



Omnesys Technologies (P) Ltd.



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Future To Future Bidding Strategy

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AUTHOR	RUSHABH DOSHI
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Future To Future Bidding Strategy (BFO):

This strategy allows for BID based arbitrage between BFO future expiries. It can BID on either near or far month expiries

Nest Strategy:

Portfolio: Each portfolio comprises of 2 tokens (i.e. one near month future expiry scrip and one far month future expiry scrip).

Input Parameters:

Exch. Seg: User will select the relevant exchange. For this strategy, it would be BFO.

Symbol: Here user needs to enter Relevant Symbol for which user intends to perform a roll-over.

Near Exp Date: Here the user should enter the near expiry date

Far Exp Date: Here the user should enter the far expiry date

Near Lot: After selecting the exchange, symbol and the expiry date, this field is automatically populated and cannot be edited by the user.

Far Lot: After selecting the exchange, symbol and the expiry date, this field is automatically populated and cannot be edited by the user.

PRO/CLI: The respective Client/PRO account has to be filled.

Account Id: Once CLI/PRO has been selected, respective Account id needs to be populated.

Participant Id: User needs to populate corresponding participant code for the relevant Account id selected.

First Leg: It has two options: far and near. Depending on which option is selected, that leg will be the bidding leg. This feature is applicable for both legs.

First Leg Type: This parameter is useful in determining how the first leg (bidding leg) will be placed in the market. It has two options:

- a. **Best Bid/Ask:** If user selects Best Bid/Ask, then the strategy will place a single limit day order for the first leg. For placing first leg, our system will calculate the first leg option price based on the set parameters. If the market price is better than calculated price, it will try to become best buyer/seller depending on whether one is buying or selling a given token.
It should be noted that bidding to become best buyer and best seller till the calculated first leg price. So calculated first leg price becomes a floor/ceiling for bidding.
- b. **Sweep/Stand Price:** If user selects Sweep/Stand Price, then the strategy will place a single limit day order at a price calculated based on the limit specified and the weighted



average price of the second leg. For placing first leg, our system will calculate the first leg price and place the order in the market at the calculated price but will not try to become best buyer or best seller. First leg price will be modified based on the changes in the weighted average price of the second leg.

LTP % Check: This parameter is applicable for first leg placement. It has two options Yes or No. If 'Yes' option is selected, then LTP (%) parameter will be enabled. The percentage value entered in this parameter is used to create a band with respect to LTP. If the bidding first leg price is beyond this band, the orders will not be placed. If 'No' option is selected, then the LTP % band will not be formed.

LTP (%): This parameter is used in conjunction with the LTP % Check. The percentage value entered in this field determines the band that needs to be formed taking LTP As reference. It is enabled only when LTP % Check parameter is selected as Yes.

Second Leg Type: This parameter is mostly used for the second leg. Once the first leg gets completed, how should the second leg be placed depends on this parameter. It has four options to place the second leg and are mentioned below:

- 1. Traded +/- Limit:** If this option is selected, the placement of second leg price depends on the desired limit specified by the user and the traded price of the first leg for that given round.
- 2. Same:** Once the first leg is completed, second leg is placed as limit orders with the same side rate. For example, if one is second leg buying, then bid rate will be taken as price for limit order and if one is selling then ask rate will be taken as price for the limit order.
- 3. Opposite:** Once the first leg is completed, second leg is placed as limit orders with the Opposite side rate. For example, if one is buying, then ask rate will be taken as price for limit order and if one is selling, then bid rate will be taken as price for the limit order.
- 4. LTP Based MPP%:** Once the first leg is completed, second leg is placed based on the LTP +/- MPP%. In other words, let say, user is selling first leg, and second leg is the buy order, it will take the LTP of that second leg scrip add x% specified in the MPP% parameter and then place the order. If for any reason it is not completed, and there is a change in LTP, it will modify the order price accordingly. Similarly, let say, user is buying first leg, and second leg is the sell order, it will take the LTP of that second leg scrip subtract x% specified in the MPP% parameter and then place the order. If for any reason it is not completed, and there is a change in LTP, it will modify the order price for that leg accordingly. For any reason, if this option is selected, and user stops the strategy, then any open pending order (first leg or second leg) will be canceled.

MPP%: This parameter is enabled only when Second leg type selected is **LTP Based MPP%**.

For Placing **Buy** Orders:

$$\text{Placed Leg Buy Price} = \text{LTP} + (\text{LTP} * \text{MPP}\%)$$

For Placing **Sell** Orders:

$$\text{Placed Leg Sell Price} = \text{LTP} - (\text{LTP} * \text{MPP}\%)$$



Square-off: This feature becomes **applicable only** when the lot sizes of both the legs are different for different expiry for the same scrip. When lot sizes are different, it has two options, yes and no.

BID Side: Arbitrage side (i.e. **Side1:** buy near sell far, **Side2:** buy far sell near). It is a checkbox, that user needs to select (click-on).

Timer (in seconds): to modify the order to Limit order based on LTP Based MPP% after timer seconds (timer expires)

Modify (times): number of times second leg order can be modified.

Modify Factor: price to be added/subtracted to second leg best modify price. It is applicable for both legs when first leg type selected is Best Bid/Ask. When Best Bid/Ask option is selected, modify factor will decide by how much one should stand as a best bidder from the second best price for the first leg. When first leg type is selected as Sweep/Stand, it is applicable only for the second leg.

Tick Mod (Rs): is considered for bidding and is used to decrease the number of modifications. If the difference between current order price and new bidding price is greater than or equal to Tick Mod then only order is modified with the new bidding price. It is applicable for first leg only irrespective of whether the user has selected as Best Bid/Ask or Sweep/Stand option.

Tick size(Rs.): It is a minimum tick for that particular scrip for that particular exchange.

Thres. Quantity (%): This is for availability of second leg's order lots. By default, the value is 100% as the lot comes in the size of 1, 2, and so on. It will check whether quantity for the second leg is available before placing the order.

Depth: User has the choice to select the relevant depth. Selection of depth is vital for both weighted average price calculation as well as for quantity checks for second leg.

Min Trd. Lots: This parameter is relevant and **only applicable** when the lot sizes of both expiries are different. When this is the case, Square off field is enabled. If square-off field is selected as '**No**', the first leg traded lot is compared to minimum traded lots, after the expiration of Timer Leg 1, if the traded lot is less than minimum traded lots, then the remaining open quantity of the bidding leg is cancelled, and the second leg order is placed for the traded quantity of first leg. If the traded lot is more than the minimum traded lot, the pending first leg order is not cancelled but remains open, while the second leg order for the specified order quantity is placed. After the expiration of second leg timer, both the pending first leg and second leg are converted to limit order based on LTP Based MPP%. If the square-off is selected as '**Yes**', the first leg traded lot is compared with minimum traded lots, after expiration of timer leg 1, if the traded lot of the first leg is less than the minimum traded lots, then the first leg quantity that was traded is reversed and no second leg order is placed. If traded lot of the first leg is greater or equal to minimum traded lot, the pending first leg order is not cancelled but remains open, while the second leg order for the specified order quantity is placed. After the expiration of second leg timer, both the pending first leg and second leg are converted to limit order depending on LTP Based MPP%.

Timer Leg 1 (sec): This parameter **is only applicable** when the lot sizes of both expiries are different. It is used in conjunction with the Minimum Traded lots.



Following user parameters need to be created separately for both sides:

Limit (in Rs): This is the desired spread between the 2 expiry legs, positive value indicates a profit arbitrage, while negative value denotes a loss. The formula is: **Sell-Buy**.

Quote Threshold (in Rs): The order is placed only when the market spread is more than Quote threshold else the order will be cancelled. The idea is to start bidding when the Quote threshold is breached. It is **always lower than or equal the "Limit"**. Quote threshold is applicable during both placement as well as during modification of orders.

Near Order Lot: This is the quantity in lots to be placed per opportunity for execution for near month. When lot sizes are same for both expiries, this field is applicable for both far as well as near month.

Near Total Lot: This is the total trade quantity in lots that the user intends to trade for the execution side for the near month. When lot sizes are same for both expiries, this field is applicable for both far as well as near month.

Far Order Lot: This field is **enabled only** when the lot sizes of the expiry are different. In the case where lot sizes are same, the order lot entered in the Near Order lot is applicable for the Far Order Lot as well. When the lot sizes are different for different expiry, this field is used for entering the quantity to be placed per opportunity for execution for far month.

Far Total Lot: This field is **enabled only** when the lot sizes of the expiry are different. In the case where lot sizes are same, the order lot entered in the Near Total lot is applicable for the Far Total Lot as well. When the lot sizes are different for different expiry, this field is used for entering the total trade quantity that the user intends to trade for the execution side for the far month.

Execution:

The above parameter needs to be updated from the Nest Strategy front end. Once the parameters are updated, the execution of strategy could be triggered from front end. The engine for the strategy is running in the back-end.

Execution:

1. When the market spread breaches quote threshold, BID order (First leg Limit Day Order) is placed in either near expiry or far expiry based on the BID type set taking into consideration relevant price and limit (i.e far price if first leg is near and near price if first leg is far, weighted average price is considered if multiple lots specified as order qty and depth is more than 1). For example, one is buying far and selling near, with multiple lot and depth more than 1 with Sell near as the bidding leg, then the price of the bidding leg will be calculated as: **Limit + Weighted Average of Buy Far leg i.e. Limit + Weighted Average of Ask rate of Far leg**. If the first leg touchline price is better than the user calculated derived price for the first leg (based on limit and weighted average of the second leg price) and first leg type selected is Best Bid/Ask, then it will try to become a best buyer/seller depending on whether one is buying first leg or selling the first leg. For example, if the user is buying the first leg and the calculated first leg derived price is greater than the first leg touchline price, then it will modify the current



bid rate by modify factor to become best buyer. Similarly, if the user is selling first leg and calculated first leg price is less than the first leg touchline price, it will modify the current first leg price (ask rate) by modify factor to become best seller.

2. Modify BID order (limit day order) based on price (weighted average) change in relevant second leg expiry month. First leg modification is continuous till it gets traded.
3. On trade of first leg, Place second leg order for the trade quantity taking into consideration the second leg type selected.
4. On confirmation of second leg, trigger timer for duration as specified in parameter.
5. On timer lapse, Modify second leg pending limit Day order to limit order depending on LTP Based MPP%.
6. Second leg pending limit day order to be modified taking into consideration the best price, modify factor and modify times (try number of times) specified as parameter or till timer. On timer lapse, modify future limit day order to limit order based on LTP Based MPP% if the second leg type is other than LTP Based MPP%.
7. BID order (First leg Limit Day Order) to be cancelled if quantity not available.

This execution is applicable when lot sizes for both the expires are same. If the lot sizes for both the expires are different, square-off parameter, minimum traded lot and timer for leg 1 becomes relevant. It should be noted, that for the order lot more than 1, if partials get completed, the pending open orders for the leg 1 gets cancelled.

Some Key Notes:

- a. If the Second Leg type selected is LTP Based MPP% or after timer expires, any open pending orders is converted to limit order based on LTP Based MPP%, it will modify any open orders as soon as the LTP changes. The orders can remain in open condition. The next round will only be fired, once the round of orders is fully completed.
- b. For the second leg type other than LTP Based MPP%, any pending order after timer expires, is converted to limit order based on LTP Based MPP%.

**Front-End Screenshot:**

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Scrip Details						Account Details		
Exchg-Seg	Symbol	Near Exp Date	Far Exp Date	Near Lot	Far Lot	Pro/Cli	Account ID	Participant ID
BFO	ALSFUT	19Jun2014	18Sep2014	10	10	PRO	11365	

<input checked="" type="checkbox"/> Buy Near Future::Sell Far Future								First Leg:
Limit(Rs)	Quote Th(Rs)	Near Order Lots	Near Total Lots	Far Order Lots	Far Total Lots	Pend Qty	Trade Qty	far
5.65	5.25	1	100			100		

<input type="checkbox"/> Buy Far Future::Sell Near Future								First Leg:
Limit(Rs)	Quote Th(Rs)	Near Order Lots	Near Total Lots	Far Order Lots	Far Total Lots	Pend Qty	Trade Qty	far

First Leg Type	LTP % Check	LTP (%)	Second Leg Type	MPP (%)	Pending Orders				Min.Trd. Lots	Timer Leg1(sec)
Best Bid/Ask	No		Traded +/- Limit	0.5	Modify(times)	Modify Factor	Time(Sec)	Depth	Tick Mod(Rs)	
					1	1.00	1	4	0.05	

Save Cancel



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
17	Number of legs	NA	Two