margin Deposits held by the Corporation as discretionary margin, such as: (1) Unsettled Items Margin, (2) Daily Capital Margin Monitoring, (3) Advance calls for settlement of losses, (4) OTCI Additional Margin, ~~(5) Banking Holidays Additional Margin~~, and ~~(56)~~ Intra-Day Margin. The Corporation accepts Deposits to the Difference Fund in the same form and proportion as for the Margin Fund, as set forth in Section A-709 of the Rules.

Despite the fact that the Difference Fund is used to cover all the above elements, the sub-section regarding the Daily Capital Margin Monitoring intends to capture the credit risk. Consequently, this sub-section is described in details thereunder.

Daily Capital Margin Monitoring:

The Corporation measures the credit exposure to its Clearing Members on a daily basis through the Daily Capital Margin Monitoring Calls (the Difference Fund). The capital level is derived from regulatory reports received on a monthly basis in a timely manner (and on a quarterly basis if it is a Bank Clearing Member).

As prescribed in Section A-710 of the Rules, the Corporation may call for a contribution in the Difference Fund from Members that are undercapitalized in relation to their respective Initial Margin. The Corporation compares the Clearing Member's capital amount to the Initial Margin on a daily basis and requires, if applicable, that the Clearing Member makes up any difference in the form of acceptable Deposits. Each Clearing Member's capital is analyzed and updated on a monthly basis.

In order to determine the contribution to the Difference Fund of Clearing Members, the Corporation uses the Net Allowable Assets (NAA). The Net Allowable Asset is a more restrictive type of capital, since it is the net result of the financial statement capital less the non allowable assets. Non allowable assets are composed of less liquid assets like capitalized leases, Investments in and Advances to Subsidiaries, etc. For Bank Clearing Members, the Corporation uses the Net Tier 1 capital.

The Corporation has access to the Clearing Member's financial statements from the CIPF (Canadian Investor Protection Fund), and the OSFI (Office of the Superintendent of Financial Institutions Canada) for Bank Clearing Members.

In addition to the monthly update of capital numbers, the Corporation performs a qualitative analysis of the financial statements of each member. The Corporation has defined specific thresholds to analyze the profitability, the margin required, the liquidity and the capital level. The Corporation could ask Clearing Members for more clarifications, if necessary.

Indeed, Investment Industry Regulatory Organization of Canada (IIROC) evaluates the financial condition of its Members. If an IIROC Member, who is also a Clearing Member, fails the tests designed to detect the risk of insolvency, the Corporation will be notified by IIROC. The Clearing Member itself shall also advise the Corporation immediately if it enters in an early warning level situation. IIROC may issue two types

of warning, early warning level 1 or 2. This is function of the severity of the financial deficiency. The Corporation will be informed by IIROC and will closely monitor the situation. IIROC may impose sanctions or restrictions against the Member. The Corporation will judge if it necessary to take any additional actions and will report the situation to the Risk Management and Advisory Committee (RMAC).