

JSE CLEAR DEFAULT FUND POLICY

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1 Version Control

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2 Version History

Version	Date	Summary of changes	Author
1.0	November 2012	Initial Draft of Policy	Post-trade Risk
2.0	July 2017	Minimum of R10m contribution extended to Tier 1 clearing members	Post-trade Risk
3.0	May 2018	Regular review, no significant changes	Post-trade Risk
4.0	April 2020	Regular review, update to default fund replenishment example	Post-trade Risk
5.0	May 2021	Regular review, inclusion of shortfall apportionment process	Post-trade Risk

3 Context and purpose

As the clearing house for all exchange-traded derivatives in South Africa, JSE Clear plays a key role in mitigating systemic risk in the South African financial market. It does so by ensuring the efficient clearing and settlement of trades, thereby reducing the risk of a default impacting other counterparties and contaminating the market. In order to effectively perform this function, JSE Clear employs an array of risk mitigation measures. Amongst these is the establishment of a default fund to which all clearing members and JSE Clear make contributions.

The purpose of this policy is to detail the quantification, management and governance of the JSE Clear Default Fund. The policy has been drafted to ensure that JSE Clear meets the standards set out by the Committee for Payments and Market Infrastructures (CPMI) and the International Organisation of Securities Commission (IOSCO) and those set out in the Financial Markets Act 2012 Regulations, especially with regard to the establishment and maintenance of a default fund.

4 Risk management tools and risk waterfall

JSE Clear's primary role as a clearing house is to minimise the impact that a market participant default has on other market participants. JSE Clear employs an array of risk mitigation measures to achieve this. First, JSE Clear has set entry requirements to becoming a clearing member (spanning financial considerations, capital adequacy requirements and operational and risk management capability). Second, all trades are collateralised through a system of margins. The sufficiency of the quantum of margin is back tested against actual market experience to ensure performance is at the expected confidence interval. Last, there is the JSE Clear Default Fund, which is sized and monitored through stress testing and to which all clearing members must contribute. The JSE Clear Default Fund can be accessed to cover losses suffered in excess of initial margin as the result of the default of a clearing member/s.

There will be one default fund for JSE Clear and it will apply to all markets for which JSE Clear provides a clearing service. A default in one market will consequently be funded by clearing members across all markets. This is deemed appropriate due to the size of the different markets and trading profile of clearing members.

The JSE Clear Default Fund exists solely to fund losses as a result of a default event by a clearing member. The JSE Clear Default Fund is separate and exclusive of any unfunded guarantees provided by a clearing member or any other party.

4.1 The JSE Clear risk waterfall

In accordance with the JSE Derivative Rules, in the case of a clearing member default, losses will be funded as follows (this is referred to as the risk waterfall):

1. All initial margin and/or other collateral held by JSE Clear in favour of or on behalf of or for the account of the clearing member is used first to settle any obligations the clearing member has to the market.
2. Should these amounts be insufficient to cover all obligations, the defaulting clearing member's contribution to the JSE Clear Default Fund is used.
3. Thereafter, JSE Clear's contribution to the JSE Clear Default Fund is used.
4. If any obligations to the market remain thereafter; the non-defaulting clearing members' contributions to the JSE Clear Default Fund are utilised.
5. Should the defaulting clearing member have any obligations to the market that are not covered by the financial resources listed above, these will be apportioned as per the process described in Appendix 2 and affected market participants will have a claim against the defaulting clearing member for losses incurred.

The obligations of market participants with regards to the replenishment of the JSE Clear Default Fund (following depletion of the fund as a result of a default) are explained in section 6.2.

5 Determining the size of the fund

5.1 The size of the default fund

JSE Clear must have sufficient prefunded financial resources to withstand the failure of its largest clearing member¹ and its affiliates in a severe yet plausible stress event. As stated in the risk tolerance

¹ "Cover 1" from Principal 4 of "Principles for Financial Markets Infrastructure (Committee on Payment and Settlement Systems and Technical Committee of the International Organization of Securities Commissions (2012))"

statement JSE Clear will maintain an appropriate default waterfall that is sufficient for Cover 1 at all times and sufficient for Cover 2 (the default of the two largest Clearing Members) 50% of the time. These prefunded financial resources consist of the JSE Clear Default Fund and initial margin (including margin add-on's and/or other collateral held by JSE Clear). The JSE Clear Default Fund is quantified to be large enough to cover stressed losses over and above initial margin, and must be of a value of at least ZAR 500 million.

The minimum size of the fund is determined through various quantification methods and theories including stress testing results and engagement with the market. The size of the fund is determined by the JSE Clear Board. JSE Clear sets a minimum size of the fund to ensure that the fund remains relatively stable but also remains sensitive to any increase in the risk profile of the credit portfolio to which it is exposed. This creates the necessity for a buffer to be instated - above the minimum amount specified - in order to reduce the need for pro-cyclical adjustments while at all times ensuring that the fund is adequately capitalised (to withstand sudden market events and exposure volatility).

5.2 Calculation methods – stress testing

Stress testing is performed on a daily basis in accordance with the JSE Clear Stress Testing Policy and Stress Testing Methodology. The stress testing results are compared to the size of the default fund. Where the results of the stress testing program (after the risk waterfall is taken into account) are greater than the default fund, JSE Clear will review the relevant scenarios and may increase the size of the fund to the extent deemed appropriate.

5.3 Quantification procedure

The default fund size, based on stress testing, will be calculated and compared to the size of the fund on a daily basis and the results will form part of the daily reporting to the Chief Risk Officer (CRO) and monthly to the Responsible Officer (RO). The size of the fund and a summary of the supporting calculation results will be reported quarterly to the JSE Exco and the JSE Clear Board.

The size of the fund will be reviewed quarterly and members' contributions will be calculated quarterly as described in section 6.1 below. If the current size of the fund is significantly smaller than the calculated capital amount at any time, JSE Clear will call for an intra-quarter re-balancing of the default fund size and clearing members will be expected to contribute toward the increase in fund size based

on the method described in section 6.1 below. In this case the Responsible Officer will inform market participants and the JSE Clear Board.

The size of the default fund and the size of JSE Clear's contribution thereto will be reported to clearing members on a quarterly basis, along with the proportion of their respective contributions to the fund calculated as described below. JSE Clear's contribution to the default fund is specified below.

6 Contributions to the default fund

6.1 Quantifying market participant contributions

The JSE Clear Default Fund is prefunded and made up of contributions by JSE Clear, as the central counterparty, and all clearing members of JSE Clear. JSE Clear's contribution to the fund is determined by considering international CCP practice and regulatory guidance, and is set at ZAR 100 million (currently 20% of the fund size). JSE Clear maintains a fixed commitment for reasons of stability and the need to provide certainty for the market infrastructure and the market it serves. If necessary, changes to JSE's contribution will be contemplated and approved by the JSEC Board.

The amount of trades cleared in the South African market is not evenly spread across the clearing members; the bigger clearing members account for a disproportionate amount of trades. To acknowledge this inherent concentration risk it is appropriate to increase the contribution to the default fund of the bigger clearing members. This will be done by establishing 2 separate tiers of Clearing Member contributors, and by placing the bigger clearing members in the Tier 1² category and the smaller clearing members into Tier 2³. This system and the tiers themselves will be reviewed annually. Placing clearing members into tiers is done to account for the concentration of clearing members in the SA market and to account for the disproportionate risk they represent as a result of their trading activity in the market.

Tier 2 clearing members will contribute additional margin (as defined by the JSE Derivatives Rules) in an amount equal to ZAR 10 million. The contributions of Tier 1 clearing members will be the remaining amount needed to make up the default fund. This amount will be divided among the Tier 1 clearing members proportionally - the average initial margin of each Tier 1 clearing member over the previous 3 months will be calculated as a proportion of the total Tier 1 clearing members' average initial margin over the same period. Notwithstanding the proportional calculation, no Tier 1 clearing member will contribute less than ZAR 10 million to the default fund.

² Tier 1 clearing members will be those clearing members whose average initial margin requirement over the last 3 months is greater than one billion rand.

³ Tier 2 clearing members will be those clearing members whose average initial margin requirement over the last 3 months is less than or equal to one billion rand.

The size of the fund and proportional contributions will be calculated based on the 3 months ending on the 10th day of the last month of the quarter. JSE Clear will disclose the size of the fund and each member's contribution to them by the 20th of day of the last month of the quarter or next business day if the 20th is a non-business day. Clearing members will be required to deposit funds to top-up their contributions by 12pm on the first business day of the new quarter. Thereafter refunds will be made.

After any unscheduled recalculation, clearing members will have 2 days to deposit funds if needed. Thereafter any refunds will be made to correct proportional contributions.

The assets will be invested as per the investment mandate for margin and default funds (referenced in section 7). Investment proceeds, less applicable service fees will be distributed, each quarter net of contribution movements of that quarter.

In the case of a credit loss event where non-defaulting members' contributions to the default fund are called upon to fund losses, these losses will be distributed as per the contribution proportions as communicated by JSE Clear at the previous quarter-end or later as the case may be.

6.2 The replenishment of the Default Fund

After any loss event where funds from the default fund are called upon, the non-defaulting clearing members will replenish the fund within 3 trading days as per the method described in section 6.1 which describes how the market participant contributions are quantified. JSE Clear will contribute an amount equal to the part of its first contribution utilised, and limited to one additional contribution in a 12 month period.

If another loss event occurs within 12 months and the non-defaulting clearing member's contributions of additional margin are used, the non-defaulting clearing members will replenish the default fund again. The size of each clearing member's contribution post the default event is limited to 125% of the value of their contribution prior to the default for a period of 6 months after the default.

If another loss event occurs within 12 months of the first loss event and the non-defaulting clearing member's contributions of additional margin are used, the non-defaulting clearing members will replenish the default fund again but this third contribution of additional margin be limited to 125% of

each clearing member's contribution prior to the default event and will not be used to fund further mutualised losses until twelve months from the first loss have elapsed.

For the sake of clarity the three iterations of replenishment of the default described above are not applicable to the same default event.

An example of the replenishment mechanism is shown in Appendix 1.

A clearing members' contribution of additional margin to the default fund can only be fully used twice to fund mutualised losses over any rolling 12 month period. Should stressed losses exceed the size of the default fund post a default event; the JSE executive committee will review the initial margin parameters to ensure that pre-funded resources are sufficient for cover 1.

Where a clearing member exits the market or ceases to be a clearing member, the terminating member's contributions will be reimbursed once all positions cleared by the terminating member have been transferred to another clearing member/s or closed out and all obligations of the terminating member have been settled. To ensure the size of the fund is maintained after the reimbursement to the terminating member, the fund will be recalculated and contributions rebalanced amongst the remaining clearing members as described in section 6.1.

If a new clearing member enters the market, that clearing member will add to the fund on a weekly basis in the proportion as described in section 6.1 above as their position increases until the following quarter where a rebalance will take place as per normal. If a default happens during this time, losses will be shared in the proportion to contributions at that time.

7 Policy governance

This policy is owned by the JSE Clear Responsible Officer and will be reviewed at least annually or when there are any material changes.

The JSEC Risk Committee will recommend the initial approval of this policy by the JSEC Board or when there are material changes. The regular annual review of this policy will be approved by the JSE Clear Risk Committee.

JSE Clear will annually review the stress testing policy which is used in determining and validating the sufficiency of the size of the fund. Periodic back-testing will be performed on the quantum of the fund against

stress testing results and breaches will be reported to JSE Clear Board. The methods of calculation will be validated in accordance with the Model Governance Framework and assurance of their applicability and accuracy will be provided to the JSE Clear Board.

The assets of the JSE Clear Default Fund will be invested as per the JSE Clear Investment Mandate for the investment of initial margin and default fund contributions.

APPENDIX 1 – REPLENISHMENT OF THE DEFAULT FUND

A clearing member's replenishment obligations are limited in the fashion shown in the example below.

To start, assume Clearing Member AA (CMAA) has previously made contribution to the default fund of R50m. Thereafter, should a default happen on a particular day and the whole default fund is used to fund losses, CMAA will replenish the default fund with say R60m (as there is one less contributor to the fund).

Should a second clearing member default within 364 consecutive days (note – not a calendar year) of that first default (i.e. before day 365) and the default fund is used to fund losses, CMAA will replenish the default fund with no more than R75m (125% X R60m). Should a 3rd clearing member default within 364 consecutive days of the first default and the default fund is used to fund losses CMAA will replenish the default fund with no more than R93.75m (125% X R75m). This amount is now only eligible to be used to fund losses arising from the default of CMAA specifically, as no contribution to the default fund is at risk of being mutualised more than twice in a 12 month period.

Appendix 2 – Apportionment of losses in the event of a shortfall after applying the default fund

If after applying the funds of the Default Fund there is still a shortfall in meeting the obligations and liabilities of the defaulting clearing member, JSE Clear will deal with this shortfall as follows:

1. JSE Clear will calculate all variation margin amounts owed by or to each client and exchange member for each market in which the defaulting clearing member participated, through the normal mark-to-market process at the end of the business day on which the shortfall becomes evident;
2. All clients and exchange members who owe variation margin to JSE Clear must pay such amounts the following business day;
3. For the purpose of calculating the variation margin amounts owed by or to each client and exchange member for each market, there will be no offset of variation margin amounts across different markets;
4. JSE Clear will apportion the total shortfall across each market in which the defaulting clearing member participated, on a pro rata basis, based on the defaulter's outstanding obligations per market relative to the defaulter's total outstanding obligations across all markets;
5. The amount of the shortfall will be applied by JSE Clear to all variation margin amounts owed by JSE Clear to clients and exchange members, by deducting the amount of the shortfall per market from the amount owed to all clients and exchange members in each affected market, on a pro rata basis, based on the amount owed to each client and trading member relative to the aggregate amount owed to all clients and trading members in each affected market;
6. The net amount after the deduction described in point 5 will be paid by JSE Clear to each client and exchange member. The payment of this net amount will expunge all of JSE Clear's obligations and liabilities to the relevant clients and exchange members in respect of the variation margin amounts calculated in terms of point 1 above, and no client or exchange member may claim any further amounts from JSE Clear in respect of the variation margin amounts calculated in terms of point 1.

APPENDIX 3 – JSE CLEAR RISK COMMITTEE AND BOARD ACTIONS

No.	Ref	Action Item	Frequency	Applicable Governance Forum
1.	5.1	The size of the fund is determined by the JSE Clear Board.	Not specified	<ul style="list-style-type: none"> • JSE Clear Board
2.	5.3	On a quarterly basis the size of the default fund and supporting calculation results will be reviewed.	Quarterly	<ul style="list-style-type: none"> • JSE Exco • JSE Clear Board
3.	5.3	Should the default fund require re-balancing intra-quarter, the JSE Clear board would be required to be informed by the JSE Clear Responsible Officer.	Not specified	<ul style="list-style-type: none"> • JSE Clear Responsible Officer • JSE Clear Board
4.	6.1	The JSE Clear Board will, annually or more frequently as JSE Clear's financial position, market conditions or the nature of the market changes, review JSE Clear's contribution to the default fund.	Annually	<ul style="list-style-type: none"> • JSE Clear Board
5.	6.1	On an annual basis, the system and Clearing Member default fund contributor tiers will be reviewed.	Annually	<ul style="list-style-type: none"> • JSE Clear Risk Management Team
6.	6.2	Should stressed losses exceed the size of the default fund post a default event; the JSE Executive Committee will review the initial margin parameters to ensure that pre-funded resources are sufficient for cover 1.	Not specified	<ul style="list-style-type: none"> • JSE Exco
7.	7	The JSEC Risk Committee will recommend the initial approval of this policy by the JSEC Board or when there are material changes.	Annually	<ul style="list-style-type: none"> • JSE Clear Risk Committee
8.	7	The regular annual review of this the Default Fund Policy will be approved by the JSE Clear Risk Committee.	Annually	<ul style="list-style-type: none"> • JSE Clear Risk Committee
9.	7	Periodic back-testing will be performed on the quantum of the fund against stress testing results and breaches will be reported to JSE Clear Board and JSE Exco	Quarterly	<ul style="list-style-type: none"> • JSE Exco • JSE Clear Risk Committee • JSE Clear Board
10.	7	The methods of calculation of the default fund will be validated in accordance with the Model Governance Framework and assurance of their applicability and accuracy will be provided to the JSE Clear Board.	Not specified	<ul style="list-style-type: none"> • JSE Exco • JSE Clear Risk Committee • JSE Clear Board