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**Description**

BofAML MosaicAlgo™ is a machine learning algorithm that utilizes order and stock characteristics together with TCA data to determine the optimal strategy for execution.

**Parameters**

- **Start / End Time**: Order Start / End Time (Default: Time of submission, market open/close)
- **Min / Max % Volume**: Controls the min/max participation rate Over the Day: Only VWAP or TWAP strategies will be used when selected (Default: Not enabled)
- **Urgency**: Low, Medium, High (Default: Medium)
- **Auction Participation**: Select auctions to participate in (Default: All)
- **GetDone Price**: Price at which the order will look to complete
- **GetDone %**: Percentage of the order to complete at GetDone Price

**Execution Value Chain**

**Good for**
- Optimizing execution performance when not bound by a specific strategy

**Watch out for**
- Trade constraints will narrow down the pool of available algorithms
Description

BofAML PiAlgo® is a passive spread capture algorithm that will cross the spread only when the price is likely to move away. Use ‘Urgency’ to set your willingness to cross the spread and talk to your Electronic Trading representative for customization options.

Parameters

- **Start / End Time**: Order Start / End Time (Default: Time of submission, market open / close)
- **Min % Volume**: Controls your minimum target % of traded volume (Default: 10%)
- **Max % Volume**: Controls your target % of near touch book size & Max % for the order (Default: 20%)
- **Urgency**: Sets the strategy’s willingness to pay the spread (Default: Medium)
- **GetDone Price**: Price where the order will look to complete (Default: Not enabled)
- **GetDone %**: Percentage of the order to complete at GetDone Price (Default: 100%)

Example

“Buy 100,000 shares in ABC using a benchmark of Arrival”

1. Layer the book on your side of the spread using Max %

2. Use Urgency and Min% to control your willingness to pay the spread
   - Low urgency – always queue passively and will not cross the spread
   - Medium urgency – will cross the spread when the core conditions are met while counting only far touch volume
   - High urgency – will cross the spread when the core conditions are met while counting all volume

3. All 3 core conditions have to be met for any Alpha Trigger to be able to fire:
   - Spreads are tight ✓
   - Book is imbalanced against you ✓
   - Last trade was on the far touch ✓

Good for

- Orders where you are benchmarked to Implementation Shortfall without a strict participation target or short-term alpha expectation

Watch out for

- Orders with short-term alpha
- Does not guarantee completion (Aim-To-Complete is easily configured)
- Orders with a GetDone may exceed your Max %

* Talk to your Electronic Trading Sales representative for configuration options

BofAML PiAlgo® is currently only available in Asia Pacific
**Description**

VWAP combines the smart spread capture and crossing logic of BofAML PiAlgo® with the ability to schedule execution over a specified time period. Utilizing smart volume curves, the strategy will take more discretion than regular VWAP in order to maximize spread capture.

**Parameters**

- **Start / End Time**: Order Start / End Time (Default: Time of submission, market open / close)
- **Max % Volume**: Controls the maximum participation rate (Default: None)
- **GetDone Price**: Where the order will look to complete (Default: Not enabled)

**Example**

“Buy 100,000 ABC, VWAP over the day. Do not exceed 20% of volume”

**Good for**

- Where order completion is a priority but minimizing impact is more important than strict adherence to a VWAP profile
- Orders where you have a directional view (that prices will move in your favor) i.e. prices moving lower/higher for buys/sells

**Watch out for**

- Will take more discretion around the target volume profile than regular VWAP
- Orders with a GetDone Price may exceed your Max% Volume
TWAP
(Time Weighted Average Price)

Description
TWAP (Time Weighted Average Price) schedules execution of an order evenly over a specified time period. The 'Auction Participation' parameter allows you to opt in or out of open and close periods on the fly. Use 'GetDone' features to complete an order at a specified price.

Parameters
Start / End Time : Order Start / End Time (Default: Time of submission, market open / close)
Max % Volume : Controls the maximum participation rate (Default: None)
Auction Participation : Select auctions to participate in (Default: All)^
GetDone Price : Price where the order will look to complete (Default: Not enabled)
GetDone %* : Percentage of the order to complete at GetDone Price (Default: 100%)

Example
“Buy 100,000 ABC, TWAP over the day. Do not exceed 20% of volume”

Good for
• Keeping dollar neutral on buy versus sell baskets
• Names with unstable volume profiles
• Accessing mid-point liquidity in Instinct X*

Watch out for
• TWAP will pay the spread more than VWAP in long queue names
• Use price and volume limits to avoid pushing prices
• Orders with a GetDone Price may exceed your Max % Volume
• In Taiwan, an unrestricted buy (sell) order will attempt to complete at limit down (up)

* Where available. Talk to your Electronic Trading sales representative for configuration options
^ No participation in Japan closing auction
POV (Percentage of Volume)

Description

POV (Percentage of Volume) targets a user-specified percentage of market volume. Trader Instinct® Fair Value and Gradual Catch Up logic protects you against unexpected price or volume spikes. Take advantage of price moves in your favor by setting a Speed Up price and target participation.

Parameters

- **Start / End Time**: Order Start / End Time *(Default: Time of submission, market open / close)*
- **Target % Volume**: Sets the target participation rate
- **Auction Participation**: Select auctions to participate in *(Default: All)*
- **Speed Up Price**: Price level to trigger Speed Up *(Default: Not enabled)*
- **Speed Up Target %**: Target % of volume when Speed Up is triggered
- **GetDone Price**: Price where the order will look to complete *(Default: Not enabled)*
- **GetDone %***: Percentage of the order to complete at GetDone Price *(Default: 100%)*

Example

“Buy 1 million ABC, be 25% of market volume from 12pm”

Good for

- Keeping pace with market volume
- Utilizing the ‘Speed Up’ function to take advantage of favorable prices

Watch out for

- Completion is not guaranteed
- Orders with a GetDone Price may exceed your Target % Volume

* Where available. Talk to your Electronic Trading sales representative for configuration options
Dynamic POV

Description
Based upon our standard POV strategy, Dynamic POV uses a dynamic reference price as the trigger for when to speed up.

Additional Parameters
Ref : Dynamic reference price to trigger Speed Up
Min Vol / Target % : Participation rate when price is less favorable than reference
Max Vol / Speed Up % : Participation rate when price is more favorable than reference

Reference Price Examples
AVG : Average price
VSOT : VWAP since the order is trading
VWAP : All day VWAP for the particular security
PCL : Previous closing price
OPN : Opening price
ARR : Arrival mid price
PWP : Participation Weighted Price (When selected, Speed Up % is ignored)

Example
“Buy 1 million ABC, be 20% of volume above interval VWAP, 40% below”

Good for
- Dynamically switching participation based on real time price movement

Watch out for
- Completion is not guaranteed
- Orders with a GetDone Price may exceed your Target % Volume
Description

IS (Implementation Shortfall) aims to minimize market impact versus arrival by dynamically adjusting target participation using both a user specified trading style (Reversion, Momentum or Neutral) and a proprietary market impact model.

Parameters

- **Start / End Time**: Order Start / End Time (Default: Time of submission, market open / close)
- **Scaling**: Reversion / Momentum / Neutral (Default: Neutral)
- **Urgency**: Low Risk (Tgt 10%) / Medium Risk (Tgt 20%) / High Risk (Tgt 30%)
- **Max / Min % Volume**: Controls the Max and Min participation rate (Default: None)
- **GetDone Price**: Price where the order will look to complete (Default: Not enabled)
- **GetDone %***: Percentage of the order to complete at GetDone Price (Default: 100%)
- **Auction Participation**: Select auctions to participate in (Default: All)

Example

“Buy 250,000 ABC, IS with Reversion scaling”

### Good for
- Targeting an arrival price benchmark based on your preferred trading style
- When you have a view on price movement

### Watch out for
- Completion is not guaranteed
- Orders with a GetDone Price may exceed your Max % Volume

* Where available. Talk to your Electronic Trading sales representative for configuration options
BofAML TagAlgo™

Description

BofAML TagAlgo™ is an IS benchmark strategy that uses BofAML PiAlgo® order book placement logic and index-relative performance to determine its participation. The strategy will smartly scale between the Min% and Max% based on the stock’s relative performance to its country index. Participation can be fine-tuned by using Min/Max thresholds.

Parameters

- **Start / End Time**: Order Start / End Time (Default: time of submission, market open /close)
- **Max / Min % Volume**: Controls the Min and Max participation rate (Default: Urgency Medium)
- **Urgency***: Low (5-10%), Medium (10-20%), High (20-30%)
- **GetDone Price**: Price at which order looks to complete
- **GetDone %**: Percent of order to complete at GetDone Price
- **Scaling**: Momentum or Reversion (Default: Reversion)

Example

“Buy 100,000 ABC, BofAML TagAlgo™, maximum 25% of volume”

Good for

- Smart participation based on index-relative performance and BofAML PiAlgo® order book placement logic
- Orders with low completion risk to prioritize performance

Watch out for

- Momentum driven stocks where you have directional view
- Does not guarantee completion. Use ‘Aim to Complete’ where required

*Please speak to your ET sales representative for default configuration options and customizations
Description

QMOC (Quantitative Market on Close) targets the closing price by scheduling trading based on order size, stock volatility and trader urgency. Select an urgency of ‘High’ to start later in the trading day, ‘Low’ to start earlier. You can limit your participation to the closing auction period only by selecting ‘MOC Only’.

Parameters

Start Time : Order Start Time (Default: QMOC calculated start time)
Urgency : Low (Start Early) / Medium / High (Start Later) (Default: Medium)
Auction Participation : MOC Only (Default: OFF)

Example

“Buy 500,000 ABC, market on close. Happy to start early to avoid market impact”

Good for

- Targeting Market On Close without having unnecessary impact
- Trading MOC only

Watch out for

- Without ‘MOC only’ selected, QMOC can start early.
- Stocks with unstable closing volumes
SMA
(Smart Market Access)

Description
Smart Market Access (SMA) is a Smart DMA strategy that adheres to the market microstructure and exchange rules across Asia Pacific. By default, SMA offers Iceberg and Peg functionality. Set a display size to only show a portion of your order at one time. Select a ‘Peg To’ price and optional ‘Peg Offset’ to follow a prevailing market price.

Parameters
- **Peg To**: Price point to peg to BID/ASK/NEAR/FAR (Default: OFF)
- **Peg Offset**: Price (in ticks) to adjust your selected ‘Peg To’ (Default: 0)
- **Display Size**: Quantity of shares to display at the Peg or Limit Price (Default: Instinct® calculated)

Example
“Buy 50,000 shares in ABC, peg to the bid and only show 10,000 shares at a time”

Good for
- Direct access to the order book
- Earning the spread (Peg)
- Limiting market impact by hiding your true order size (Iceberg)

Watch out for
- Use limit prices to avoid market impact
- Completion is not guaranteed
- Stock price momentum against you when using Peg
**Description**

Blockseeker® is a dark only strategy that can access both Instinct X® and external exchange dark liquidity venues (Australia only). Set a ‘Cross Price’ to peg the order to Mid, Near, Far touch and a ‘Min Cross Quantity’ to avoid fills below a specified size (MEQ).

**Parameters**

- **Start / End Time**: Order Start / End Time *(Default: Time of submission, market open / close)*
- **Min Cross Quantity**: Minimum fill size in number of shares *(Default: 1)*
- **Cross Price**: Peg to Near Touch, Mid, Far Touch *(Default: Mid)*

**Example**

“Buy 1 million ABC, dark only and pegged to the mid price. Use an MEQ of 100,000 shares”

**Good for**

- Minimising information leakage and market impact
- Searching for block liquidity by using an MEQ

**Watch out for**

- No guarantee of completion
Description

INSTINCT® combines stock specific characteristics and ‘Urgency’ to determine the ideal average participation rate. The algorithm continuously monitors real-time order book dynamics using the instinct signaling framework to minimize market impact. With 5 urgency levels at your disposal, take full control of your execution with a simple parameter change.

Parameters

- **Start / End Time**: Order Start / End Time (Default: Time of submission, market open / close)
- **Urgency**: 1=5-10%, 2=10-20%, 3=20-30%, 4=30-35%, 5=GetDone
- **Max % Volume**: Controls the maximum participation rate (Default: None)
- **GetDone Price**: Price where the order will look to complete (Default: Not enabled)
- **GetDone %**: Percentage of the order to complete at GetDone Price (Default: 100%)

Example

“Buy 2M ABC, Instinct® 3 with a 110 limit”

Good for
- The go-to algorithm for smart participation and flexibility

Watch out for
- Urgency 5 will be aggressive, use limits

*Where available. Talk to your Electronic Trading sales representative for configuration options
^ Controls the average participation range
Description

GetDone is a liquidity seeking strategy that looks to intelligently take volume up to your limit price. With ‘Post’ and ‘No-Post’ options you have the ability to passively queue in the market whilst constantly monitoring the order book for liquidity taking opportunities.

Parameters

Start / End Time: Order Start / End Time (Default: Time of submission, market open / close)
Urgency: Low / Medium / High (Default: Medium)
Allow Post: Allow / Not Allow (Default: Post)

Example

“Buy 100,000 ABC aggressively up to 100, happy to post”

Good for
- Liquidity taking at a price level

Watch out for
- Strategy can be very aggressive – use limit prices where possible to minimize impact
- With Post enabled, strategy can compress the spread to your limit
Enhanced GetDone

Description

Enhanced GetDone is a liquidity seeking strategy that looks to intelligently take volume within your limit price. By using the ‘Urgency’ parameter, you have the ability to alter how much of the far touch you take at a time, providing liquidity seeking with increased control.

Parameters

- **Start / End Time**: Order Start / End Time (Default: Time of submission, market open / close)
- **Urgency***: Increases far touch liquidity taking percentage
- **Allow Post***: Allow / Not Allow (Default: Allow)
- **Max % Volume***: Controls the maximum participation rate (Default: None)

Example

“Buy 100,000 ABC aggressively up to a LMT of 103, happy to post”

Good for
- Semi-automatic trading or level trading for better performance
- Liquidity taking with control

Watch out for
- Unintended impact – use tight limits
- Does not guarantee completion

* Depending on your ticket, this parameter may not be available
* Speak to your ET sales representative for default configuration options
* Urgency L, M, H% can be customized
Description
Algorithmic Trading Order Manager gives you the ability to create custom algorithms individually tailored to your trading style. Speak to your Electronic Trading Sales representative to discuss the options available and to begin the customization process.

Examples

Switch from VWAP to INSTINCT® when the stock price moves on side of arrival (or previous close, etc.)

Switch from POV to VWAP in the last 30 minutes of your order to ensure completion

Switch from GetDone to INSTINCT® when my order is 20% complete

GetDone %
Adding an additional level of flexibility, ‘GetDone %’ allows users to choose the percentage of the order to complete at the ‘GetDone Price’ (Default is 100% of the remaining order size). ‘GetDone %’ can be configured in 3 different configurations – speak to your Electronic Trading Sales representative to enable.

GetDone Quantity is the specified % of unexecuted order size

GetDone Quantity is specified % of parent order size

GetDone Quantity is the quantity of shares that would take the order to the specified % complete
Description
Trader Instinct® monitors real time order, stock and market conditions. Via ‘Market Color’ clients are alerted of events directly based on predefined criteria. Used extensively by the Electronic Trading desk, Market Color alerts are highly customizable in order to meet your specific trading requirements.

Examples
- **Price Movement**: Tell me when the price moves 3% from arrival
- **Non Complete**: Alert me if my order is unlikely to get done
- **Dark Pool Fills**: Let me know if I start getting executions in Instinct X®
- **First Order**: Please acknowledge my first order of the day
- **No Executions**: Give me a heads up if an order isn’t getting anything done
- **Stock Suspension**: Alert me if I send an order in a suspended stock
Trader Instinct® Safety

Description
Trader Instinct® delivers a wide range of safety checks which can be configured and set as required. Going beyond standard fat finger limits, Trader Instinct® monitors real-time market and order conditions to protect your order throughout the trading cycle.

Standard Safety Features
The following set of fat finger checks apply to each order (configured separately per client)

- **Price Limit Checks**: Maximum distance away from ‘Last’ traded price
- **Order Size Limits**: Maximum order size (Notional)
- **Daily Limits**: Maximum Daily (Notional)
- **ADV %**: Maximum allowable order size as % of historical ADV%
- **Minimum Trade Frequency**: Minimum acceptable trade frequency
- **Maximum Spread**: Maximum historical spread for each stock

Dynamic Safety Features
In addition to our standard set of safety checks, the following dynamic features protect you during the trading life cycle.

- **Circuit Breaker Alert**: When stock moves ~5% away from arrival
- **Circuit Breaker Pause**: When stock moves ~7.5% away from arrival
- **Circuit Breaker Stop**: When stock moves ~10% away from arrival
- **Fair Price Control**: Trailing VWAP-based secondary price limit to avoid price spikes
- **Instinct® Iceberg Logic**: Ensures sensibly sized orders are sent to market
- **Market Depth Check**: Checks theoretical impact of each order before going to market

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**Fair Price Control**

\[
\text{Fair Price Limit = Fair Price + Offset}
\]

Avoid Temporary spikes (potential fat finger)

Do not fall behind on permanent spikes (potential news flow)

Price

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**Circuit Breaker**

We receive the order

Desk gets an alert at 5% adverse move (order is still live)

Parent is paused with child slices kept alive at 7.5% adverse move

Parent is paused and child slices are canceled at 10% adverse move

Wait for the next 5% adverse move to repeat
Execution Desk Contacts

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