



Omnesys Technologies



NEST Strategy

Book-Maker Bid_Ask Strategy

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REVIEW NOTES	
VERSION NOTES 2.0.0.1	This document explains the Book-Maker Bid_Ask Strategy functionality in BFO Segment.
KEYWORDS	

Proprietary Notice

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Book-Maker Bid_Ask Strategy (BFO)

This strategy allows the user to place order pairs with calculated offsets for an instrument, thereby working up on the volumes for the instrument market depth.

Nest Strategy Client:

Portfolio Tree: Each portfolio tree comprises of 1 token.

Input Parameters:

Following user parameters need to be entered:

Portfolio Name: It is the name which user wants to give for a particular portfolio.

Exchange (Segment): It is the relevant exchange on which user wants to the strategy. In this case, its BFO.

Instrument Type: Based on the exchange segment selected, relevant instrument type will appear in this drop-down.

Scrip Name: It is the scrip name that user needs to select on which user wants to run this strategy.

Expiry Date: It is the expiry date for the relevant futures/options scrip for a particular segment in particular exchange for a given leg.

Option Type: User needs to select the relevant Call or Put option for the token selected.

Strike Price: User needs to select the relevant strike for the selected options.

Tick Size (Rs.): It is a minimum tick for that scrip for each token.

Pro/CLI: It gives user an option to trade in either PRO account or in Client Account. When CLI is selected, front-end will give an option to allow user to enter corresponding **Account id** and **Participant id**.

Offset Selection: It has two options:

- 1. Static Style:** When this option is selected, only Normal Buy and Normal Sell Parameters are enabled. It is these parameters that are used as offset for buy order and sell order respectively based on the Bid rate and Ask rate. As soon as Bid rate changes, the price of the buy order will change and as soon as ask rate changes the price of the sell order changes accordingly based Normal Buy Offset and Normal Sell offset specified by the user. The other offset parameters like Bullish Buy, Bullish Sell, Bearish Buy and Bearish Sell are disabled. For Normal Buy Offset and Normal Sell Offset, parameters that can be entered are only positive or zero.

$$\begin{aligned} \text{Buy Order Rate} &= \text{Best Bid Rate} - \text{Buy Offset} \\ \text{Sell Order Rate} &= \text{Best Ask Rate} + \text{Sell Offset} \end{aligned}$$

2. Dynamic Style: When this option is selected, all offset parameters (Normal Buy, Normal Sell, Bullish Buy, Bullish Sell, Bearish Buy and Bearish Sell) are enabled. The use of which parameter is dependent on the change in the price of the LTP for Bullish/Bearish Buy and sell offset and Bid rate and Ask rate is used for Normal Buy/Sell Offset. If the current LTP is higher than the **last two LTPs** then Bullish Buy and Bullish Sell offset is used. If the current LTP is lower than the **last two LTPs** then the Bearish Buy and Bearish Sell offset is used. If neither of the foresaid conditions is satisfied, then Normal Buy offset and Normal Sell offset are used. Bullish buy offset, Bearish buy offset can only have negative values while , Bullish Sell offset and Bearish Sell offset can only have positive values.

If the current LTP is higher than the **last two LTPs** then **Bullish Calculations** are as follows:

$$\begin{aligned}\text{Buy Order Rate} &= \text{Current LTP} + \text{Bullish Buy Offset} \\ \text{Sell Order Rate} &= \text{Current LTP} + \text{Bullish Sell Offset}\end{aligned}$$

If the current LTP is lower than the **last two LTPs** then **Bearish Calculations** are as follows:

$$\begin{aligned}\text{Buy Order Rate} &= \text{Current LTP} + \text{Bearish Buy Offset} \\ \text{Sell Order Rate} &= \text{Current LTP} + \text{Bearish Sell Offset}\end{aligned}$$

If neither of the conditions are satisfied then **Normal Calculations** are as follows:

$$\begin{aligned}\text{Buy Order Rate} &= \text{Best Bid Rate} - \text{Buy Offset} \\ \text{Sell Order Rate} &= \text{Best Ask Rate} + \text{Sell Offset}\end{aligned}$$

Square off Order Type: This parameter is used to place the opposite (square-off) orders once the initial order gets traded on either buy side or sell side. It has only one option:

- a. **LTP Based MPP%:** Once the initial order on either side is completed, the opposite (Square-off) order is placed at a limit price based on the LTP +/- MPP% for each leg. In other words, let say, square-off order is a buy order, it will take the LTP of that scrip, add x% specified in the buy MPP% parameter and then place the order. If for any reason it is not completed, and there is a change in LTP, it will change the order accordingly. Similarly, let say, square-off order is the sell order, it will take the LTP of that scrip, subtract x% specified in the Sell MPP% parameter and then place the order. If for any reason it is not completed, and there is a change in LTP, it will change the order accordingly. For any reason, if this option is selected, and user stops the strategy, the pending order will be canceled.

Buy MPP%: This parameter is used in conjunction with the Square-Off Order type parameter selected automatically **as LTP Based MPP%**.

For Square-off **Buy** Orders:

$$\text{Square-off Buy Order Price} = \text{LTP} + (\text{LTP} * \text{Buy MPP\%})$$

Sell MPP%: This parameter is used in conjunction with the Square-Off Order type parameter selected automatically as **LTP Based MPP%**.

For Square-off **Sell** Orders:

$$\text{Square-off Sell Order Price} = \text{LTP} - (\text{LTP} * \text{Sell MPP\%})$$

The range that can be entered in for **Buy MPP%** and **Sell MPP%** field is **0.01%** to **3%**.

Order Lots: This is the quantity (in lots) to be placed per opportunity and can be multiple lots.

Total Lots: This is the total trade quantity (in lots) that the user intends to trade.

Buy Status: This parameter is an indicative parameter which usually shows the status for buy side orders. It has four status: **start**, **open**, **square-off**, and **stop**. If the strategy is stopped or total lots are completed, the status shown is **start**, indicating new orders can be placed. If the status is **open**, then the orders placed on the buy side are in open condition and if the status is **square-off**, it will indicate that square-off. The stop status is only applicable with the square-off order type is LTP Based MPP%. When square-off order is in open condition (not completed) and user stops the strategy, the open square-off order is cancelled. In this case there is a mismatch in the position, so the status changes to **stop** and no further orders can be placed for the particular side, in this case buy side.

Sell Status: This parameter is an indicative parameter which usually shows the status for sell side orders. It has four status: **start**, **open**, **square-off**, and **stop**. If the strategy is stopped or total lots are completed, the status shown is **start**, indicating new orders can be placed. If the status is **open**, then the orders placed on the sell side are in open condition and if the status is **square-off**, it will indicate that square-off. The stop status is only applicable with the square-off order type is LTP Based MPP%. When square-off order is in open condition (not completed) and user stops the strategy, the open square-off order is cancelled. In this case there is a mismatch in the position, so the status changes to **stop** and no further orders can be placed for the particular side, in this case sell side.

It should be noted that the strategy will cancel the any first leg open order if the user stops the strategy. The square-off open orders are pending and if user stops the strategy, those orders will be cancelled.

Nest Strategy Engine:

The execution of the script happens in the Nest Strategy Engine running at backend.

Execution Working:

For every cycle of trade, the strategy places buy & sell orders based on the Offset selection. If the trade happens on any side partial or complete, all the pending open orders on either side are cancelled, and corresponding square-off orders are placed based on the traded lot of the initial leg. After the square-off leg order is completed, fresh order is placed on both sides based on the order lot specified. Orders are modified on change of LTP (as per offset calculation and as per the offset selection) if dynamic style is selected and for static style,

orders are modified based on the best bid rate and/or best ask rate changes. When the total lots set for a particular transaction is completed, strategy will stop placing any further orders for that side.

Portfolio and Parameters Screenshot:

The screenshot shows a software window titled 'BF Obookmaker_bidask-2.0.0.0'. It contains several sections for configuring trading parameters:

- Script Details:** Includes fields for Portfolio, Exchange, Inst type (set to 'IF'), Symbol, Exp Date, Opt Type, and Strike Price.
- Buy/Sell Status:** Both 'Buy Status' and 'Sell Status' are set to 'start'.
- Tick Size:** A text input field.
- Acc Details:** Includes PRO/CLI (set to 'PRO'), Acct ID (set to '11365'), and PartID.
- Offset Selection:** A dropdown menu set to 'Static Style'.
- Normal Buy/Sell:** Text input fields, both set to '0'.
- Bullish/Bearish Buy/Sell:** Text input fields, all empty.
- sq.off order type:** A dropdown menu set to 'LTP based MPP%'.
- Buy MPP% / Sell MPP%:** Text input fields, both set to '0.05'.
- Order Lots / Total Lots:** Spinners, both set to '0'.
- Buy Trd Lots / Sell Trd Lots:** Text input fields, both set to '0'.

At the bottom of the window are 'Save' and 'Cancel' buttons.

Risk Management

Risk Management System can be configured to have following checks before the orders are released to the exchange. The checks which are defined by exchange with respect to Algorithms are in place in the system. Below mention rules can be configured in the system to control the risk parameter which is defined by exchange.

Sr.No.	Checks	Rules to set	Remarks
1	Price Check	1) Check Price Range Based on LTP 2) Check Circuit Limit	These rules will create a price range on the basis of Last Traded Priced as per the percentage set in the category window.
2	Quantity Check	a) Order Quantity including Square off Order b) Board Lot Quantity including Square off Order	This rules will restrict per order the number of quantity to be placed in market which is defined the category window. The user can define the number of quantity in Weights and in lots for Futures.
3	Order Value Check	Order Value including Square off Order	This rule will restrict per order the order value which can be placed in the market which is defined in category window
4	Trade Price Protection Check	Check Circuit Limit including square off order	This rule does not allow to place the order which has been placed above the Higher Circuit Limit or Lower circuit limit which id defined for contract/scrip by exchange
5	Market Price Protection	Check Price Range Based on LTP	This rule will create a price range on the basis of Last Traded Priced as per the percentage set in the category window.
6	Cumulative Open Order Value check	Pending order value	This rule will restrict the Open Order with the Value set in the category
7	Automated Execution Check	Turnover Order Level and Turnover Order Level Limit	This rule will calculate the value of all executed/ Unexecuted and un confirm orders and if breach the value set in category then further order will get rejected
8	Automatic stoppage in event of Algo execution leading to a loop or a runaway situation.	Order Throttle	If there number of order per seconds breaches the value which is set in Throttle then further order gets rejected by the system.
9	Net Position Vs. available margin	Gross Exposure, Gross Exposure Derivative, Var Margin Order	User can set the risk parameter based on Exposure and Margin based on which the margin used will be calculated on the basis of position

		Level, Span Margin Order Level	taken. If the Margin used is equal to Cash margin then further order will be rejected by the system
10	RBI Violation checks for FII Restricted stocks.	Restricted Basket or RMS Blocking	User need to create a Restricted basket for the scrip and assign to the category of the user / client. Also RMS blocking can be used.
11	MWPL violation check	RMS Ban Symbol or RMS Blocking	The scrip for which market wide position limit is breach then scrip can be blocked or it needs to be in Ban.
12	Position Limit Checks	Scrip Group / Scrip Margin	User can define the quantity scrip wise in which the position can be taken in scrip group and then it needs to be assign to category at client level
13	Trading Limit Checks	Turnover Order Level Limit/ Gross Exposure Limit	User can define the Turnover or Exposure for a specific Client/User or Branch.
14	Exposure Limit check at individual client level and at overall level	Gross Exposure and Gross Exposure Limit	User can define the Exposure at Branch Level as well as Broker Level
15	Number of orders for the logic	NA	Depends on the user parameter (i.e order qty) set. This can vary from a minimum of a single lot to a maximum of total qty set.
16	Maximum number of scrips / contracts in which the logic will work at a time	NA	At a time, maximum number of scrips/contracts in which logic will work at a time is 2 or 4 (four if square-off orders are included).
17	Number of legs		Two or Four (four if square-off orders are included)