



SFE NOTICE NO.

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Enhancements to Stress Test Induced Additional Initial Margin Procedures

Background

As part of its comprehensive risk management framework, and in conformance with its obligations under the Reserve Bank of Australia's Financial Stability Standards (RBA's FSS), SFE Clearing Corporation (SFE Clearing) calculates, monitors and manages potential Clearing Participant loss exposures resulting from extreme market movements through its stress testing and related Additional Initial Margin (AIM) policy. AIMS referable to stress testing are levied upon Clearing Participants in respect of the calculated exposure of their overall net position portfolio (as stress tested against extreme but plausible scenarios) relative to their financial capacity and standing. Based on a 'user pays' principle, each Clearing Participant's AIMS are determined by calculating the difference between the stress test potential loss exposure generated by the Clearing Participant's net position portfolio less Initial Margins already held less its Board-approved Stress Test Exposure Limit (STEL).¹

Enhancements

In accordance with internal risk management policy and to facilitate ongoing compliance with its obligations under the FSS, SFE Clearing has reviewed its stress testing and AIM methodologies and has determined that the following enhancements will be introduced:

1. **New stress test scenarios** - the existing 15 stress test scenarios will be replaced by 30 new scenarios which have been derived by SFE Clearing in conjunction with independent expert advice from PricewaterhouseCoopers Actuarial using contemporary and robust statistical modelling techniques designed to more effectively encapsulate the prevailing contract volatilities and Clearing Participant exposure profiles. 20 of the new scenarios will comprise an illustrative selection of simultaneous movements across the 4 major contracts (AP, IR, YT and XT). The remaining 10 scenarios will focus on extreme movements within a single contract or single contract class.

From a review of past market activity and taking into account continuing growth trends in the concentration of Clearing Participant portfolios, SFE Clearing envisages that a number of Participants are likely to be financially impacted by higher AIM calls as a result of the enhancements. This is primarily driven by the single contract scenarios (in particular, those relating to extreme price movements in equity index futures) which more effectively highlight (and facilitate SFE Clearing's management of) the risk exposures associated with those Clearing Participant portfolios which exhibit significant position concentrations in one or more major contracts.

2. **Availability of and ongoing updates to stress test scenarios** – An electronic copy of the parameters underpinning the new stress test scenarios will be made available to all Clearing Participants immediately following publication of this Notice for their information and usage where

¹ This is a limit derived from each Clearing Participant's respective credit rating and/or reported NTA, to a Board-approved maximum.



appropriate as part of their back office risk management strategies. In addition, the published scenarios (quoted in basis points) will require modification from time to time as the underlying contract price varies (since the underlying calculation of specific stress test parameters within each new scenario will be percentage based in order to maintain ongoing price relativity). SFE Clearing intends to review stress test scenario parameters on a quarterly basis (or more frequently as required in the event of a significant price movement), and will notify Clearing Participants whenever any updates are made.

- 3. Revised STEL calculation process** - On September 30, SFE Clearing increased its capital contribution to the Clearing Guarantee Fund (CGF) by \$50M, taking the combined total of the CGF to \$200M. As a consequence of the recent increase to the CGF, SFE Clearing has adjusted the methodology underpinning the STEL calculation (noting that there is no change to the initial allocation of STEL to a Clearing Participant's House Account, with any remaining capacity then allocated to the Client account). This enhancement will result in a substantially increased STEL for a number of Clearing Participants, thereby reducing any potential AIM call.

Operational Implementation

AIMs obligations will continue to be advised to Clearing Participants by approximately 7am on each trading day via the OM Net application, which is already used to provide Clearing Participants with their daily Financial Status Advice (FSA). Similarly, Clearing Participants will continue to be required to incorporate any AIMs obligation as part of the daily settlement process.

The new regime will become operationally effective on Monday 5 February 2007 for AIM obligations arising from open positions as at the close of trading Friday 2 February 2007.

To further assist Clearing Participants' understanding of the enhancements and their potential impact, worked examples providing further details of how AIMs will be calculated using the new stress test scenarios and STEL calculation are provided in the Attachment to this Bulletin. SFE Clearing is also conducting a programme of meetings with Clearing Participants who have been impacted by AIM calls to date, or who are likely to be impacted by the forthcoming enhancements in order to facilitate full understanding and management of any back office procedural impacts and thereby ensure smooth implementation of the enhancements across the market.

For further information on the AIMs enhancements, please contact Simon McCarthy, General Manager Risk Operations on (612) 9227 0161 or Eddie Farah, Risk Analyst on (612) 9227 0236.

A handwritten signature in black ink, appearing to read 'Anne T. Brown', is written over a thin red horizontal line.

Anne T. Brown
Chief Risk Officer

WORKED EXAMPLE OF ADDITIONAL INITIAL MARGIN (AIM) CALCULATION PROCESS

KEY STEPS

- Step 1: Identify the three² stress test scenarios which contain the maximum potential loss exposures generated by the House account, the Client account and the combined House and Client accounts.
- Step 2: Determine the House account's AIM obligation for each of these scenarios by calculating any shortfall between the potential loss exposure and the Board-approved stress test exposure limit (STEL).
- Step 3: Determine the Client account's AIM obligation for each of the scenarios by calculating any shortfall between the potential loss exposure and the remaining STEL (which has not been previously allocated to the House account position).
- Step 4: Having established a set of provisional AIM requirements, determine the final AIM obligation for each account. For the House account, the final AIM obligation is simply the maximum of the provisional AIM obligations. For the Client account, the final AIM obligation requires an additional consideration and is determined by comparing the maximum of the provisional House and Client account total potential loss exposures to the STEL after taking into account the final AIM obligation of the House account.
- Step 5: Incorporate the AIMs requirement into the daily settlement process. Using the Initial Margin requirement and Excess/Shortage amounts on the FSA, each Participant is required to net their total daily Payment/Receipt obligations into one Austraclear transaction.

WORKED EXAMPLES

Example 1 - ABC is a non-ADI,³ non-rated Clearing Participant with an NTA of \$80M. Its calculated STEL is \$40M. Its current House IM requirement is \$27M and its Excess/Shortage position is \$40M CR; its current Client IM requirement is \$32M and its Excess/Shortage is \$6M DR.

Assuming the stress test potential loss exposures for ABC are as outlined in Table 1 overleaf, then ABC's AIMs obligation and its daily settlement payment/receipts obligations can be calculated as follows:

- Step 1: Identify scenarios that contain largest House account, Client account and combined House and Client accounts potential loss exposure losses.

Scenario with largest House account potential loss exposure is Scenario 5: \$73,000,000

Scenario with largest Client account potential loss exposure is Scenario 11: \$58,000,000

Scenario with largest combined House and Client account potential loss exposure is Scenario 6: \$83,000,000

² Note that the number of relevant scenarios may be less than 3 when the maximum loss generated by an account happens to be the same scenario that generates the combined maximum loss and/or the other account's maximum loss.

³ Authorised Deposit-taking Institution.



Steps 2/3: Based on the scenarios selected at Step 1, the provisional AIMs obligations (given the STEL of \$40M) are as follows:

- Under scenario 5 the provisional House account AIMs obligation is \$33M (\$73M - \$40M). The corresponding Client provisional AIMs obligation in this instance is \$0.
- Under scenario 11 the provisional House account AIMs obligation is \$0M. The corresponding Client provisional AIMs obligation in this instance is \$18M (\$58M - \$40M).
- Under scenario 6 the provisional House account AIMs obligation is \$0M (28M - \$40M). The corresponding Client provisional AIMs obligation in this instance is \$43M (\$55M - residual STEL after House allocation [\$40M - \$28M = \$12M]).

Step 4: Determine final AIMs obligations

- The maximum provisional House AIMs obligation is \$33M. **The final House AIMs obligation is therefore \$33M.**
- The maximum combined House and Client account potential loss exposure is \$83M which is \$43M more than its STEL. **The total AIMs call is therefore \$43M.**
- **The final Client account AIMs obligation is therefore \$10M (i.e. the maximum combined call \$43M less the House account's AIMs contribution \$33M).**

Step 5: Participants are required to net their total daily settlement Payment/Receipt obligations into one Austraclear transaction.

House Account

- In this instance the House AIMs obligation is \$33M, and given the IM requirement is \$27M and Excess/Shortage is \$40M CR, the House daily settlement obligation would be \$7M CR which will be paid by SFE Clearing to the Participant via Austraclear.

FSA Initial Margin Requirement: \$27,000,000 DR

FSA Excess/Shortage: \$40,000,000 CR

AIMs Requirement: \$33,000,000 DR

Expected Cash settlement amount: **\$ 7,000,000 CR**

Client Account

- In this instance the Client AIMs obligation is \$10M, and assuming the Initial Margin requirement is \$32M and Excess/Shortage is \$6M DR. The Client daily settlement obligation is \$16M which must be paid by the Participant to SFE Clearing via Austraclear within the daily settlement prescribed time.

FSA Initial Margin Requirement: \$32,000,000 DR

FSA Excess/Shortage: \$ 6,000,000 DR

AIMs Requirement: \$10,000,000 DR

Expected Cash Settlement amount: **\$16,000,000 DR**

/ Example 2



Example 2 - DEF is a rated Clearing Participant and an ADI with an NTA in excess of \$3B. Its calculated STEL is \$200M. Its current House IM requirement is \$27M and its Excess/Shortage position is \$40M CR; its current Client IM requirement is \$32M and its Excess/Shortage is \$6M DR.

Assuming the stress test potential loss exposures for DEF are also those outlined in Table 1 overleaf, then DEF's AIMS obligation and its daily settlement payment/receipts obligations can be calculated as follows:

Step 1: Scenario with largest House account potential loss exposure is Scenario 5: \$73,000,000
Scenario with largest Client account potential loss exposure is Scenario 11: \$58,000,000
Scenario with largest combined House and Client account potential loss exposure is Scenario 6: \$83,000,000

Steps 2/3: Based on the scenarios selected at Step 1, provisional AIMS obligations (given the STEL of \$200M) are as follows:

- Under scenario 5 the provisional House account AIMS obligation is \$0M (\$73M - \$200M). The corresponding Client provisional AIMS obligation in this instance is \$0.
- Under scenario 11 the provisional House account AIMS obligation is \$0M. The corresponding Client provisional AIMS obligation in this instance is \$0M (\$58M - \$200M).
- Under scenario 6 the provisional House account AIMS obligation is \$0M (28M - \$200M). The corresponding Client provisional AIMS obligation in this instance is \$0M (\$55M - residual STEL after House allocation [\$200M - \$28M = \$172M]).

Steps 4/5: Not applicable. **No AIM obligations due for DEF.**

Example 3 - GHJ is a non-ADI, non-rated Clearing Participant with an NTA of \$150M. Its calculated STEL is \$100M. Its current House IM requirement is \$27M and its Excess/Shortage position is \$40M CR; its current Client IM requirement is \$32M and its Excess/Shortage is \$6M DR.

Assuming the stress test potential loss exposures for GHJ are also those outlined in Table 1 overleaf, then GHJ's AIMS obligation and its daily settlement payment/receipts obligations can be calculated as follows:

Step 1: Scenario with largest House account potential loss exposure is Scenario 5: \$73,000,000
Scenario with largest Client account potential loss exposure is Scenario 11: \$58,000,000
Scenario with largest combined House and Client account potential loss exposure is Scenario 6: \$83,000,000

Steps 2/3: Based on the scenarios selected at Step 1, provisional AIMS obligations (given the STEL of \$100M) are as follows:

- Under scenario 5 the provisional House account AIMS obligation is \$0M (\$73M - \$100M). The corresponding Client provisional AIMS obligation in this instance is \$0.
- Under scenario 11 the provisional House account AIMS obligation is \$0M. The corresponding Client provisional AIMS obligation in this instance is \$0M (\$58M - \$100M).
- Under scenario 6 the provisional House account AIMS obligation is \$0M (28M - \$100M). The corresponding Client provisional AIMS obligation in this instance is \$0M (\$55M - residual STEL after House allocation [\$100M - \$28M = \$72M]).

Steps Not applicable. No AIM obligations due for GHJ.

4/5:

Table 1

Scenario	Account	Initial Margin	Variation Margin	Potential Loss Exposure	Net Exposure
Scenario 1	House	27,000,000	-75,000,000	-48,000,000	-48,000,000
Scenario 1	Client	32,000,000	50,000,000	0	0
Scenario 2	House	27,000,000	80,000,000	0	-18,000,000
Scenario 2	Client	32,000,000	-50,000,000	-18,000,000	0
Scenario 3	House	27,000,000	-95,000,000	-68,000,000	-68,000,000
Scenario 3	Client	32,000,000	40,000,000	0	0
Scenario 4	House	27,000,000	58,000,000	0	0
Scenario 4	Client	32,000,000	10,000,000	0	0
Scenario 5	House	27,000,000	-100,000,000	-73,000,000	-73,000,000
Scenario 5	Client	32,000,000	50,000,000	0	0
Scenario 6	House	27,000,000	-55,000,000	-28,000,000	-83,000,000
Scenario 6	Client	32,000,000	-87,000,000	-55,000,000	0
Scenario 7	House	27,000,000	-1,000,000	0	0
Scenario 7	Client	32,000,000	50,000,000	0	0
Scenario 8	House	27,000,000	-20,000,000	0	0
Scenario 8	Client	32,000,000	10,000,000	0	0
Scenario 9	House	27,000,000	-10,000,000	0	0
Scenario 9	Client	32,000,000	-30,000,000	0	0
Scenario 10	House	27,000,000	-57,000,000	-30,000,000	-30,000,000
Scenario 10	Client	32,000,000	72,000,000	0	0
Scenario 11	House	27,000,000	40,000,000	0	-58,000,000
Scenario 11	Client	32,000,000	-90,000,000	-58,000,000	0
Scenario 12	House	27,000,000	-35,000,000	-8,000,000	-8,000,000
Scenario 12	Client	32,000,000	30,000,000	0	0
Scenario 13	House	27,000,000	-37,000,000	-10,000,000	-10,000,000
Scenario 13	Client	32,000,000	-25,000,000	0	0
Scenario 14	House	27,000,000	10,000,000	0	0
Scenario 14	Client	32,000,000	25,000,000	0	0
Scenario 15	House	27,000,000	-28,000,000	-1,000,000	-1,000,000
Scenario 15	Client	32,000,000	-2,500,000	0	0
Scenario 16	House	27,000,000	-29,000,000	-2,000,000	-2,000,000
Scenario 16	Client	32,000,000	-11,000,000	0	0
Scenario 17	House	27,000,000	-5,000,000	0	-13,000,000
Scenario 17	Client	32,000,000	-45,000,000	-13,000,000	0
Scenario 18	House	27,000,000	-1,000,000	0	0
Scenario 18	Client	32,000,000	25,000,000	0	0
Scenario 19	House	27,000,000	-55,000,000	-28,000,000	-30,000,000
Scenario 19	Client	32,000,000	-34,000,000	-2,000,000	0
Scenario 20	House	27,000,000	-2,000,000	0	0
Scenario 20	Client	32,000,000	-15,000,000	0	0
Scenario 21	House	27,000,000	-39,000,000	-12,000,000	-55,000,000
Scenario 21	Client	32,000,000	-75,000,000	-43,000,000	0
Scenario 22	House	27,000,000	8,000,000	0	-49,000,000
Scenario 22	Client	32,000,000	-81,000,000	-49,000,000	0
Scenario 23	House	27,000,000	75,000,000	0	-17,000,000
Scenario 23	Client	32,000,000	-49,000,000	-17,000,000	0
Scenario 24	House	27,000,000	81,000,000	0	0
Scenario 24	Client	32,000,000	7,000,000	0	0
Scenario 25	House	27,000,000	-13,000,000	0	-48,000,000
Scenario 25	Client	32,000,000	-80,000,000	-48,000,000	0
Scenario 26	House	27,000,000	-18,000,000	0	0
Scenario 26	Client	32,000,000	15,000,000	0	0
Scenario 27	House	27,000,000	30,000,000	0	-28,000,000
Scenario 27	Client	32,000,000	-60,000,000	-28,000,000	0
Scenario 28	House	27,000,000	40,000,000	0	-16,000,000
Scenario 28	Client	32,000,000	-48,000,000	-16,000,000	0
Scenario 29	House	27,000,000	-6,000,000	0	0
Scenario 29	Client	32,000,000	-4,200,000	0	0
Scenario 30	House	27,000,000	-4,000,000	0	-10,000,000
Scenario 30	Client	32,000,000	-42,000,000	-10,000,000	0



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