JSE | CLEAR

GUIDELINES FOR INITIAL MARGIN CALCULATION

With specific reference to concentration risk

JSE Post-Trade Services

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Table of Contents

1   INTRODUCTION

In March 2015 the JSE Clear Board approved a framework for calling a higher level of initial margin from portfolios presenting large and concentrated exposures. This framework adds an additional component to the initial margin framework specifically designed to mitigate the concentration risk faced by the clearinghouse; this component will henceforth be referred to as concentration margin. It should, however, be noted that concentration margin is merely a component of initial margin, and will be treated as initial margin under the JSE Clear Rules and Directives.

The concentration margin framework takes cognisance of the amount of time needed to liquidate specific positions and the potential losses associated therewith (henceforth referred to as the liquidation period component).

This document describes the guidelines with regards to the calculation of the abovementioned liquidation period component.

2   INITIAL MARGIN COMPONENTS

Account level initial margin comprises of a base initial margin calculated under a standard set of assumptions (JSPAN), and a concentration margin component that accounts for potential losses due to large or concentrated exposures. Appendix A: Calculation methodology provides the details of how the concentration margin component is calculated.

A key input into the liquidation period component of the concentration margin is the maximum value that can be bought or sold in particular underlying, in a given day, without moving the market due to the liquidation. This maximum value for each underlying is to be published on the JSE's website and will be updated when the J-SPAN parameters are updated.

The total account level initial margin is calculated by adding the portion of the aggregated (across all underlying instruments) liquidation period component that exceeds a predetermined threshold, to the JSPAN requirement. This threshold is also to be published by the JSE and will be reviewed from time to time.

3   OPERATIONAL WORKFLOW

The liquidation period component is calculated at each Mark-to-Market run on each underlying exposure and will be based on the net directional exposure on that underlying security. The liquidation period component will be shown separately from the base amount and disaggregated for each underlying exposure per account.

APPENDIX A: CALCULATION METHODOLOGY

Assume that the contract level initial margin requirement (IMR) for a particular future is calculated using an $\alpha\%$ confidence level and an n-day liquidation period, and let $VaR_{\alpha;n}$ denote the effective VaR percentage associated with a particular IMR.

Let Γ denote the 90-day adjusted average daily value traded[1] in the underlying of the abovementioned futures contract. The maximum participation in the said underlying on any given day is M, where:

$$M = \frac{\Gamma}{\Theta},$$

where Θ is a parameter agreed on by the JSE Clear Risk Committee.

Let Π denote the size (in terms of delta-adjusted net notional) of an arbitrary position in the abovementioned underlying. The position level liquidation period represents the number of days it will take to liquidate the particular position. The liquidation period ν, is calculated as:

$$\nu = \min(x \in \mathbb{N}_{>0} : \Pi - xM \le 0).$$

The concentration margin relating to Π is then calculated as follows:

$$IM_{Conc} = \begin{cases} M \times VaR_{\alpha;1}\left(\sqrt{2} + \sqrt{3} + \cdots + \sqrt{\nu}\right) + (\Pi - [\nu - 1]M)VaR_{\alpha;1} \times \sqrt{\nu + 1} - \Pi VaR_{\alpha;n}, & \nu > n - 1 \\ 0, & \nu \le n - 1 \end{cases}$$

The total account level concentration margin requirement is then derived by aggregating the position level concentration margin across all underlying instruments.

The JSE will publish n, and M on each occasion that contract level IMRs are updated.

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[1] Adjusted average daily value traded is the average of the last 90 days value traded excluding the 9 (10%) days with the largest value traded. This avoids the average value being skewed by infrequent large trades which cannot be depended upon when liquidating a position.