

INITIAL MARGIN CALCULATION

1. Historical Data

Since there has been no derivative trading on the exchange we have used spot (cash market) data for the purposes of generating the initial margin.

We used the last 3 years' (750 data points) worth of end of day stock prices and index points for the single stock contracts and the NSE 25 Index contract respectively.

2. Calculating Absolute Day-On-Day Log Returns

Across the dataset, we calculate the returns using the formula:

$$\text{LN} (\text{price on day } T / \text{price on day } T-1)$$

3. Using a Defined Confidence Interval

We get the range of absolute returns and pick out the return that falls in the 99.95 percentile.

We use a confidence interval of 99.95% due to the nascent nature of the market

4. Calculating Initial Margin

The initial margin is calculated using the formula below:

$$\text{Contract Size} \times \text{Return from the step 3} \times \text{Current Market Price/ Index points}$$

The contract size is 1000 for contracts whose underlying share price is below Kes. 100 and 100 for the NSE 25 Index contract and contracts whose underlying share price is above Kes. 100.

5. Scaling Up For Liquidation Period

Since liquidation of positions would take more than one day, the initial margin is calculated as:

$$\text{IM from step 4} \times \text{square root of liquidation period}$$

Our liquidation period is 2 days.

6. Extreme Loss Margins

To protect the market in the event of extreme moves, we have an extreme loss provision which is added to the calculated initial margin.

ELM aims to cover losses that could occur outside coverage of the VaR margins (calculated above). It is calculated as the greater of:

A) A percentage of the notional value of the contract. For the single stock contracts the ELM is 1.5% and 1% for the Index contract.

B) Twice the standard deviation of the returns over the previous 6 months

7. Total Margin

The total margin payable as initial margin will be;

IM from step 5 + Extreme Loss Margin from step 6