NOTICE TO MEMBERS

No. 2014 – 163

July 29, 2014

REQUEST FOR COMMENTS

AMENDMENTS TO THE OPERATIONS MANUAL AND RISK MANUAL OF THE CANADIAN DERIVATIVES CLEARING CORPORATION TO ADDRESS MISMATCHED SETTLEMENT RISK IN THE MARGIN CALCULATION

Summary

On July 14, 2014, the Board of Directors of Canadian Derivatives Clearing Corporation (CDCC) approved amendments to the Operations Manual and Risk Manual of CDCC. The purpose of the proposed amendment is to address the Mismatched Settlement Risk for Fixed Income transactions in the calculation of the margin requirement currently requested by CDCC from its Clearing Members.

Please find enclosed an analysis document as well as the proposed amendments.

Process for Changes to the Rules

CDCC is recognized as a clearing house under section 12 of the *Derivatives Act* (Québec) by the Autorité des marchés financiers (AMF) and is a recognized clearing agency under section 21.2 of the *Securities Act* (Ontario) by the Ontario Securities Commission (OSC).

The Board of Directors of CDCC has the power to approve the adoption or amendment of Rules and Operations Manual of CDCC. Amendments are submitted to the AMF in accordance with the self-certification process and the Ontario Securities Commission in accordance with the process provided in its Recognition Order.

Comments on the proposed amendments must be submitted within 30 days following the date of publication of the present notice. Please submit your comments to:

Mrs. Pauline Ascoli
Assistant Secretary
Canadian Derivatives Clearing Corporation
Tour de la Bourse
P.O. Box 61, 800 Victoria Square
Montréal, Québec H4Z 1A9
E-mail: legal@m-x.ca

A copy of these comments shall also be forwarded to the AMF and to the OSC to:

Mrs. Anne-Marie Beaudoin
Corporate Secretary
Autorité des marchés financiers
Tour de la Bourse, P.O. Box 246
800 Victoria Square, 22nd Floor
Montréal, Québec H4Z 1G3
E-mail:consultation-en-cours@lautorite.qc.ca

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Market Regulation Branch
Ontario Securities Commission
Suite 2200,
20 Queen Street West
Toronto, Ontario, M5H 3S8
Fax: 416-595-8940
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For any question or clarification, Clearing Members may contact CDCC's Corporate Operations.

Glenn Goucher
President and Chief Clearing Officer

AMENDMENTS TO THE RISK MANUAL AND OPERATION MANUAL OF THE CANADIAN DERIVATIVES CLEARING CORPORATION TO ADDRESS MISMATCHED SETTLEMENT RISK IN THE MARGIN CALCULATION

CONTENTS

I. SUMMARY

The Mismatched Settlement Risk is the intraday risk arising from a lag between:

1) The settlement of positions that provide a margin offset with other positions and the next calculation of the margin requirement;
2) The calculation of the credit risk exposure and the settlement of the collateral deposits used to cover that exposure at CDCC;
3) A trade initiation and the calculation of the new margin requirement.

More specifically, CDCC faces a risk that a Clearing Member settles a position that provides either an Initial Margin offset with other positions or a Variation Margin credit on the rest of the portfolio.

II. ANALYSIS

a. Background

Currently, the margin requirement is calculated based on the positions held at the moment of the calculation without considering on whether that position is to be settled today or at a later date. This model implies that positions to be settled today could grant a significant margin offset when combined with positions to be settled at a latter date. If a Clearing Member was to default, there is a potential for that position to be settled prior to the default. This would leave CDCC with a greater risk exposure than what has been collected at the last margin run.

b. Description and Analysis of Impacts

CDCC has identified 3 sources of Mismatched Settlement Risk. Since CDCC already provides a reasonable time interval during the intraday, between the margin calculations and the settlement of the collateral deposits, and since it cannot predict incoming trades, the mitigation strategy will focus on predicting the exposure arising from the settlement of positions that provide an offset.

Operationally speaking, the proposed mitigation strategy will consist of a margin call specific to the Mismatched Settlement Risk done right after the 1:15 pm intraday margin run. The margin call amount will be determined so that it represents the worst potential exposure given the potential intraday settlements based on the positions cleared at that time.

Given the fact that margin offsets are granted when Fixed Income portfolios have both longs and shorts positions[1], the additional margin charge will be calculated on a

[1] In SPAN, the intracommodity spread charges are applied only when there is at least a long and short position on different bonds belonging to the same bucket. Similarly, the margin relieves given via the intercommodity spreads are

gross basis for the positions that could cause mismatched settlement exposure prior to the default.

c. Proposed Amendments

The proposed amendments are presented in Appendix 1 and 2.

d. Benchmarking

Not applicable

III. DRAFTING PROCESS

In response to IIAC Members and Bank of Canada's request, CDCC has assessed the potential margin shortfall resulting from settlement mismatches.

IV. IMPACTS ON TECHNOLOGICAL SYSTEMS

There is no impact on technological systems since the proposed changes to the Margin Requirement calculation are performed upstream of SOLA® Clearing.

V. OBJECTIVES OF THE PROPOSED MODIFICATIONS

The objective of the proposed modification is to address the Mismatched Settlement Risk for Fixed Income transactions in the calculation of the margin requirement currently requested by CDCC from its Clearing Members.

VI. PUBLIC INTEREST

In CDCC's opinion, the proposed amendment to CDCC's Risk Manual and Operations Manual are not contrary to the public interest.

VII. MARKET IMPACTS

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currently applicable only to at least a long and a short position on bonds belonging to different buckets. This will be true as long as CDCC considers only the positive correlations between bucket when determining the intercommodity spread rates.

Under this proposed methodology, CDCC would have called on average $55.8 M in additional margin charge across all members on a daily basis. In comparison, the sum of daily worst exposure was $54.1 M on average during the same period and the sum of margin collected at the second intraday was $136.0 M on average. The average increase across all Fixed Income Clearing Members is therefore 41.0% during the observation period.

VIII. PROCESS

The proposed amendment is submitted for approval by the CDCC Board. Once the approval has been obtained, the proposed amendment, including this analysis, will be transmitted to the *Autorité des marchés financiers* in accordance with the self-certification process and the Ontario Securities Commission in accordance with the "Rule Change Requiring Approval in Ontario" process. The proposed amendment and analysis will also be submitted for approval to the Bank of Canada in accordance with the Oversight Regulatory Agreement.

IX. EFFECTIVE DATE

The proposed changes to address the Mismatched Settlement Risk in the margin calculation will be implemented in December 2014. This is subject to the regulatory approval.

X. ATTACHED DOCUMENTS

Appendix 1: Amended Operation Manual
Appendix 2: Amended Risk Manual

CANADIAN DERIVATIVES CLEARING CORPORATION
CORPORATION CANADIENNE DE COMPENSATION DE PRODUITS DÉRIVÉS

OPERATIONS MANUAL

VERSION OF JUNE ~~9~~, 2014

TIME FRAMES FOR ON-LINE ACCESS

ON EVERY BUSINESS DAY

Activity	**Deadlines**
Settlement Time with respect to payments for overnight settlement	7:45 a.m.
Fixed Income Transactions – Morning Netting Cycle Timeframe in respect of any Pending Payment Against Delivery Requirements (Morning Net Payment Against Delivery Requirements sent to CDS for settlement during the Morning Net DVP Settlement Timeframe)	10:00 to 10:15 a.m.
Morning Net DVP Settlement Timeframe	10:15 to 10:30 a.m.
Morning Intra-Day Margin Call	10:30 a.m.
Afternoon Intra-Day Margin Call	1:15 p.m.
Specific Deposits (same day withdrawal)	1:15 p.m.
Fixed Income Transactions – – Afternoon Netting Cycle Timeframe in respect of any Pending Settlement Requirements (Afternoon Net DVP Settlement Requirements sent to CDS for settlement by End of Day DVP Settlement Time)	2:00 to 2:15 p.m.
Cash Deposits (Margin Deposits) – under $2,000,000 (same day deposit)	2:45 p.m.
Cash Deposits (Margin Deposits) – of and over $2,000,000 (2 Business Days notice)	2:45 p.m.
Cash withdrawal requests (Margin Deposits) – under $2,000,000 (same day withdrawal)	2:45 p.m.
Cash withdrawal requests (Margin Deposits) – of and over $2,000,000 (2 Business Days notice)	2:45 p.m.
Fixed Income Transactions – (Same Day Transactions) – Submission Cut-Off Time	3:30 p.m.
All assets deposits other than cash (Margin Deposits)	3:30 p.m.
All assets withdrawal requests other than cash (Margin Deposits) for same day withdrawal	3:30 p.m.
All assets substitution requests other than cash (Margin Deposits) for same day substitution	3:30 p.m.
Specific Deposits (overnight valuation)	3:30 p.m.
End of Day DVP Settlement Time	4:00 p.m.
OTCI (other than Fixed Income Transactions) – Unmatched entry	4:30 p.m.
Position Transfers	5:25 p.m.
Same Day and T+1 Trade corrections	5:30 p.m.
Open Position changes	5:30 p.m.
Fixed Income Transactions and Futures contracts on Acceptable Securities – Netting Cut Off Time (Netted settlement instructions (Net Delivery Requirements and	

Net Payment Against Delivery Requirements) sent to CDS for settlement on the next business day)	5:30 p.m.

TIME FRAMES FOR ON-LINE ACCESS (continued)

ON EVERY BUSINESS DAY (continued)

Activity	**Deadlines**
Futures – Request for Standard vs Mini Offset	5:00 p.m.
Futures – Tender Notices submission	5:30 p.m.
Options – Exercise Notices submission	5:30 p.m.
CDCC Clearing Application shutdown – Close of Business	5:30 p.m.
Fixed Income Transactions – available (next Business Day start)	7:00 p.m.

Unsettled Item

Confirmation of settled items to be sent to CDCC	4:15 p.m.

Daily Capital Margin Monitoring Calls

CDCC notifies Clearing Members of additional Margin required	9:30 a.m.
Clearing Member's obligation to cover any deficit	12:00 (noon)

Additional Charge for Mismatched Settlement Risk

CDCC notifies Clearing Members of additional Margin required	1:45 p.m.
Clearing Member's obligation to cover any deficit	2:45 p.m.

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, ~~and~~ (5) Intra-Day Margin, and (6) Additional Margin for the Mismatched Settlement Risk. 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) 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.

(6) Additional Margin for the Mismatched Settlement Risk

Additional margin will be applied to fixed income transactions where Mismatch S~~s~~ettlement Risk, as defined in the Difference Fund section of the Risk Manual, arises.

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

Glossary

Margin Interval: Parameter established by the Corporation which reflects the maximum price fluctuation that the Underlying Interest could be expected to have during the liquidation period. The Margin Interval (MI) calculations are based on the historical volatility of the Underlying Interest and these calculations are re-evaluated on a weekly basis. If necessary, the Corporation may update the Margin Intervals more frequently. The Margin Interval is used to calculate the Initial Margin of every Derivative Instrument.

Haircut: Percentage discounted from the market value of Securities pledged as collateral for Margin Deposit. The discount reflects the price movement volatility of the collateral pledged. Thus, this reduction assures that even if the collateral's market value declines, there is time to call for additional collateral to adjust its value to the required level.

Initial Margin: The Initial Margin covers the potential losses that may occur over the next liquidation period as a result of market fluctuations. The Initial Margin amount is calculated using the historical volatility of the Underlying Interest return for Options contracts, futures prices for Futures contracts and yield-to-maturity (YTM) of the on-the-run security for Fixed Income Transactions.

Variation Margin: The Variation Margin takes into account the portfolio's liquidating value (this is also known as the Replacement Cost or RC) which is managed through the Mark-to-Market daily process.

Price Scan Range: The maximum price movement reasonably likely to occur, for each Derivative Instrument or, for Options, 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:

PSR = Underlying Interest Price x MI x Contract Size

Volatility Scan Range: The maximum change reasonably likely to occur for the volatility of each Option's Underlying Interest price.

Risk Array: A Risk Array (RA) 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).

Combined Commodity: The Risk Engine divides the positions in each portfolio into groupings called Combined Commodities. Each Combined Commodity represents all positions on the same ultimate Underlying Interest – for example, all Futures contracts and all Options contracts ultimately related to the S&P/TSX 60 Index.

Scanning Risk: The Risk Engine chooses the difference between the current market value of an Underlying Interest 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.

Active Scenario: The number of the Risk Arrays scenario that gives the largest amount (worst case scenario).

Short Option Minimum: Rates and rules to provide coverage for the special situations associated with portfolios of deep out-of-the-money short option positions. This amount will be called if it is higher than the result of the Risk Arrays.

Liquidity Interval: The Liquidity Interval is calculated based on the historical bid-ask price spread of the Underlying Interest according to the same formula for Margin Interval.

Buckets: All Acceptable Securities of Fixed Income Transactions that behave in a similar manner are grouped together into "Buckets" and each Bucket behaves as a Combined Commodity. Acceptable Securities are bucketed according to their remaining time to maturity and issuer. Due to the nature of the bucketing process, the Acceptable Securities' assignation will be dynamic in that they will change from one Bucket to the other as the Acceptable Security nears maturity.

MTM Price Valuation: The MTM Price Valuation is the difference between the market value of the Security and the funds borrowed. This amount is collateralized and should be credited (or debited) to the Repo Party's Margin Fund and debited (or credited) to the Reverse Repo Party's Margin Fund.

Intra-Commodity (Inter-Month) Spread Charge: Underlying Interests' prices, from a maturity month to another are not perfectly correlated. Gains on a maturity month should not totally offset losses on another. To fix this issue, the Risk Engine allows the user to calculate and to apply a margin charge relative to the Inter-Month spread risk in order to cover the risk of these two positions.

Inter-Commodity Spread Charge: The Corporation considers the correlation that exists between different classes of Futures contracts when calculating the Initial Margin. For example, different interest rate Futures contracts are likely to react to the same market indicators, but at different degrees. For instance, a portfolio composed of a long position and a short position on two different interest rate Futures contracts will be likely less risky than the sum of the two positions taken individually.

Clearing Engine: The Corporation uses SOLA® Clearing as its Clearing Engine.

Risk Engine: The Corporation uses the Standard Portfolio Analysis system (SPAN®) as its Risk Engine.

Mismatched Settlement Risk: The Corporation considers this risk as the intraday risk arising from a lag between the following three events:

1) The settlement of a position that provided a Margin off-sets prior to the next calculation of the Margin Requirement;

2) The calculation of the credit risk exposure and the settlement of the collateral deposits at CDCC;

3) A trade initiation and the calculation of the Margin Requirement.

Some of ~~T~~the terms and concepts herein defined, as used in this Risk Manual, are derived from the CME Group proprietary SPAN® margin system, adapted for CDCC's licensed use thereof.

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, ~~and~~ (5) Intra-Day Margin and (6) Additional Margin for Mismatched Settlement Risk[1]. 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.

Additional Margin for the Mismatched Settlement Risk

In order to address the Mismatched Settlement Risk CDCC will perform forward looking analysis to forecast material changes in total margin requirement (IM + VM) as a result of intra-day settlement for fixed income transaction.

The additional charge for Mismatched Settlement Risk will be calculated by using the maximum of ***A*** or ***B***, minus the current calculated margin requirement for fixed income transaction:~~.~~

Where ***A*** represents the maximum of (IM + VM) of buys transactions of the current day (t) or (IM + VM) of sells transactions of the current day (t) to which is added the remaining margin requirement for fixed income transaction of t+1 and beyond.

Where ***B*** represents the maximum of (IM + VM) of buys transactions of the next day (t+1) or (IM + VM) of sells transactions of the current day (t) and the next day (t+1) to which is added the remaining margin requirement for fixed income transaction of t+2 and beyond.

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.

[1] The additional margin for Mismatched Settlement Risk will not be applied for physical delivery of Government of Canada Bond Futures (CGB, CGZ, CGF and LGB).

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).