

MARGIN CALCULATION METHODOLOGY

NSE Clear initial margins (IMs) are calculated based on the Historical Value at Risk (VaR) methodology outlined below:

1. Historical Data

750 trading days (3 years) of spot market data is used to compute IMs for single stock futures and index futures.

Derivatives market data will be used once sufficient trading data is accumulated.

2. Daily Returns

Across the dataset, calculate the natural log of daily returns and convert them into absolute figures:

$$\ln\left(\frac{P_t}{P_{t-1}}\right)$$

Where;

P_t – Today’s price (volume weighted average price)

P_{t-1} – Previous day’s price (volume weighted average price)

3. Confidence Interval

As the market is still in its nascent stages, a conservative confidence interval of 99.95% will be used.

4. VaR

Calculate VaR based on 750 data points and a 99.95% confidence interval:

Rank the returns from largest to smallest and pick out the return that falls in the 99.95 percentile.

5. Initial Margin

The initial margin (IM) is calculated as:

$$IM = \text{Contract Size} \times VaR \times \text{Current Market Price}$$

6. Scale Up For Liquidation Period

The IM calculation thus far has been based on one-day returns however in practice liquidation of positions can take more than one day and the market also settles on a T+1 basis. A default would therefore only be noticed after the one-day period has passed, after which the Exchange can begin the liquidation process.

The Exchange will use a two-day liquidation period and so the IM figure will be calculated as:

$$IM \times \sqrt{2}$$

7. Further-Dated Contracts

The above steps describe the computation of IMs for near month contracts. IMs for further-dated contracts are calculated as follows:

Repeat steps 1 to 6 using a 50% confidence interval and take the calculated figure as the increment between contract expiries.

E.g.

IM at 99.95% confidence interval (Dec 2020 expiry) – KES 3,000

IM at 50% confidence interval – KES 200

Expiry	Dec 2020	Mar 2021	Jun 2021	Sep 2021
IM	3,000	3,200	3,400	3,600

8. Final IMs Published

IMs are calculated on a daily as part of NSE Clear's backtesting process. A 3-month average of these daily margins is calculated for each security and then rounded down to the nearest KES 100 before being published.

Initial margins are ordinarily reviewed on a quarterly basis but may also be reviewed on an ad hoc basis should market conditions require.