



## PFMI Quantitative Disclosure

As of September 30, 2016

All financial data in USD

<b>4_1 Total value of default resources (excluding initial and retained variation margin), split by clearing service if default funds are segregated by clearing service</b>	
<i>Disclosure Frequency - Quarterly as at quarter end</i>	
4_1_1 Prefunded - Own Capital Before	NA
4_1_2 Prefunded - Own Capital Alongside	0
4_1_3 Prefunded - Own Capital After	0
4_1_4 Prefunded - Aggregate Participant Contributions - Required	6,604,429,399
4_1_5 Prefunded - Aggregate Participant Contributions - Post-Haircut Posted	6,893,703,816
4_1_6 Prefunded - Other	0
4_1_7 Committed - Own/parent funds that are committed to address a participant default (or round of participant defaults)	0
4_1_8 Committed - Aggregate participant commitments to address an initial participant default (or initial round of participant defaults)	NA
4_1_9 Committed - Aggregate participant commitments to replenish the default fund to deal with a subsequent participant default (or round of participant defaults) after the initial participant default (or round of participant defaults) has been addressed	NA
4_1_10 Committed - Other	0
<b>4_2 Kccp</b>	
<i>Disclosure Frequency – Quarterly</i>	
4_2_1 Kccp - Kccp need only be reported by those CCPs which are, or seek to be a "qualifying CCP" under relevant law	280,564,047

**4\_3 Value of pre-funded default resources (excluding initial and retained variation margin) held for each clearing service, in total and split by the following:**

*Disclosure Frequency – Quarterly as at quarter end (See explanatory note)*

<b>4_3_1</b> Cash deposited at a central bank of issue of the currency concerned – Pre Haircut	0
<b>4_3_2</b> Cash deposited at a central bank of issue of the currency concerned – Post Haircut	0
<b>4_3_3</b> Cash deposited at other central banks – Pre Haircut	0
<b>4_3_4</b> Cash deposited at other central banks – Post Haircut	0
<b>4_3_5</b> Secured cash deposited at commercial banks (including reverse repo) – Pre Haircut	2,300,000,000
<b>4_3_6</b> Secured cash deposited at commercial banks (including reverse repo) – Post Haircut	2,346,000,000
<b>4_3_7</b> Unsecured cash deposited at commercial banks Pre Haircut	136,426,024
<b>4_3_8</b> Unsecured cash deposited at commercial banks Post Haircut	136,426,024
<b>4_3_9</b> Non-Cash Sovereign Government Bonds – Domestic – Pre Haircut	4,474,705,387
<b>4_3_10</b> Non-Cash Sovereign Government Bonds – Domestic – Post Haircut	4,364,330,480
<b>4_3_11</b> Non-Cash Sovereign Government Bonds – Canadian – Pre Haircut	48,967,391
<b>4_3_12</b> Non-Cash Sovereign Government Bonds – Canadian – Post Haircut	46,947,312

**4\_4 Credit Risk Exposures**

*Disclosure Frequency – Quarterly*

<b>4_4_1</b> State whether the CCP is subject to a minimum “Cover 1” or “Cover 2” requirement in relation to total pre-funded default resources.	Cover 1
<b>4_4_2</b> For each clearing service, state the number of business days within which the CCP assumes it will close out the default when calculating credit exposures that would potentially need to be covered by the default fund.	2

<b>4_4_3</b> For each clearing service, what is the estimated largest aggregate stress loss (in excess of initial margin) that would be caused by the default of any single participant and its affiliates (including transactions cleared for indirect participants) in extreme but plausible market conditions? - Peak Day in 12 Months	2,774,780,200
<b>4_4_4</b> For each clearing service, what is the estimated largest aggregate stress loss (in excess of initial margin) that would be caused by the default of any single participant and its affiliates (including transactions cleared for indirect participants) in extreme but plausible market conditions? - Average in 12 Months	1,562,376,425
<b>4_4_5</b> Report the number of business days, if any, on which the above amount exceeded actual pre-funded default resources (in excess of initial margin) and by how much. – Number of Days	0
<b>4_4_6</b> Report the number of business days, if any, on which the above amount exceeded actual pre-funded default resources (in excess of initial margin) and by how much. – Amount of excess on each day	0
<b>4_4_7</b> For each clearing service, what was the actual largest aggregate credit exposure (in excess of initial margin) to any single participant and its affiliates (including transactions cleared for indirect participants)? - Peak Day in 12 Months	322,169
<b>4_4_8</b> For each clearing service, what was the actual largest aggregate credit exposure (in excess of initial margin) to any single participant and its affiliates (including transactions cleared for indirect participants)? - Average in 12 Months	322,169
<b>4_4_9</b> For each clearing service, what is the estimated largest aggregate stress loss (in excess of initial margin) that would be caused by the default of any two participants and their affiliates (including transactions cleared for indirect participants) in extreme but plausible market conditions? - Peak Day in 12 Months	4,856,718,806
<b>4_4_10</b> For each clearing service, what is the estimated largest aggregate stress loss (in excess of initial margin) that would be caused by the default of any two participants and their affiliates (including transactions cleared for indirect participants) in extreme but plausible market conditions? - Average in 12 Months	2,553,869,250
<b>4_4_11</b> Report the number of business days, if any, on which the above amount exceeded actual pre-funded default resources (in excess of initial margin) and by how much. – Number of Days	0
<b>4_4_12</b> Report the number of business days, if any, on which the above amount exceeded actual pre-funded default resources (in excess of initial margin) and by how much. – Amount of excess on each day	0

<b>4_4_13</b> For each clearing service, what was the actual largest aggregate credit exposure (in excess of initial margin) to any two participants and their affiliates (including transactions cleared for indirect participants)? - Peak Day in 12 Months	322,169
<b>4_4_14</b> For each clearing service, what was the actual largest aggregate credit exposure (in excess of initial margin) to any two participants and their affiliates (including transactions cleared for indirect participants)? - Average in 12 Months	322,169

<b>5_1 Assets eligible as initial margin and the respective haircuts applied</b> <i>Disclosure Frequency – Update as changes are made (See explanatory note)</i>	
<b>5_1_1</b> Cash	NA
<b>5_1_2</b> US Government Securities	NA
<b>5_1_3</b> Government Sponsored Enterprise Debt Securities	NA
<b>5_1_4</b> Stock	NA
<b>5_1_5</b> Canadian Government Securities	NA
<b>5_1_6</b> Money Market Funds	NA
<b>5_1_7</b> Letters of Credit	NA

<b>5_2 Assets Eligible for pre-funded participant contributions to the default resources, and the respective haircuts applied (if different from 5_1)</b> <i>Disclosure Frequency – Update as changes are made</i>	
<b>5_2_1</b> Cash	
<b>5_2_2</b> US Government Securities	
<b>5_2_3</b> Canadian Government Securities	

<b>5_3 Results of testing of haircuts</b> <i>Disclosure Frequency – Quarterly</i>	
<b>5_3_1</b> Confidence interval targeted through the calculation of haircuts - Cash	NA
<b>5_3_2</b> Confidence interval targeted through the calculation of haircuts – US Government Securities	99%
<b>5_3_3</b> Confidence interval targeted through the calculation of haircuts – Canadian Government Securities	99%
<b>5_3_4</b> Assumed holding/liquidation period for the assets accepted	Coverage horizon and VAR calculation (2 day)
<b>5_3_5</b> Look-back period used for testing the haircuts	VAR calculation 2 years and 5 years; validate haircuts monthly
<b>5_3_6</b> The number of days during the look-back period on which the fall in value during the assumed holding/liquidation period exceeded the haircut on an asset	0

<b>6_1 For each clearing service, total initial margin required, split by house and client (or combined total if not segregated)</b>	
<i>Disclosure Frequency – Quarterly</i>	
6_1_1 House	11,322,645,808
6_1_2 Client Gross Position	3,246,578,370
6_1_3 Client Net Position	29,420,961,266
6_1_4 Total if Not Segregated	0

<b>6_2 For each clearing service, total initial margin held, split by house and client</b>	
<i>Disclosure Frequency – Quarterly as at quarter end</i>	
6_2_1 House - Cash deposited at a central bank of issue of the currency concerned - Market Value Pre-Haircut	NA
6_2_2 House - Cash deposited at a central bank of issue of the currency concerned - Market Value Post-Haircut	NA
6_2_3 House - Cash deposited at other central banks - Market Value Pre-Haircut	NA
6_2_4 House - Cash deposited at other central banks - Market Value Post-Haircut	NA
6_2_5 House - Secured cash deposited at commercial banks (including reverse repo) - Market Value Pre-Haircut	NA
6_2_6 House - Secured cash deposited at commercial banks (including reverse repo) - Market Value Post-Haircut	NA
6_2_7 House - Unsecured cash deposited at commercial banks - Market Value Pre-Haircut	2,911,223,227
6_2_8 House - Unsecured cash deposited at commercial banks - Market Value Post-Haircut	2,911,223,227
6_2_9 House - Non-Cash Sovereign Government Securities – US Government Securities - Market Value Pre-Haircut	2,691,772,160
6_2_10 House - Non-Cash Sovereign Government Securities – US Government Securities - Market Value Post-Haircut	NA
6_2_11 House - Non-Cash Sovereign Government Securities – Canadian Government Securities - Market Value Pre-Haircut	122,570,082
6_2_12 House - Non-Cash Sovereign Government Securities – Canadian Government Securities - Market Value Post-Haircut	118,298,515
6_2_13 House - Non-Cash Agency Securities - Government Sponsored Enterprise Debt Securities - Market Value Pre-Haircut	0

<b>6_2_14</b> House - Non-Cash Agency Securities - Government Sponsored Enterprise Debt Securities - Market Value Post-Haircut	0
<b>6_2_15</b> House - Non-Cash State/municipal bonds - Market Value Pre-Haircut	NA
<b>6_2_16</b> House - Non-Cash State/municipal bonds - Market Value Post-Haircut	NA
<b>6_2_17</b> House - Non-Cash Corporate bonds - Market Value Pre-Haircut	NA
<b>6_2_18</b> House - Non-Cash Corporate bonds - Market Value Post-Haircut	NA
<b>6_2_19</b> House - Non-Cash Equities (Stock) - Market Value Pre-Haircut	9,298,890,037
<b>6_2_20</b> House - Non-Cash Equities (Stock) - Market Value Post-Haircut	NA
<b>6_2_21</b> House - Non-Cash Commodities – Gold - Market Value Pre-Haircut	NA
<b>6_2_22</b> House - Non-Cash Commodities – Gold - Market Value Post-Haircut	NA
<b>6_2_23</b> House - Non-Cash Commodities – Other - Market Value Pre-Haircut	NA
<b>6_2_24</b> House - Non-Cash Commodities – Other	NA
<b>6_2_25</b> House - Non-Cash - Mutual Funds / UCITs - Market Value Pre-Haircut	NA
<b>6_2_26</b> House - Non-Cash - Mutual Funds / UCITs - Market Value Post-Haircut	NA
<b>6_2_27</b> House - Non-Cash – Money Market Funds - Market Value Pre-Haircut	0
<b>6_2_28</b> House - Non-Cash – Money Market Funds - Market Value Post-Haircut	0
<b>6_2_29</b> House - Non-Cash – Letters Of Credit - Market Value Pre-Haircut	228,500,202
<b>6_2_30</b> House - Non-Cash – Letters Of Credit - Market Value Post-Haircut	228,500,202
<b>6_2_31</b> Client - Cash deposited at a central bank of issue of the currency concerned - Market Value Pre-Haircut	NA
<b>6_2_32</b> Client - Cash deposited at a central bank of issue of the currency concerned - Market Value Post-Haircut	NA
<b>6_2_33</b> Client - Cash deposited at other central banks - Market Value Pre-Haircut	NA
<b>6_2_34</b> Client - Cash deposited at other central banks - Market Value Post-Haircut	NA
<b>6_2_35</b> Client - Secured cash deposited at commercial banks (including reverse repo) - Market Value Pre-Haircut	NA

<b>6_2_36</b> Client - Secured cash deposited at commercial banks (including reverse repo) - Market Value Post-Haircut	NA
<b>6_2_37</b> Client - Unsecured cash deposited at commercial banks - Market Value Pre-Haircut	5,032,321,041
<b>6_2_38</b> Client - Unsecured cash deposited at commercial banks - Market Value Post-Haircut	5,032,321,041
<b>6_2_39</b> Client - Non-Cash Sovereign Government Securities – US Government Securities - Market Value Pre-Haircut	5,700,810,479
<b>6_2_40</b> Client - Non-Cash Sovereign Government Securities – US Government Securities - Market Value Post-Haircut	NA
<b>6_2_41</b> Client - Non-Cash Sovereign Government Securities – Canadian Government Securities - Market Value Pre-Haircut	844,269,689
<b>6_2_42</b> Client - Non-Cash Sovereign Government Securities – Canadian Government Securities - Market Value Post-Haircut	812,452,479
<b>6_2_43</b> Client - Non-Cash Agency Securities - Government Sponsored Enterprise Debt Securities - Market Value Pre-Haircut	0
<b>6_2_44</b> Client - Non-Cash Agency Securities - Government Sponsored Enterprise Debt Securities - Market Value Post-Haircut	0
<b>6_2_45</b> Client - Non-Cash State/municipal bonds - Market Value Pre-Haircut	NA
<b>6_2_46</b> Client - Non-Cash State/municipal bonds - Market Value Post-Haircut	NA
<b>6_2_47</b> Client - Non-Cash Corporate bonds - Market Value Pre-Haircut	NA
<b>6_2_48</b> Client - Non-Cash Corporate bonds - Market Value Post-Haircut	NA
<b>6_2_49</b> Client - Non-Cash Equities (Stock) - Market Value Pre-Haircut	29,782,246,341
<b>6_2_50</b> Client - Non-Cash Equities (Stock) - Market Value Post-Haircut	NA
<b>6_2_51</b> Client - Non-Cash Commodities – Gold - Market Value Pre-Haircut	NA
<b>6_2_52</b> Client - Non-Cash Commodities – Gold - Market Value Post-Haircut	NA
<b>6_2_53</b> Client - Non-Cash Commodities – Other - Market Value Pre-Haircut	NA
<b>6_2_54</b> Client - Non-Cash Commodities - Other	NA
<b>6_2_55</b> Client - Non-Cash - Mutual Funds / UCITs - Market Value Pre-Haircut	NA

<b>6_2_56</b> Client - Non-Cash - Mutual Funds / UCITs - Market Value Post-Haircut	NA
<b>6_2_57</b> Client - Non-Cash – Money Market Funds - Market Value Pre-Haircut	0
<b>6_2_58</b> Client - Non-Cash – Money Market Funds - Market Value Post-Haircut	0
<b>6_2_59</b> Client - Non-Cash – Letters Of Credit - Market Value Pre-Haircut	737,000,000
<b>6_2_60</b> Client - Non-Cash – Letters Of Credit - Market Value Post-Haircut	737,000,000

**6\_3 Initial Margin rates on individual contracts, where the CCP sets such rates**

*Disclosure Frequency – Update as changes are made*

<b>6_3_1</b>	NA
--------------	----

**6\_4 Type of initial margin model used (e.g. portfolio simulation or risk aggregation) for each clearing service and the key model design parameters for each initial margin model applied to that clearing service**

*Disclosure Frequency – Quarterly; list all changes made during the quarter including effective dates*

<b>6_4_1</b> Model Name	STANS, 99% expected shortfall, 500 day look-back, 2-day liquidation period, large-scale Monte Carlo simulations
-------------------------	---

**6\_5 Results of back-testing of initial margin. At a minimum, this should include, for each clearing service and each initial margin model applied to that clearing service**

*Disclosure Frequency – Quarterly*

<b>6_5_1</b> Number of times over the past twelve months that margin coverage held against any account fell below the actual marked-to-market exposure of that member account – based on daily back-testing results – Peak (once-per-day)	34
<b>6_5_2</b> Number of observations – Peak (once-per-day)	232
<b>6_5_3</b> Achieved coverage level – Peak (once-per-day)	85.34%
<b>6_5_4</b> Where breaches of initial margin coverage (as defined in 6_5(a)) have occurred, report on size of uncovered exposure – Peak (once-per-day)	652,167,979
<b>6_5_5</b> Number of times over the past twelve months that margin coverage held against any account fell below the actual marked-to-market exposure of that member account – based on daily back-testing results – Average (once-per-day)	1.28
<b>6_5_6</b> Number of observations – Average (once-per-day)	234.2
<b>6_5_7</b> Achieved coverage level – Average (once-per-day)	99.45%



<b>6_5_8</b> Where breaches of initial margin coverage (as defined in 6.5(a)) have occurred, report on size of uncovered exposure – Average (once-per-day)	9,427,853
--	-----------

<b>6_6 Average Total Variation Margin Paid to the CCP by participants each business</b> <i>Disclosure Frequency – Quarterly; average per business day over the quarter</i>	
<b>6_6_1</b> Average Total Variation Margin Paid to the CCP by participants each business	NA

<b>6_7 Maximum total variation margin paid to the CCP on any given business day over the period</b> <i>Disclosure Frequency – Quarterly; maximum over quarter</i>	
<b>6_7_1</b> Maximum total variation margin paid to the CCP on any given business day over the period	NA

<b>6_8 Maximum aggregate initial margin call on any given business day over the period</b> <i>Disclosure Frequency – Quarterly; maximum over quarter</i>	
<b>6_8_1</b> Maximum aggregate initial margin call on any given business day over the period	2,590,910,849

<b>7_1 Liquidity Risk - State whether the clearing service maintains sufficient liquid resources to 'Cover 1' or 'Cover 2'</b> <i>Disclosure Frequency – Quarterly</i>	
<b>7_1_1</b> State whether the clearing service maintains sufficient liquid resources to 'Cover 1' or 'Cover 2'.	Cover 1
<b>7_1_2</b> Size and composition of qualifying liquid resources for each clearing service - (a) Cash deposited at a central bank of issue of the currency concerned	0
<b>7_1_3</b> Size and composition of qualifying liquid resources for each clearing service - (b) Cash deposited at other central banks	0
<b>7_1_4</b> Size and composition of qualifying liquid resources for each clearing service - (c) Secured cash deposited at commercial banks (including reverse repo)	2,300,000,000
<b>7_1_5</b> Size and composition of qualifying liquid resources for each clearing service - (d) Unsecured cash deposited at commercial banks	136,426,024
<b>7_1_6</b> Size and composition of qualifying liquid resources for each clearing service - (e) secured committed lines of credit (i.e. those for which collateral/security will be provided by the CCP if drawn) including committed foreign exchange swaps and committed repos;	Secured Committed Lines of Credit: \$2 billion syndicated credit facility collateralized by Clearing Fund securities \$1 billion liquidity facility collateralized by Clearing Fund securities

<b>7_1_7</b> Size and composition of qualifying liquid resources for each clearing service - (f) unsecured committed lines of credit (i.e. which the CCP may draw without providing collateral/security);	NA
<b>7_1_8</b> Size and composition of qualifying liquid resources for each clearing service - (g) highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements even in extreme but plausible market conditions;	4,523,672,778
<b>7_1_9</b> Size and composition of qualifying liquid resources for each clearing service – other	NA
<b>7_1_10</b> State whether the CCP has routine access to central bank liquidity or facilities.	No
<b>7_1_11</b> Details regarding the schedule of payments or priority for allocating payments, if such exists, and any applicable rule, policy, procedure, and governance arrangement around such decision making.	NA

<b>7_2 Size and composition of any supplementary liquidity risk resources for each clearing service above those qualifying liquid resources above</b> <i>Disclosure Frequency – Quarterly</i>	
<b>7_2_1</b> Size and composition of any supplementary liquidity risk resources for each clearing service above those qualifying liquid resources in 7_1 - Uncommitted Facilities with # of Partners	\$1 billion uncommitted accordion in syndicated credit facility

<b>7_3 Liquidity Risk - Multiple Items</b> <i>Disclosure Frequency – Quarterly</i>	
<b>7_3_1</b> What is the estimated largest same-day and, where relevant, intraday and multiday payment obligation in total that would be caused by the default of any single participant and its affiliates (including transactions cleared for indirect participants) in extreme but plausible market conditions? - Forward looking measure reported quarterly	2,623,480,860
<b>7_3_2</b> Report the number of business days, if any, on which the above amount exceeded its qualifying liquid resources (identified as in 7_1, and available at the point the breach occurred), and by how much. - No. of days in quarter, and amount of excess on each day	0

<b>7_3_3</b> What is the actual largest intraday and multiday payment obligation of a single participant and its affiliates (including transactions cleared for indirect participants) over the past twelve months? - Peak day amount in previous twelve months	1 Day Horizon: 2,148,897,475 on 1/19/2016 2 Day Horizon: 2,446,306,982 on 12/21/2015
<b>7_3_4</b> What is the estimated largest same-day and, where relevant, intraday and multiday payment obligation in each relevant currency that would be caused by the default of any single participant and its affiliates (including transactions cleared for indirect participants) in extreme but plausible market conditions - Forward looking measure reported quarterly - USD	2,623,480,860
<b>7_3_5</b> Report the number of business days, if any, on which the above amounts exceeded its qualifying liquid resources in each relevant currency (as identified in 7_1 and available at the point the breach occurred), and by how much. - No. of days in quarter, and amount of excess on each day - USD	0

**12\_1 Percentage of settlements by value effected using a DvP, DvD or PVP settlement mechanism**

*Disclosure Frequency – Quarterly*

<b>12_1_1</b> Percentage of settlements by value effected using a DvP settlement mechanism	NA
<b>12_1_2</b> Percentage of settlements by value effected using a DvD settlement mechanism	NA
<b>12_1_3</b> Percentage of settlements by value effected using a PVP settlement mechanism	NA

**12\_2 Percentage of settlements by value effected using a DvP, DvD or PVP settlement mechanism**

*Disclosure Frequency – Quarterly*

<b>12_2_1</b> Percentage of settlements by volume effected using a DvP settlement mechanism	NA
<b>12_2_2</b> Percentage of settlements by volume effected using a DvD settlement mechanism	NA
<b>12_2_3</b> Percentage of settlements by volume effected using a PVP settlement mechanism	NA

**13\_1 CCPs are encouraged, subject to legal constraints on timing and content, to disclose as soon as practicable quantitative information related to defaults**

*Disclosure Frequency – Ad-Hoc; As Time Permits*

<b>13_1_1</b> Amount of loss versus amount of initial margin	NA
<b>13_1_2</b> Amount of other financial resources used to cover losses	NA
<b>13_1_3</b> Proportion of client positions closed-out/porting	NA
<b>13_1_4</b> Appropriate references to other published material related to the defaults	NA

**14\_1 Total Client Positions held in the following as a share of notional values cleared or of the settlement value of securities transactions**  
**Disclosure Frequency – Quarterly**

14_1_1 Total Client Positions held in individually segregated accounts	0%
14_1_2 Total Client Positions held in omnibus client-only accounts, other than LSOC accounts	100%
14_1_3 Total Client Positions held in legally segregated but operationally comingled (LSOC) accounts	0%
14_1_4 Total Client Positions held in comingled house and client accounts	0%

**15\_1 General business risk**  
**Disclosure Frequency – Annually**

15_1_1 Value of liquid net assets funded by equity	247,000,000 As of 12/31/2015
15_1_2 Six months of current operating expenses	249,391,081 As of 12/31/2015

**15\_2 General business risk; Financial Disclosures**  
**Disclosure Frequency – Annually**

15_2_1 Total Revenue	250,115,089 As of 12/31/2015
15_2_2 Total Expenditure	227,585,849 As of 12/31/2015
15_2_3 Profits	22,529,240 As of 12/31/2015
15_2_4 Total Assets	12,738,419,631 As of 12/31/2015
15_2_5 Total Liabilities	12,491,419,631 As of 12/31/2015
15_2_6 Explain if collateral posted by clearing participants is held on or off the CCP's balance sheet	NA
15_2_7 Additional items as necessary	NA

**15\_3 General business risk; Income breakdown**  
**Disclosure Frequency – Annually**

15_3_1 Percentage of total income that comes from fees related to provision of clearing services	96% of Total Revenue As of 12/31/2015
15_3_2 Percentage of total income that comes from the reinvestment (or rehypothecation) of assets provided by clearing participants	0.66% of Total Revenue As of 12/31/2015

<b>16_1 Total cash (but not securities) received from participants, regardless of the form in which it is held, deposited or invested, split by whether it was received as initial margin or default fund contribution</b>	
<i>Disclosure Frequency – Quarterly as at quarter end</i>	
<b>16_1_1</b> Total cash (but not securities) received from participants, regardless of the form in which it is held, deposited or invested, received as initial margin	7,943,544,268
<b>16_1_2</b> Total cash (but not securities) received from participants, regardless of the form in which it is held, deposited or invested, received as default fund contribution	2,436,426,024

<b>16_2 How total cash received from participants (16_1) is held/deposited/invested, including;</b>	
<i>Disclosure Frequency – Quarterly</i>	
<b>16_2_1</b> Percentage of total participant cash held as cash deposits (including through reverse repo) - as cash deposits at central banks of issue of the currency deposited	0
<b>16_2_2</b> Percentage of total participant cash held as cash deposits (including through reverse repo) - as cash deposits at other central banks	0
<b>16_2_3</b> Percentage of total participant cash held as cash deposits (including through reverse repo) - as cash deposits at commercial banks (Secured, including through reverse repo)	29%
<b>16_2_4</b> Percentage of total participant cash held as cash deposits (including through reverse repo) - as cash deposits at commercial banks (Unsecured)	71%
<b>16_2_5</b> Percentage of total participant cash held as cash deposits (including through reverse repo) - in money market funds	NA
<b>16_2_6</b> Percentage of total participant cash held as cash deposits (including through reverse repo) - in other forms	NA
<b>16_2_7</b> Percentage of total participant cash held as cash deposits (including through reverse repo) - percentage split by currency of these cash deposits (including reverse repo) and money market funds – USD	NA
<b>16_2_8</b> Percentage of total participant cash held as cash deposits (including through reverse repo) - weighted average maturity of these cash deposits (including reverse repo) and money market funds	NA
<b>16_2_9</b> Percentage of total participant cash invested in securities - Domestic sovereign government bonds	29%

<b>16_2_10</b> Percentage of total participant cash invested in securities - Other sovereign government bonds	NA
<b>16_2_11</b> Percentage of total participant cash invested in securities - Agency Bonds	NA
<b>16_2_12</b> Percentage of total participant cash invested in securities - State/municipal bonds	NA
<b>16_2_13</b> Percentage of total participant cash invested in securities - Other instruments	NA
<b>16_2_14</b> Percentage of total participant cash invested in securities - percentage split by currency of these securities - USD	NA
<b>16_2_15</b> Percentage of total participant cash invested in securities - weighted average maturity of securities	4,282 days
<b>16_2_16</b> Provide an estimate of the risk on the investment portfolio (excluding central bank and commercial bank deposits) (99% one-day VaR, or equivalent)	NA
<b>16_2_17</b> State if the CCP investment policy sets a limit on the proportion of the investment portfolio that may be allocated to a single counterparty, and the size of that limit	NA
<b>16_2_18</b> State the number of times over the previous quarter in which this limit has been exceeded	NA

<b>16_3 Rehypothecation of participant assets (ie non-cash)</b>	
<i>Disclosure Frequency – Quarterly</i>	
<b>16_3_1</b> Total value of participant non-cash rehypothecated - Initial Margin	0
<b>16_3_2</b> Total value of participant non-cash rehypothecated - Default Fund	0

<b>17_1 Operational availability target for the core system(s) involved in clearing (whether or not outsourced) over specified period for the system (e.g. 99.99% over a twelve-month period)</b>	
<i>Disclosure Frequency – Quarterly</i>	
<b>17_1_1</b> Operational availability target for the core system(s) involved in clearing (whether or not outsourced) over specified period for the system (e.g. 99.99% over a twelve-month period)	98%

<b>17_2 Actual availability of the core system(s) over the previous twelve month period</b>	
<i>Disclosure Frequency – Quarterly</i>	
<b>17_2_1</b> Actual availability of the core system(s) over the previous twelve month period	99.78%

<b>17_3 Total number and duration of failures</b> <i>Disclosure Frequency – Quarterly</i>	
17_3_1 Total number and duration of failures affecting the core system(s) involved in clearing over the previous twelve month period	11 Failures – 19 hours and 01 minutes

<b>17_4 Recovery time objective(s)</b> <i>Disclosure Frequency – Quarterly</i>	
17_4_1 Recovery time objective(s) (e.g. within 2 hours)	Two Hours

<b>18_1 Number of clearing members, by clearing service</b> <i>Disclosure Frequency – Quarterly as at quarter end</i>	
18_1_1 Category of membership - General Clearing Member	114
18_1_2 Participants – Domestic	106
18_1_3 Participants - Foreign	8

<b>18_2 Open Position Concentration</b> <i>Disclosure Frequency – Quarterly</i>	
18_2_1 For each clearing service with ten or more members, but fewer than 25 members - Percentage of open positions held by the largest five clearing members, including both house and client, in aggregate - Average	NA
18_2_2 For each clearing service with ten or more members, but fewer than 25 members - Percentage of open positions held by the largest five clearing members, including both house and client, in aggregate - Peak during Quarter	NA
18_2_3 For each clearing service with 25 or more members - Percentage of open positions held by the largest five clearing members, including both house and client, in aggregate - Average	54%
18_2_4 For each clearing service with 25 or more members - Percentage of open positions held by the largest five clearing members, including both house and client, in aggregate - Peak during Quarter	54%
18_2_5 For each clearing service with 25 or more members - Percentage of open positions held by the largest ten clearing members, including both house and client, in aggregate - Average	70%

<b>18_2_6</b> For each clearing service with 25 or more members - Percentage of open positions held by the largest ten clearing members, including both house and client, in aggregate - Peak during Quarter	70%
--	-----

<b>18_3 Initial Margin Concentration</b>	
<i>Disclosure Frequency – Quarterly</i>	
<b>18_3_1</b> For each clearing service with ten or more members, but fewer than 25 members - Percentage of initial margin posted by the largest five clearing members, including both house and client, in aggregate – Average	NA
<b>18_3_2</b> For each clearing service with ten or more members, but fewer than 25 members - Percentage of initial margin posted by the largest five clearing members, including both house and client, in aggregate - Peak during Quarter	NA
<b>18_3_3</b> For each clearing service with 25 or more members - Percentage of initial margin posted by the largest five clearing members, including both house and client, in aggregate - Average	38%
<b>18_3_4</b> For each clearing service with 25 or more members - Percentage of initial margin posted by the largest five clearing members, including both house and client, in aggregate – Peak during Quarter	45%
<b>18_3_5</b> For each clearing service with 25 or more members - Percentage of initial margin posted by the largest ten clearing members, including both house and client, in aggregate – Average	56%
<b>18_3_6</b> For each clearing service with 25 or more members - Percentage of initial margin posted by the largest ten clearing members, including both house and client, in aggregate - Peak during Quarter	71%



<b>18_4 Segregated Default Fund Concentration</b> <i>Disclosure Frequency – Quarterly</i>	
<b>18_4_1</b> For each segregated default fund with ten or more members, but fewer than 25 members:- Percentage of participant contributions to the default fund contributed by largest five clearing members in aggregate	NA
<b>18_4_2</b> For each segregated default fund with 25 or more members - Percentage of participant contributions to the default fund contributed by largest five clearing members in aggregate	45%
<b>18_4_3</b> For each segregated default fund with 25 or more members - Percentage of participant contributions to the default fund contributed by largest ten clearing members in aggregate	60%

<b>19_1 Tiered participation arrangements, measures of concentration of client clearing</b> <i>Disclosure Frequency – Quarterly as at quarter end</i>	
<b>19_1_1</b> Number of clients (if known)	NA
<b>19_1_2</b> Number of direct members that clear for clients	102
<b>19_1_3</b> Percent of client transactions attributable to the top five clearing members (if CCP has 10+ clearing members)	61%
<b>19_1_4</b> Percent of client transactions attributable to the top ten clearing members (if CCP has 25+ clearing members)	76%

<b>20_1 FMI Links, Value of Trades</b> <i>Disclosure Frequency – Quarterly</i>	
<b>20_1_1</b> Value of trades cleared through each link – as a share of total trade values/total notional values cleared	NA

<b>20_2 FMI Links, Initial Margin or equivalent financial resources provided</b> <i>Disclosure Frequency – Quarterly</i>	
<b>20_2_1</b> Initial margin or equivalent financial resources provided to each linked CCP by the CCP to cover the potential future exposure of the linked CCP on contracts cleared across link	NA

<b>20_3 FMI Links, Initial Margin or equivalent financial resources collected</b> <i>Disclosure Frequency – Quarterly</i>	
<b>20_3_1</b> Initial margin or equivalent financial resources collected from each linked CCP to cover potential future exposure to the linked CCP on contracts cleared across link (at market value and post-haircut)	NA

<b>20_4 FMI Links, Results of Back-testing coverage</b>	
<i>Disclosure Frequency – Quarterly</i>	
<b>20_4_1</b> Number of times over the past twelve months that coverage provided by margin and equivalent financial resources held against each linked CCP fell below the actual marked-to-market exposure to that linked CCP – based on daily back testing results - Intraday or Continuous or Once-a-day	NA
<b>20_4_2</b> Number of observations (i.e. number of accounts multiplied by number of days covered in the back test) - Intraday or Continuous or Once-a-day	NA
<b>20_4_3</b> Achieved coverage level - Intraday or Continuous or Once-a-day	NA

<b>20_5 FMI Links, Additional pre-funded financial resources provided to each linked CCP</b>	
<i>Disclosure Frequency – Quarterly</i>	
<b>20_5_1</b> Additional pre-funded financial resources (if any) beyond initial margin and equivalent financial resources provided to each linked CCP, that are available to the linked CCP to cover exposures to the CCP and whether part of, additional to, or separate from the standard default fund	NA

<b>20_6 FMI Links, Additional pre-funded financial resources collected from each linked CCP</b>	
<i>Disclosure Frequency – Quarterly</i>	
<b>20_6_1</b> Additional pre-funded financial resources (if any) beyond initial margin and equivalent financial resources provided to each linked CCP, that are available to the linked CCP to cover exposures to the CCP and whether part of, additional to, or separate from the standard default fund	NA

<b>20_7 FMI Links, Cross Margining</b> <i>Disclosure Frequency – Quarterly</i>	
<b>20_7_1</b> Value of trades subject to cross margining, by clearing service, as a percentage of total trade values/total notional values cleared	OCC/CME 2.1% quarterly average as a result of OCC/CME cross margin accounts reporting margin credits versus all OCC accounts reporting margin debits  OCC/ICE Clear US -0.4% quarterly average as a result of OCC/ICE cross margin accounts reporting margin credits versus all OCC accounts reporting margin debits
<b>20_7_2</b> Reduction in total initial margin held by the CCP as a result of cross margining, as a percentage of total initial margin that would otherwise have been held.	OCC/CME 72% quarterly average  OCC/ICE Clear US 100% quarterly average

<b>23_1 Disclosure of rules, key procedures, and market data; Average Daily Volumes</b> <i>Disclosure Frequency – Quarterly, average per business day</i>	
<b>23_1_1</b> Average Daily Volumes - Options	15,434,407
<b>23_1_2</b> Average Daily Open Interest - Options	292,013,915
<b>23_1_3</b> Average Daily Volumes – Futures	428,976
<b>23_1_4</b> Average Daily Open Interest - Futures	2,085,300
<b>23_1_5</b> Average Daily Volumes – OTC	0
<b>23_1_6</b> Notional value of trades cleared - OTC	0
<b>23_1_7</b> Average Daily Volumes – Stock Loan	3697
<b>23_1_8</b> Notional Value of trades cleared – Stock Loan	153,720,478,219

<b>23_2 Disclosure of rules, key procedures, and market data; Not-Yet-Settled</b> <i>Disclosure Frequency – Quarterly as at quarter end</i>	
<b>23_2_1</b> Gross notional outstanding/total settlement value of novated but not-yet settled securities transactions	NA
<b>23_2_2</b> Gross notional outstanding/total settlement value of novated but not-yet settled securities transactions	NA
<b>23_2_3</b> Gross notional outstanding/total settlement value of novated but not-yet settled securities transactions	NA
<b>23_2_4</b> Notional Value of trades cleared – Futures	NA

**23\_3 Disclosure of rules, key procedures, and market data; Execution Facility***Disclosure Frequency – Quarterly as at quarter end***23\_3\_1** Average daily volumes submitted by Execution facility or matching/confirmation venue Execution Facility or Matching/Confirmation Venue

NA

## Explanatory notes to accompany the quantitative disclosure

- 4.1.1 In 2015, OCC significantly increased its capital in connection with its responsibilities as a systemically important financial market utility. OCC holds liquid capital to cover potential business losses so that it can continue to operate as a going concern. This capital is in addition to the considerable financial resources OCC holds to cover participant defaults. Under certain circumstances, as provided for in OCC's By-Laws Article VIII Section 5(d), OCC could contribute its corporate capital in the event of a default.
- 4.1.8 OCC By-Law Article VIII, Section 6 states, "Whenever an amount is paid out of the Clearing Fund contribution of a Clearing Member, whether by proportionate charge or otherwise, such Clearing Member shall be liable promptly to make good the deficiency in its contribution resulting from such payment." The deficiency could be any amount up to the Clearing Member's required contribution.
- 4.1.9 OCC By-Law Article VIII, Section 6 states that "a Clearing Member will not be liable to make good more than an additional 100% of the amount of its then required contribution if (i) within five business days following such proportionate charge the Clearing Member notifies the Corporation in writing that it is terminating its status as a Clearing Member, (ii) no opening purchase transaction or opening writing transaction is submitted for clearance through any of the Clearing Member's accounts and (if the Clearing Member is a Market Loan Clearing Member or a Hedge Clearing Member) no Stock Loan is initiated through any of the Clearing Member's accounts after the giving of such notice, and (iii) the Clearing Member closes out or transfers all of its open positions with the Corporation."
- Therefore a Clearing Member's commitment is capped at the "then required contribution," which is the amount of the required clearing fund contribution on the day on which the first proportionate charge was made, provided that the Clearing Member gives appropriate notice to OCC and closes out all open positions as promptly as practicable.
- 4.2.1 The KCCP is a hypothetical capital requirement for OCC due to its counterparty credit risk exposures to all its Clearing Members. OCC calculates the KCCP using the Current Exposure Method to assist its clearing members in calculating their exposure to OCC arising from default fund contributions under the Basel III regulatory capital framework. To arrive at these amounts, OCC has utilized a standardized template and its accompanying guidance published by the Basel Committee on Banking Supervision that is designed to facilitate consistency in the calculation of capital charges for exposures arising from default fund contributions across all clearinghouses and/or other CCPs of which banks and their affiliated entities are members (BCBS 227).
- 4.3 Per OCC By-Laws, contributions to the Clearing Fund shall be in cash or certain Government securities.

- 4.3.1 The Federal Reserve Board has authorized the Federal Reserve Bank of Chicago to establish an account for OCC to hold clearing member assets and corporate funds. OCC expects this account to be operational in October 2016.
- 4.4.2 The liquidation horizon assumption used in OCC's margin model ties directly to the timeframes OCC assumes are required to facilitate the close-out approach employed under OCC default management procedures. Based on the results of default management exercises and observations of actual close-outs, which provide for one day to identify the suspension event and prepare for liquidation (including establishing any hedges or risk mitigating steps) and a second day to facilitate the sale of the positions, a two-day liquidation horizon is utilized as the time expectation for liquidation under a net margining process.

The liquidation horizon assumption for certain segregated futures customer accounts subject to gross margining is one day, which is consistent with other futures markets that support trading in contracts economically equivalent to those cleared by OCC.

- 5.1 According to OCC's Rules, Clearing Members may deposit cash, Government securities, Government Sponsored Enterprise debt securities, money market fund shares, equity issues, and letters of credit as margin assets. OCC has discretion to not give margin credit to a particular Clearing Member when such Clearing Member deposits a concentrated amount of any common stock and/or when a common stock, deposited as margin, presents "wrong-way risk" to OCC. OCC has discretion to give margin credit to common stock deposited as margin that would otherwise not be given margin credit in circumstances when such common stock acts as a hedge (i.e., the member holds an equivalent short position in cleared contracts on the same underlying security).
- 5.1.2 Government securities are valued for margin purposes at 99.5% of the current market value for maturities of up to one year; 98% of the current market value for maturities in excess of one year through five years; 96.5% of the current market value for maturities in excess of five years through ten years; and 95% of the current market value for maturities in excess of ten years.
- 5.1.3 Government Sponsored Enterprise debt securities are valued for margin purposes at (1) 99% of the current market value for maturities of up to one year; (2) 97% of the current market value for maturities in excess of one year through five years; (3) 95% of the current market value for maturities in excess of five years through ten years; and (4) 93% of the current market value for maturities in excess of ten years.
- 5.1.4 OCC values all equity securities deposited as margin collateral and certain government securities deposited as margin collateral within its STANS (System for Theoretical Analysis and Numerical Simulations) margin model. Under this method, cleared options positions and underlying securities are analyzed as a single portfolio, thus providing a more accurate valuation of securities deposited as collateral in relation to the other positions in the account.

- 5.1.5 Canadian Government Securities are discounted an additional 3% compared with U.S. Government securities to account for exchange rate risk.
- 5.1.6 Money market fund shares deposited by a Clearing Member are valued on a daily basis at 98% of current market value or such lower value as the Risk Committee may prescribe from time to time.
- 6.1.2 This number represents client margin for segregated futures accounts. OCC calculates a margin requirement for segregated futures accounts using both STANS (net basis) and SPAN (Standard Portfolio Analysis of Risk, gross basis) and uses the greater of the two for the margin requirement.
- 6.2.5 On 9.30.2016, margin cash on deposit totaled \$7.9 billion. Of the total, \$740 million was invested in reverse repurchase transactions. Cash held for segregated futures accounts was not invested. OCC does not separately report house and client margin cash used in reverse repurchase transactions.
- 6.2.10 See note 5.1.4. Equity securities and certain Government securities are not subject to standard haircuts. Instead, they are valued along with other cleared contracts in OCC's margin model. Therefore, OCC does not report separate post-haircut market values for equity securities or Government securities.
- 6.2.20 See note for 6.2.10
- 6.2.40 See note for 6.2.10
- 6.2.50 See note for 6.2.10
- 6.3.1 Margin rates for futures contracts may be found at the following link:  
<http://www.optionsclearing.com/risk-management/ofra/default.jsp>
- 6.6.1/6.7.1 Due to the size of the amount of margin held related to cleared future's contracts, OCC collects a de minimis amount of variation margin on a daily basis when compared with the total amount of margin OCC holds for all products for which it provides clearance and settlement services. OCC does not separately report variation margin settlement payments.
- 15.2.6 Clearing Fund assets are reported on OCC's balance sheet; all other collateral is off balance sheet.
- 18.1.3 OCC's foreign members are Non-U.S. Securities Firms.
- 19.1.1 OCC holds Clearing Member customer accounts on an omnibus basis and therefore does not hold information specific to individual customers of Clearing Members.

