

NOTICE TO MEMBERS No. 2015 – 036 March 12, 2015

SELF-CERTIFICATION

AMENDMENT TO THE RISK MANUAL OF THE CANADIAN DERIVATIVES CLEARING CORPORATION TO ADDRESS THE STRESS TESTING FRAMEWORK

On October 22, 2014, the Board of Directors of the Canadian Derivatives Clearing Corporation (CDCC) approved amendments to the Risk Manual of CDCC. CDCC wishes to inform the Clearing Members that this amendments have been self-certified pursuant to the self-certification process set forth in the *Derivatives Act* (R.S.Q., c I-14.01) and in accordance with the "Rule Change Requiring Approval in Ontario" as described in CDCC's Recognition Order by the Ontario Securities Commission.

The purpose of the amendments is to review the Stress Testing Framework and continue to ensure that CDCC has sufficient financial resources during extreme but plausible market conditions. In addition, evaluating the risk profile of the Clearing Members through various stress tests will ensure the robustness of the risk framework.

You will find attached hereto the amendments set to come into force and to be incorporated into the version of the Risk Manual of CDCC that will be made available on the CDCC website at www.cdcc.ca as of March 13, 2015. However, the new Stress Testing Framework will be effective as of March 16, 2015.

If you have any questions or concerns regarding this notice, please contact CDCC's Corporate Operations department or direct your e-mail inquiries to <u>cdcc-ops@cdcc.ca</u>.

Glenn Goucher President and Chief Clearing Officer



Risk Manual

STRESS SCENARIOS

The Corporation uses <u>variousfour</u> stress scenarios to evaluate the <u>URRbiggest loss</u> amongst all Clearing Members and their Affiliate(s). Stress scenarios are intended to assess the impact of extreme but plauisible market conditions. This resulting potential loss is utilized to determine the size of the Clearing Fund. A shortfall is equal to the difference between the loss incurred under a stress scenario, reduced of the Margin Fund and the Difference Fund, both belonging to the Clearing Member. By consequence, the size of the Clearing Fund should be at least equal to the greatest shortfall. The stress scenarios are applied on a daily basis in order to estimate the risk exposureuse end-of-month positions.

The Corporation also uses stress tests to monitor the risk of each Clearing Member. Such stress tests take into consideration potential movements in the yield curves, equity return, stock indices return, implied volatility and exchange rate.

The four stress scenarios currently used by the Corporation are:

→ Black Monday (1987)

➤ Financial Crisis (2008)

➤ Russian Default (1998)

→ Bond Market Crash (1994)

The Corporation regularly assesses whether it is appropriate to add other stress scenarios to the existing scenarios.

The Corporation mostly stresses Futures contracts and Fixed Income Transactions that are considered to be the highest Initial Margin drivers, by historical stressful events. Note that for Fixed Income Transactions, the variations are based on the most representative Fixed Income Securities of each Bucket¹. Here are the historical percentage variations applied:

Scenario ·	1 (Black Monda	ay)	
	1987-10-16	1987-10-19	Variation
SXE [™] — S&P/TSX 60 Index Standard Futures ²	174.75	154.63	-11.51%
EMF [™] — FTSE Emerging Markets Index Futures- ³	4 33.61	289.09	-33.33%

⁴ Selected Government of Canada (GoC) Benchmark Bond yields

² The SXF contract has started trading in 1999. Thus, these prices represent the Futures Contract and not the S&P/TSX 60 Index, which is the Underlying Interest of the contract.

³ The EMF contract started being traded in 2014. Therefore, the prices indicated represent the FTSE Emerging Markets Index in US dollars, which is the underlying asset for the contract. Given that the FTSE Emerging Markets Index was launched in December 1993, the Hang Seng Index converted into US dollars was chosen as the

BAX TM - Three-Month Canadian Bankers' Acceptance Futures- ⁴	90.81	90.69	-0.14%
CGB [™] — Ten-Year Government of Canada Bond Futures ⁵	74.40	76.93	3.40%
Fixed Income Security Buckets			
0-3 months GoC yields			0.1857%
3-6 months GoC yields			0.4864%
6-12 months GoC yields			1.0164%
1-2 years GoC yields			1.1663%
2-3 years GoC yields			1.4660%
3-5 years GoC yields			1.7657%
5-7 years GoC yields			2.0654%
7-10 years GoC yields			2.3651%
10-15 years GoC yields			2.1761%
15-20 years GoC yields			2.1760%
20-30 years GoC yields			2.4687%
0-5 years Provincial yields			1.7657%
5-10 years Provincial yields			2.3651%
10-20 years Provincial yields			2.1760%
20-30 years Provincial yields			2.4687%
Scenario 2 (F	inancial Crisis	2008)	
	2008-10-17	2008-10-20	Variation
SXF [™] — S&P/TSX 60 Index Standard Futures	568.5	622.7	9.53%
EMF [™] — FTSE Emerging Markets Index Futures	293.59	288.8 4	-1.62%
BAX TM - Three-Month Canadian	97.63	97.75	0.12%

replacement index for the purposes of the Black Monday scenario. Prices were harmonized to take into account the time zone.

⁴ The BAX contract was introduced in April 1988. Consequently, the historical price is obtained by using the 3 month US LIBOR interest rates.

⁵ The CGB contract was introduced in September 1989. Consequently, the theoretical price is obtained by calculating a 10-year bond, 6% coupon rate actualized with a 10-year Canadian Government rate extracted from an on-the-run Canadian Government Bond.

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Bankers' Acceptance Futures			
CGB [™] — Ten-Year Government of Canada Bond Futures	117.16	117.14	-0.02%
Fixed Income Security Buckets			
0-3 months GoC yields			-0.0056%
3-6 months GoC yields			0.0354%
6-12 months GoC yields			0.0719%
1-2 years GoC yields			0.1318%
2-3 years GoC yields			0.1635%
3-5 years GoC yields			0.1883%
5-7 years GoC yields			0.1247%
7-10 years GoC yields			0.0528%
10-15 years GoC yields			0.1163%
15-20 years GoC yields			0.1718%
20-30 years GoC yields			0.1491%
0-5 years Provincial yields			-0.0475%
5-10 years Provincial yields			-0.1232%
10-20 years Provincial yields			-0.3703%
20-30 years Provincial yields			-0.2787%
Scenario 3	(Russian Defa	ult)	
	1998-08-26	1998-08-27	Variation
SXF ^{∓M} — S&P/TSX 60 Index Standard Futures	356.54	333.25	-6.53%
EMF TM —FTSE Emerging Markets Index Futures	110.44	108.99	-1.31%
BAX [™] — Three-Month Canadian Bankers' Acceptance Futures	94.56	93.77	-0.84%
CGB [™] — Ten-Year Government of Canada Bond Futures	122.15	121.3	-0.70%
Fixed Income Security Buckets			
0-3 months GoC yields			-0.2069%
3-6 months GoC yields			-0.3263%
6-12 months GoC yields			-0.5015%
1-2 years GoC yields			-1.0739%
2-3 years GoC yields			-1.0429%

3-5 years GoC yields			-1.3803%
5-7 years GoC yields			-0.8457%
7-10 years GoC yields			-1.4312%
10-15 years GoC yields			-1.5248%
15-20 years GoC yields			-1.2586%
20-30 years GoC yields			-1.3089%
0-5 years Provincial yields			-1.2163%
5-10 years Provincial yields			-1.7576%
10-20 years Provincial yields			-1.8987%
20-30 years Provincial yields			-1.4248%
Scenario 4 (Bond Market C	Crash)	
	1994-04-01	1994-04-04	Variation
SXE [™]	221.09	215.97	-2.32%
EME [™] — FTSE Emerging Markets Index Futures	209.91	205.21	-2.24%
BAX [™] — Three-Month Canadian Bankers' Acceptance Futures	93.53	92.92	-0.65%
CGB [™] — Ten-Year Government of Canada Bond Futures	105.17	102.38	-2.65%
Fixed Income Security Buckets			
0-3 months GoC yields			0.0268%
3-6 months GoC yields			0.1060%
6-12 months GoC yields			0.1814%
1-2 years GoC yields			0.3710%
2-3 years GoC yields			0.4517%
3-5 years GoC yields			0.7702%
5-7 years GoC yields			0.6207%
7-10 years GoC yields			0.8582%
10-15 years GoC yields			1.0067%
15-20 years GoC yields			0.7665%
20-30 years GoC yields			0.5196%
0-5 years Provincial yields			-0.5813%
5-10 years Provincial yields			-2.6390%
10-20 years Provincial yields			-3.0077%

$\frac{20-30}{20}$ years Frowincial yields
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The procedure to value the size of the Clearing Fund and the contributions of each Clearing Member is performed every month. As previously mentioned, the consideration of the results of the different stress scenarios leads the Corporation to select a stress factor⁶. Therefore, the stress factor depends on Clearing Members' positions (risk profile of each Clearing Member) that vary every day, and the Margin Intervals. After selecting the stress factor, the Corporation monitors and controls the level of the Clearing Fund throughout the month.

⁶ The stress factor generally has a value of 1.5, 2, 2.5 or 3. It is generally adjusted by 50% intervals.