



Takasbank

Liquidity Risk Stress Tests

For CCP Markets

Central Counterparty Department



Agenda

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Introduction

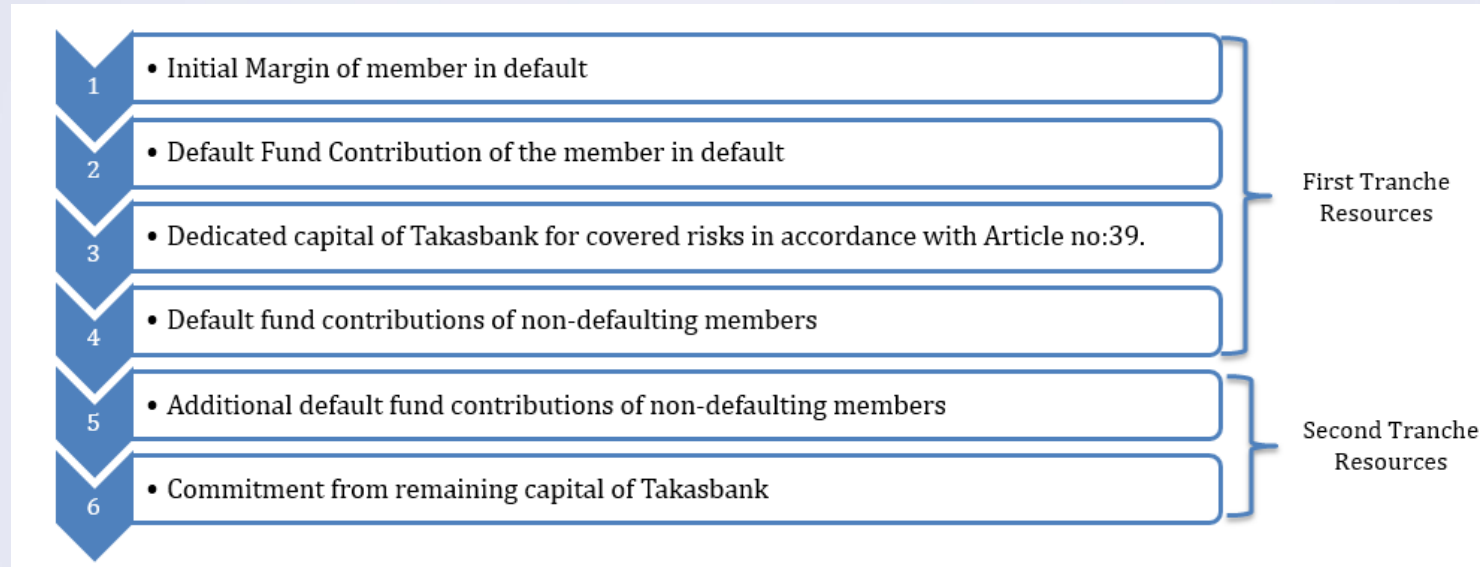
- Stress Testing, is defined as all the methods employed to evaluate the fragility of a portfolio, financial institution or the financial system under shocks and extraordinary market conditions.
- Stress tests reflect the change in market price, the shifts in the yield curve and the sudden changes that may occur in the yield and shape of this curve; the conditions whereby the assumptions made in order to measure the risk lose their validity; the extreme movements experienced in the past, the effects of the crisis likely to prevail in the past and in the future and also the analysis to be made includes all financial tools and portfolios.

Takasbank- CCP Liquidity Stress Tests

- The stress tests, in the CCP services, are used to test the adequacy of the financial resources comprising of collaterals, guarantee fund contributions and other financial resources **under extreme market conditions**.
- Stress tests are used predominantly in analyzing fragilities against credit and liquidity risks exposure.
- Credit risk-related stress testing focuses on whether the losses incurred after the default of a clearing member could be covered by with default management resources,
- Liquidity risk stress tests focus on the adequacy of only the liquid part of default management resources
- The qualification criterion used by the Takasbank (at the basis scenario) is whether “qualified default management resources” along with capital allocated and committed, if liquid, cover fund requirement stemming from the default of the member having the highest risk.
- Liquidity stress testing also takes into consideration the use of the resource needs arising under the historical credit risk stress scenarios, the changes taking place in the situations of liquidity providers and the possible swift changes in the liquidity preference in the market.

Takasbank Default Management Resources

- In case of any default in the markets to which the CCP service is provided, the resources shall be used in the order as below:



- The resources in the first 4 lines are classified as the **1st Tranche** which will be used immediately in case of any default and it is aimed to meet the margin requirement firstly with these resources in case of default of the largest two members with the highest exposure.
- The **additional** guarantee fund contribution to be requested from non-defaulted members and the commitment from Takasbank's remaining capital are defined as **2nd tranche** in default management resources.

Local Regulation on Stress Testing

- Pursuant to **Article 40** of the Central Counterparty Regulation, Takasbank is obliged to;
 - Confirm the adequacy of the collaterals in the markets to which the CCP service is provided, the guarantee fund contributions and the resources it allocates and commits from its capital through stress tests,
 - Report the stress testing results quarterly to the Board of Directors and to the Capital Markets Board.

International Regulation on Stress Testing

- In the CPMI-IOSCO's document of Principles for Financial Infrastructure Institutions,
 - Pursuant to the Principle No. 4.4, Central Counterparties,
 - Are obliged to demonstrate whether they can meet or not the possible losses with its **financial resources** in case that the **two members with the largest exposure** have defaulted **under rare but possible extraordinary stress conditions**.
 - Pursuant to the Principle No. 7.4,
 - A central counterparty is obliged to have adequate **liquid resources** to meet payment obligations with a high confidence level in case of default of a participant who will impose the CCP to **the highest amount of total payment obligations under various stress scenarios**.

Takasbank Stress Testing Model 1/5

- Stress testing is based on the **uncovered risk** amounts to which the members are exposed under extreme market conditions.
- Theoretically, in identification of extreme market conditions, *statistical time series based historical scenarios* which represent the market movements that may occur under a higher confidence level than the one employed in calculation of the initial margin and *historical event scenarios* which are based on the past crisis experience are utilized.

Takasbank Liquidity Stress Testing Model 2/5

1. Base Liquidity Scenarios:

- Base scenario covers stress conditions at 99.90% confidence level in the past 5 years' historical data with holding periods of 3 days for the Derivatives Market, 2 days for the Securities Lending Market, Borsa İstanbul Money Market and Borsa İstanbul Cash Equity.
- Related parameters are applied via the Historical Simulation Value at Risk Method.
- Liquidity stress test (base scenario), conducted on daily basis, tests whether **total resource requirement** arising under the conditions of the base credit risk stress scenario of the member with the greatest risk *against* the **qualified default management resources** (resources invested in ON or available and those are eligible for CBRT liquidity facilities)

Takasbank Liquidity Stress Testing Model 3/5

2. Historical Event Scenarios :

- Historical event scenarios are applied for Derivatives Market, Securities Lending Market and Cash Equity and scenarios covers the highest percentage changes occurred in the stock exchange index and TRY/USD exchange between 2001 February and 2008 October.
- The historical event scenarios, different from the base scenario, have been applied only to the positions as of the last days of the months in the analysis period and the **total resource requirement** arising from the default of the **first member** and **first two** with the highest risk exposure is compared with the **default management resources (Cover 1, Cover 2)**.

Takasbank Liquidity Stress Testing Model 4/5

3. Market Liquidity Scenario:

- Scenario used in the basic liquidity stress test is also applicable for this hypothetical scenario .
- **Uncovered risk exposure** is increased by **10% assuming** that liquidity providers would act worse than expected even in stressed conditions.
- It is measured whether qualified liquid assets that are explained under the basic liquidity stress test cover marginal increase in uncovered exposure under Cover 1.

Takasbank Liquidity Stress Testing Model 5/5

4. Cash Collateral Scenarios:

Since MKT members may have set up cash collateral amounts under **different compositions**, the adequacy of the amount of **qualified default management resources** under stress conditions is tested in **3 different scenarios**.

In the **first scenario** showing the current situation, the test is conducted by assuming that the qualified liquid assets are **only the cash TL** amounts that the members invested on the day of analysis.

In the **second scenario**, a test is performed assuming that **only half of the cash TL** in the first scenario is in the collateral accounts of the members.

Finally, if there is a test under the relevant market rules, the scenario in which the member has **only the minimum amount of cash TL** as collateral is performed.



Liquidity Stres Tests Result

2018 Q 1



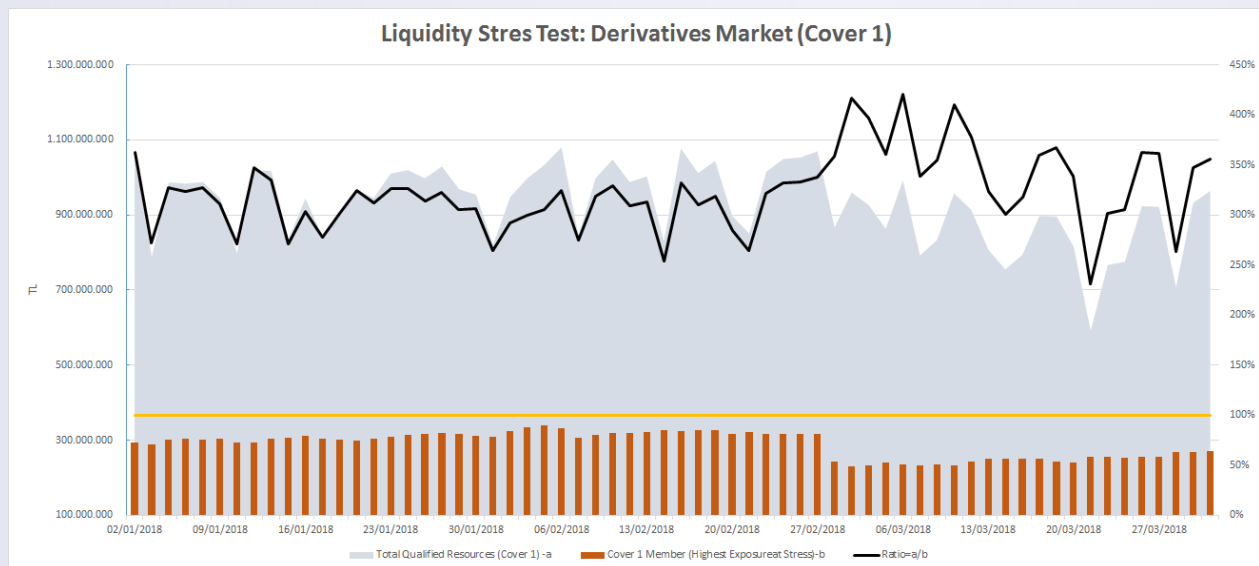
Liquidity Risk Stress Testing Results



1. Base Liquidity Scenario Results (1/4): Derivatives Market:

| Markets (Quarter End) | Reource Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recources | (Qualified Liquid Recources/Reource Requirement) |
|-------------------------|--|--|---|------------------------------------|------------------------------------|---------------------------|--|
| FOM (Largest Member) | 270.595.145 | 524.593.115 | 200.404.501 | 57.425.000 | 181.543.000 | 963.965.616 | 356% |
| FOM (Largest 2 Members) | 564.557.975 | 995.369.105 | 200.404.501 | 57.425.000 | 181.543.000 | 1.434.741.607 | 254% |

| Markets (During Quarter) | Reource Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recources | (Qualified Liquid Recources/Reource Requirement) |
|--------------------------|--|--|---|------------------------------------|------------------------------------|---------------------------|--|
| FOM (Largest Member) | 289.268.262 | 555.806.430 | 198.579.129 | 53.646.129 | 118.741.950 | 926.773.637 | 320% |
| FOM (Largest 2 Members) | 574.053.322 | 1.029.333.020 | 198.579.129 | 53.646.129 | 118.741.950 | 1.400.300.228 | 244% |



Liquidity Risk Stress Testing Results

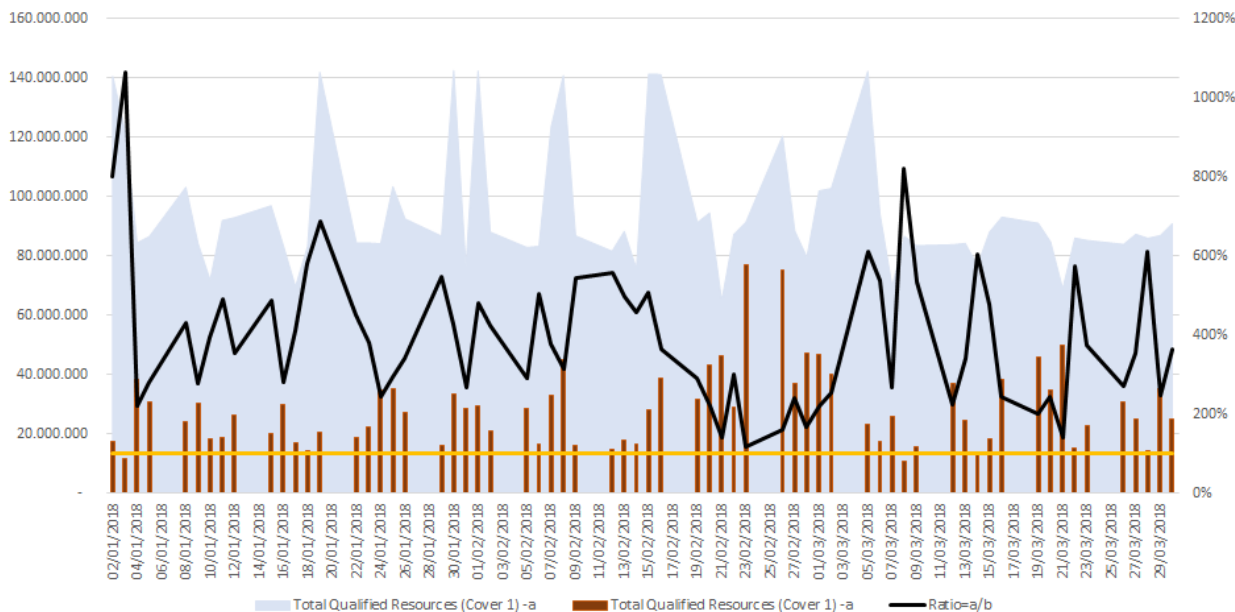


1. Base Liquidity Scenario Results (2/4): Cash Equity Market:

| Markets (Quarter End) | Reource Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Resources | (Qualified Liquid Resources/Reource Requirement) |
|--------------------------|--|--|---|------------------------------------|------------------------------------|---------------------------|--|
| EUIY (Largest Member) | 24.994.374 | 9.278.640 | 26.845.248 | 13.173.362 | 41.646.264 | 90.943.513 | 364% |
| EUIY (Largest 2 Members) | 50.624.344 | 13.730.841 | 26.845.248 | 13.173.362 | 41.646.264 | 95.395.714 | 188% |

| Markets (During Quarter) | Reource Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Resources | (Qualified Liquid Resources/Reource Requirement) |
|--------------------------|--|--|---|------------------------------------|------------------------------------|---------------------------|--|
| EUIY (Largest Member) | 28.637.360 | 16.622.387 | 26.557.450 | 13.173.362 | 38.355.900 | 94.709.099 | 331% |
| EUIY (Largest 2 Members) | 46.728.716 | 37.095.297 | 26.557.450 | 13.173.362 | 38.355.900 | 115.182.009 | 246% |

Liquidity Stres Test: Cash Equity Market (Cover 1)



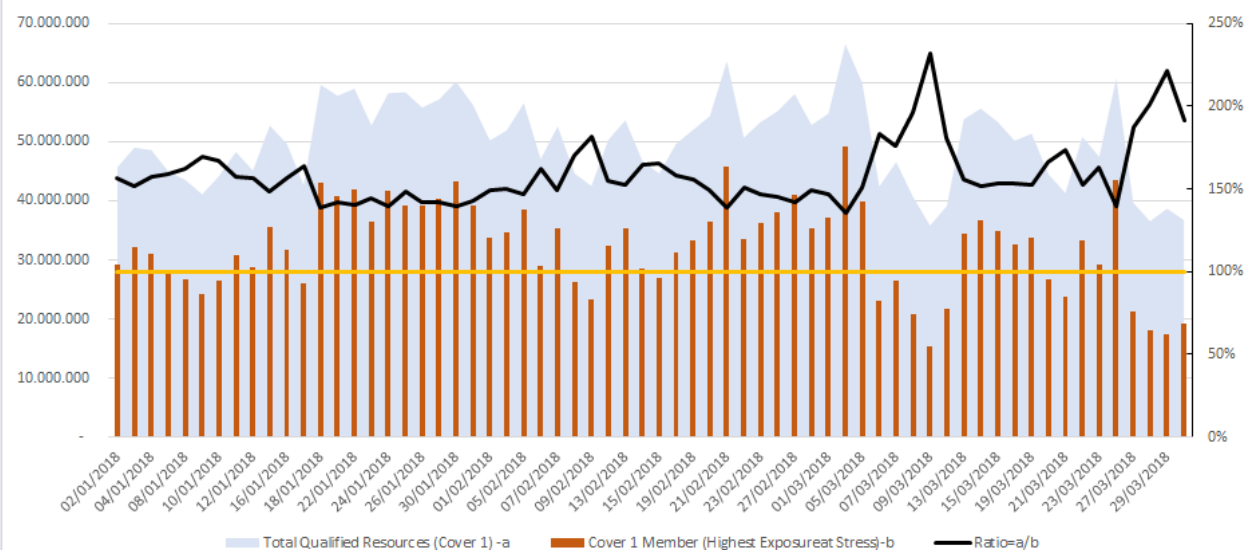
Liquidity Risk Stress Testing Results

1. Base Liquidity Scenario Results (3/4): Securities Lending:

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Resources | (Qualified Liquid Resources/Recourse Requirement) |
|-------------------------|---|--|---|------------------------------------|------------------------------------|---------------------------|---|
| SLM (Largest Member) | 19.185.466 | 18.987.000 | 6.005.125 | 2.824.000 | 8.928.000 | 36.744.125 | 192% |
| SLM (Largest 2 Members) | 38.182.289 | 38.194.214 | 6.005.125 | 2.824.000 | 8.928.000 | 55.951.339 | 147% |

| Markets (During Quarter) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Resources | (Qualified Liquid Resources/Recourse Requirement) |
|--------------------------|---|--|---|------------------------------------|------------------------------------|---------------------------|---|
| SLM (Largest Member) | 32.333.507 | 32.740.522 | 5.619.003 | 2.824.000 | 8.928.000 | 50.111.525 | 155% |
| SLM (Largest 2 Members) | 48.750.807 | 49.938.783 | 5.619.003 | 2.824.000 | 8.928.000 | 67.309.786 | 138% |

Liquidity Stress Test: Securities Lending Market (Cover 1)



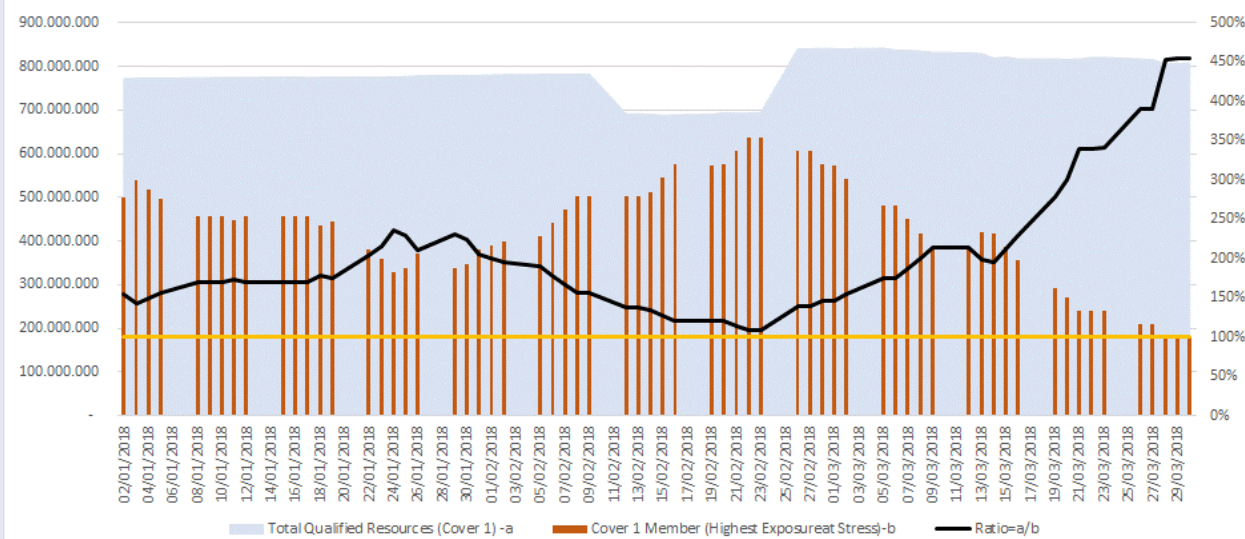
Liquidity Risk Stress Testing Results

1. Base Liquidity Scenario Results (4/4): BIAŞ Money Market:

| Markets (Quarter End) | Recurce Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recources | (Qualified Liquid Recources/Recurce Requirement) |
|---------------------------------------|--|--|---|------------------------------------|------------------------------------|---------------------------|--|
| BIAŞ Money Market (Largest Member) | 177.726.083 | 788.854.505 | 16.214.332 | 957.000 | 3.024.000 | 809.049.837 | 455% |
| BIAŞ Money Market (Largest 2 Members) | 209.682.833 | 865.900.715 | 16.214.332 | 957.000 | 3.024.000 | 886.096.047 | 423% |

| Markets (During Quarter) | Recurce Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recources | (Qualified Liquid Recources/Recurce Requirement) |
|---------------------------------------|--|--|---|------------------------------------|------------------------------------|---------------------------|--|
| BIAŞ Money Market (Largest Member) | 430.107.048 | 761.676.436 | 17.574.992 | 957.000 | 3.024.000 | 783.232.428 | 182% |
| BIAŞ Money Market (Largest 2 Members) | 479.351.782 | 849.979.503 | 17.574.992 | 957.000 | 3.024.000 | 871.535.495 | 182% |

Liquidity Stres Test: BIAS Money Market (Cover 1)



Liquidity Risk Stress Testing Results

2. Historical Liquidity Scenario Results-2001 Crisis (1/2):

Derivatives:

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| FOM (Largest Member) | 339.542.788 | 524.593.115 | 200.404.501 | 57.425.000 | 181.543.000 | 963.965.616 | 284% |
| FOM (Largest 2 Members) | 661.314.501 | 995.369.105 | 200.404.501 | 57.425.000 | 181.543.000 | 1.434.741.607 | 217% |

Cash Equity:

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| EUIY (Largest Member) | 29.743.305 | 9.278.640 | 26.845.248 | 13.173.362 | 41.646.264 | 90.943.513 | 306% |
| EUIY (Largest 2 Members) | 57.936.272 | 13.730.841 | 26.845.248 | 13.173.362 | 41.646.264 | 95.395.714 | 165% |

Securities Lending:

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| SLM (Largest Member) | 19.852.786 | 18.987.000 | 6.005.125 | 2.824.000 | 8.928.000 | 36.744.125 | 185% |
| SLM (Largest 2 Members) | 38.023.661 | 38.194.214 | 6.005.125 | 2.824.000 | 8.928.000 | 55.951.339 | 147% |

Liquidity Risk Stress Testing Results

2. Historical Liquidity Scenario Results-2008 Crisis (2/2):

Derivatives:

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| FOM (Largest Member) | 296.193.446 | 524.593.115 | 200.404.501 | 57.425.000 | 181.543.000 | 963.965.616 | 325% |
| FOM (Largest 2 Members) | 617.965.159 | 995.369.105 | 200.404.501 | 57.425.000 | 181.543.000 | 1.434.741.607 | 232% |

Cash Equity:

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| EUIY (Largest Member) | 27.493.811 | 9.278.640 | 26.845.248 | 13.173.362 | 41.646.264 | 90.943.513 | 331% |
| EUIY (Largest 2 Members) | 55.686.778 | 13.730.841 | 26.845.248 | 13.173.362 | 41.646.264 | 95.395.714 | 171% |

Securities Lending:

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| SLM (Largest Member) | 18.351.315 | 18.987.000 | 6.005.125 | 2.824.000 | 8.928.000 | 36.744.125 | 200% |
| SLM (Largest 2 Members) | 36.522.189 | 38.194.214 | 6.005.125 | 2.824.000 | 8.928.000 | 55.951.339 | 153% |

Liquidity Risk Stress Testing Results

3. Market Liquidity Scenario Results:

Derivatives:

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| FOM (Largest Member) | 280.370.293 | 524.593.115 | 200.404.501 | 57.425.000 | 181.543.000 | 963.965.616 | 344% |
| FOM (Largest 2 Members) | 582.363.571 | 995.369.105 | 200.404.501 | 57.425.000 | 181.543.000 | 1.434.741.607 | 246% |

Cash Equity

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| EUIY (Largest Member) | 26.031.763 | 9.278.640 | 26.845.248 | 13.173.362 | 41.646.264 | 90.943.513 | 349% |
| EUIY (Largest 2 Members) | 52.547.337 | 13.730.841 | 26.845.248 | 13.173.362 | 41.646.264 | 95.395.714 | 182% |

Securities Lending

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reources | (Qualified Liquid Reources/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| SLM (Largest Member) | 19.201.788 | 18.987.000 | 6.005.125 | 2.824.000 | 8.928.000 | 36.744.125 | 191% |
| SLM (Largest 2 Members) | 38.214.858 | 38.194.214 | 6.005.125 | 2.824.000 | 8.928.000 | 55.951.339 | 146% |

Liquidity Risk Stress Testing Results

4. Cash Collateral Liquidity Scenario Results: (1/3) Derivatives Market

Only Cash

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recourses | (Qualified Liquid Recourses/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|------------------------------|--|
| FOM (Largest Member) | 270.595.145 | 438.663.735 | 200.404.501 | 57.425.000 | 181.543.000 | 878.036.237 | 324% |
| FOM (Largest 2 Members) | 564.557.975 | 899.962.046 | 200.404.501 | 57.425.000 | 181.543.000 | 1.339.334.548 | 237% |

Minimum Cash

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reourses | (Qualified Liquid Reourses/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| FOM (Largest Member) | 270.595.145 | 86.421.835 | 200.404.501 | 57.425.000 | 181.543.000 | 525.794.336 | 194% |
| FOM (Largest 2 Members) | 564.557.975 | 193.251.007 | 200.404.501 | 57.425.000 | 181.543.000 | 632.623.509 | 112% |

Cash/2

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reourses | (Qualified Liquid Reourses/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| FOM (Largest Member) | 270.595.145 | 219.331.868 | 200.404.501 | 57.425.000 | 181.543.000 | 658.704.369 | 243% |
| FOM (Largest 2 Members) | 564.557.975 | 449.981.023 | 200.404.501 | 57.425.000 | 181.543.000 | 889.353.525 | 158% |

Liquidity Risk Stress Testing Results

4. Cash Collateral Liquidity Scenario Results: (2/3) Cash Equity Market

Only Cash

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recourses | (Qualified Liquid Recourses/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|------------------------------|--|
| EUIY (Largest Member) | 24.994.374 | 5.566.674 | 21.135.332 | 13.173.362 | 41.646.264 | 81.521.632 | 326% |
| EUIY (Largest 2 Members) | 50.624.344 | 10.018.875 | 21.135.332 | 13.173.362 | 41.646.264 | 85.973.832 | 170% |

Minimum Cash

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reourses | (Qualified Liquid Reourses/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| EUIY (Largest Member) | 24.994.374 | 1.462.049 | 21.135.332 | 13.173.362 | 41.646.264 | 77.417.007 | 310% |
| EUIY (Largest 2 Members) | 50.624.344 | 3.139.442 | 21.135.332 | 13.173.362 | 41.646.264 | 79.094.399 | 156% |

Cash/2

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Reourses | (Qualified Liquid Reourses/Recour ce Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|-----------------------------|---|
| EUIY (Largest Member) | 24.994.374 | 2.783.337 | 21.135.332 | 13.173.362 | 41.646.264 | 78.738.295 | 315% |
| EUIY (Largest 2 Members) | 50.624.344 | 5.009.437 | 21.135.332 | 13.173.362 | 41.646.264 | 80.964.395 | 160% |

Liquidity Risk Stress Testing Results

4. Cash Collateral Liquidity Scenario Results: (3/3) Securities Lending Market

Only Cash

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recourses | (Qualified Liquid Recourses/Recour se Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|------------------------------|--|
| SLM (Largest Member) | 19.185.466 | 18.987.000 | 6.005.125 | 2.824.000 | 8.928.000 | 36.744.125 | 192% |
| SLM (Largest 2 Members) | 38.182.289 | 38.194.214 | 6.005.125 | 2.824.000 | 8.928.000 | 55.951.339 | 147% |

Minimum Cash

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recourses | (Qualified Liquid Recourses/Recour se Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|------------------------------|--|
| SLM (Largest Member) | 19.185.466 | 5.706.671 | 6.005.125 | 2.824.000 | 8.928.000 | 23.463.796 | 122% |
| SLM (Largest 2 Members) | 38.182.289 | 11.356.980 | 6.005.125 | 2.824.000 | 8.928.000 | 29.114.105 | 76% |

Cash/2

| Markets (Quarter End) | Recourse Requirement of Largest (Two) Members Under Stress Conditions | Cash and Qualified Collateral of Largest (Two) Members | Eligible Cash and Qualified Guarantee Fund Size | Allocated Capital in Liquid Assets | Committed Capital in Liquid Assets | Total Qualified Recourses | (Qualified Liquid Recourses/Recour se Requirement) |
|--------------------------|---|--|--|---------------------------------------|--|------------------------------|--|
| SLM (Largest Member) | 19.185.466 | 9.493.500 | 6.005.125 | 2.824.000 | 8.928.000 | 27.250.625 | 142% |
| SLM (Largest 2 Members) | 38.182.289 | 19.097.107 | 6.005.125 | 2.824.000 | 8.928.000 | 36.854.232 | 97% |



Thanks

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