

# Electronic Trading Algorithm Training



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# VWAP

Minimize slippage relative to expected historical volumes

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; To minimize execution shortfall relative to VWAP benchmark</li> <li>&gt; For low conviction orders</li> <li>&gt; For a slice of a larger order to work passively</li> <li>&gt; For stocks with a regular trading pattern</li> <li>&gt; Aim to finish the order</li> </ul>	<ul style="list-style-type: none"> <li>&gt; When market volumes are deviating drastically from historical distribution</li> <li>&gt; For high conviction orders</li> <li>&gt; When there is high volatility in the market</li> <li>&gt; Short order duration</li> <li>&gt; If concerned with paying the spread</li> </ul>

## Applicable Products

Cash Equity, Listed Derivatives

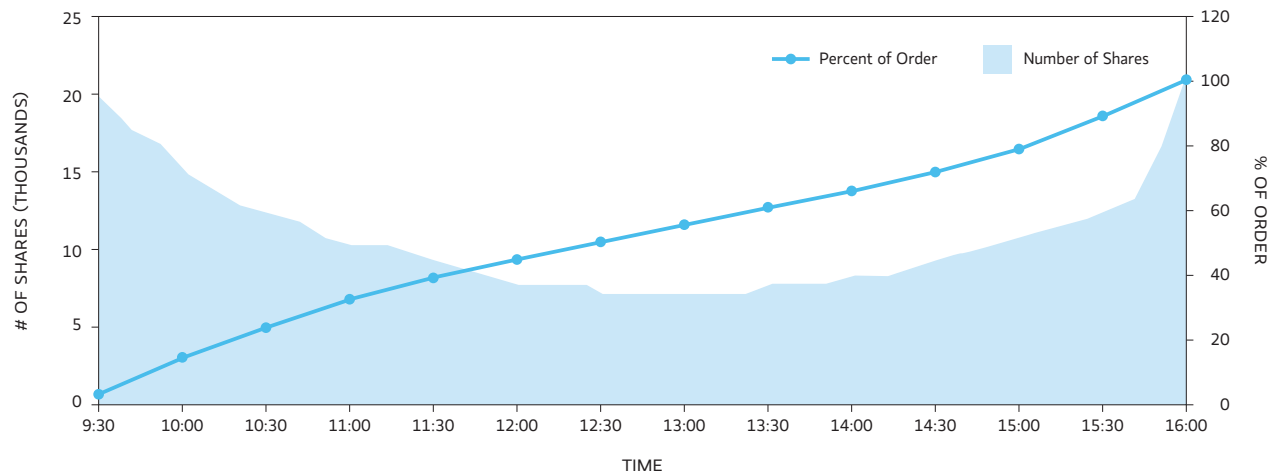
## Parameters

% of Volume	Allow traders to limit volume participation based on an Intraday Volume Prediction
I Would Lit/Dark (cash equity only)	Enable orders to execute in lit and/or dark at a specified price or better. Dark liquidity interaction is configured per client request.
Duration	<ul style="list-style-type: none"> <li>&gt; By default participate in opening auction (cash equity only), but the trader can opt out. Specific settings for closing auction (cash equity only) per client request.</li> <li>&gt; Can be traded as full day order or as any interval</li> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation based on historical volume distribution</li> </ul>
Urgency	Higher urgency tracks the target trajectory more closely
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks.
Volume Prediction Model Adjustments (cash equity only)	<ul style="list-style-type: none"> <li>&gt; Trading trajectory is created based on an Multi-Factor Volume Profile model ("System Fit")</li> <li>&gt; Incorporate effects of special event days: Quarter/month end days, future/option expiry days, and index rebalance days</li> </ul>
Relative Price Limit (cash only)	Adjust price limit in-line with index/sector move
Passive Only	Allow order to be on the passive side of the order book only (may not complete)

## Trading Behaviors

Aim to Finish	The order is expected to complete just before End Time. The exact completion time varies by security, exchange, and market dynamics.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.

### VWAP Trading Trajectory vs. Schedule



### Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDIATION
> Order duration is too short relative to order size	> If order size is a significant portion of the market volume, client order may create market impact > If order is held or rejected, client might miss prints.	> Change order to longer duration > Use a volume cap > Use a tight limit price
> Order size is too large relative to current market volume	> May create market impact	> Use a volume cap > Use a tight limit price

# TWAP

Trade at an even pace over a period of time

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; Aim to execute trade evenly over a specified time period</li> <li>&gt; To spread execution equally over a specified time period, not based on volume</li> <li>&gt; For markets without predictable volume distribution</li> </ul>	<ul style="list-style-type: none"> <li>&gt; For high conviction orders</li> <li>&gt; If concerned with paying the spread</li> </ul>

## Applicable Products

Cash Equity, Listed Derivatives

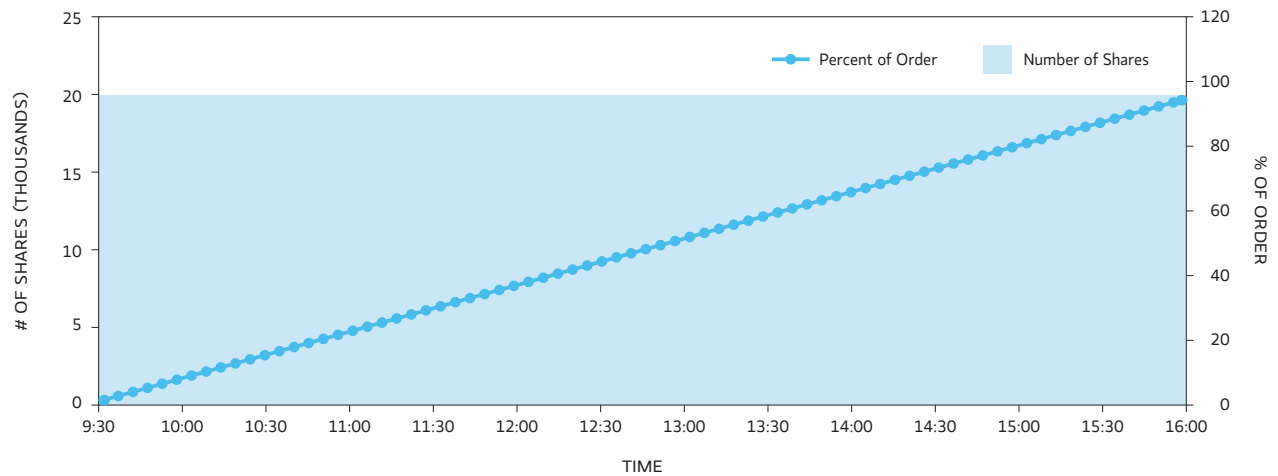
## Parameters

% of Volume	Allow traders to limit volume participation based on an Intraday Volume Prediction
I Would Lit/Dark (cash equity only)	Enable orders to execute in lit and/or dark at a specified price or better. Dark liquidity interaction is configured per client request.
Duration	<ul style="list-style-type: none"> <li>&gt; By default participate in opening auction (cash equity only), but the trader can opt out. Specific settings for closing auction (cash equity only) per client request.</li> <li>&gt; Can be traded as full day order or as any interval</li> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation based on fixed-time weighting (i.e. shorter duration will have larger weighting)</li> </ul>
Urgency	Higher urgency tracks the target trajectory more closely
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will interact with high-touch desks.
Relative Price Limit (cash only)	Adjust price limit in-line with index/sector move

## Trading Behaviors

Aim to Finish	The order is expected to complete just before End Time. The exact completion time varies by security, exchange, and market dynamics.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.

### TWAP Trading Trajectory vs. Schedule



### Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDATION
> Order duration is too short relative to order size	> If order size is a significant portion of the market volume, client order may create market impact > If order is held or rejected, client might miss prints.	> Change order to longer duration > Use a volume cap > Use a tight limit price
> Order size is too large relative to current market volume	> May create market impact	> Use a volume cap > Use a tight limit price

# Arrival Price

Minimize impact relative to the mid-point price at the instant just prior to commencing the order

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; Benchmark an order against the mid-point price when it enters the market (arrival price), tracking a trajectory that balances the trade-off between market impact and execution risk</li> <li>&gt; Aim to finish the order</li> <li>&gt; For stocks with a regular trading pattern</li> <li>&gt; For high conviction orders</li> </ul>	<ul style="list-style-type: none"> <li>&gt; If trading an illiquid stock</li> <li>&gt; On days where there is high volatility and/or volume distribution is uncertain</li> </ul>

## Applicable Products

Cash Equity, Listed Derivatives

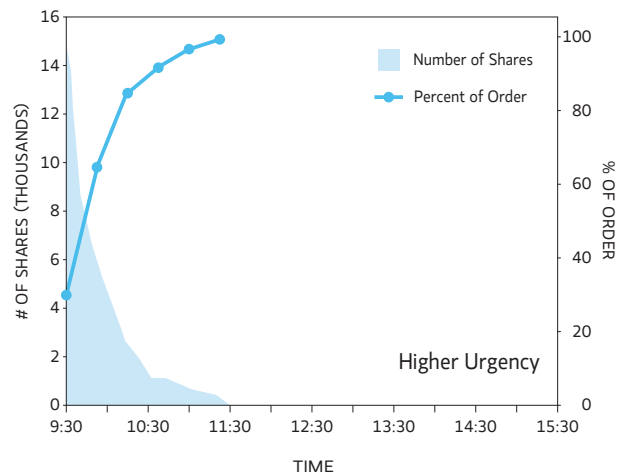
## Parameters

% of Volume	Allow traders to limit volume participation based on an Intraday Volume Prediction
I Would Lit/Dark (cash equity only)	Enable orders to execute in lit and/or dark venues at a specified price or better. Dark liquidity interaction is configured per client request.
Duration	<ul style="list-style-type: none"> <li>&gt; By default participate in opening auction (cash equity only), but the trader can opt out. Specific settings for closing auction (cash equity only) per client request.</li> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation based on predicted volume distribution</li> </ul>
Urgency	Higher urgency creates a more front-loaded trajectory
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks.
Volume prediction model adjustments (cash only)	<ul style="list-style-type: none"> <li>&gt; Trading trajectory is created based on an Multi-Factor Volume Profile model ("System Fit")</li> <li>&gt; Incorporate effects of special event days: Quarter/month end days, future/option expiry days, and index rebalance days</li> </ul>
Scaling	Ability to reschedule the algorithm to a higher/lower urgency trajectory if the stock performance is good/bad when compared with arrival price

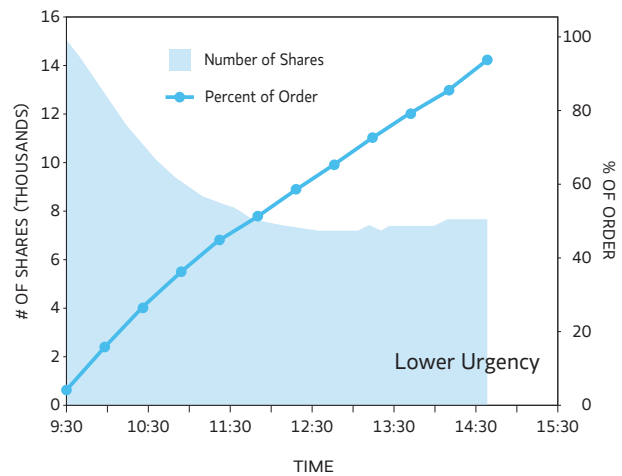
## Trading Behaviors

Aim to Finish	Orders may complete before the end time. The exact completion time varies by security, exchange, and market dynamics.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.

**Arrival Price Higher Urgency Trading Trajectory vs. Schedule**



**Arrival Price Lower Urgency Trading Trajectory vs. Schedule**



### Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDIATION
> Order duration is too short relative to order size	> If order size is a significant portion of the market volume, client order may create market impact > If order is held or rejected, client might miss prints.	> Change order to longer duration > Use a volume cap > Use a tight limit price
> Order size is too large relative to current market volume	> May create market impact	> Use a volume cap > Use a tight limit price



# Close

Minimize impact relative to current day's closing price

## Trading Characteristics

### WHEN TO USE

- > Benchmark an order against the close price, tracking a trajectory that balances the trade-off between market impact and execution risk
- > Incorporate effects of recurring major event days, such as index rebalance days

### WHEN TO AVOID

- > If trading an illiquid stock
- > On days where there is high volatility and/or volume distribution is uncertain

## Applicable Products

Cash Equity, Listed Derivatives

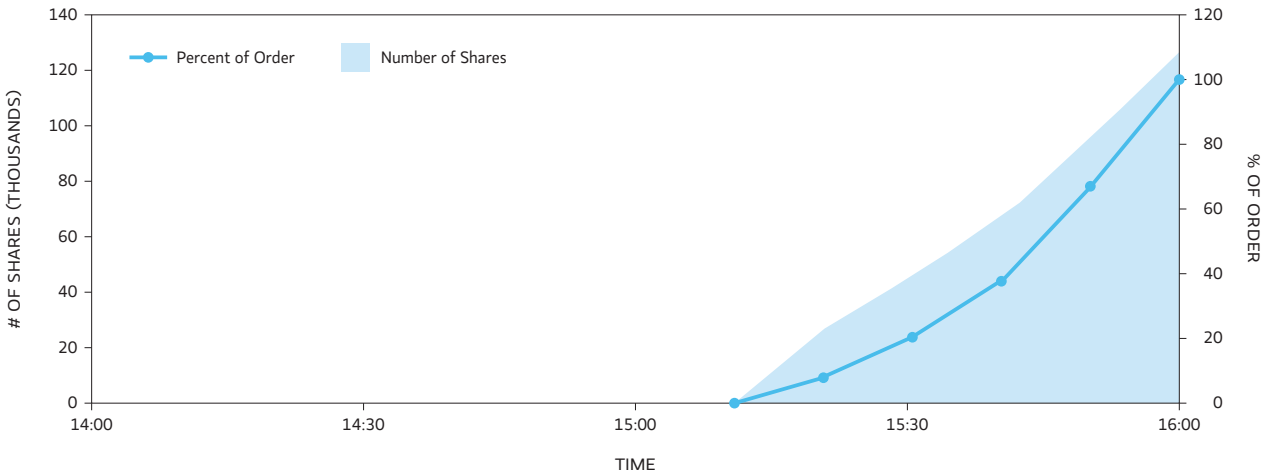
## Parameters

Duration	<ul style="list-style-type: none"> <li>&gt; The Close strategy determines the optimal time to begin trading order based on order size, the urgency level, historical volume patterns, and the current day's trading activity</li> <li>&gt; Start Time can be selected</li> <li>&gt; Auction participation based on predicted volume distribution</li> </ul>
Urgency	<ul style="list-style-type: none"> <li>&gt; The higher the urgency level, the more quantity placed in the closing auction</li> <li>&gt; Ultra High urgency puts the entire order in the closing auction where available</li> </ul>
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks.
Volume prediction model adjustments (cash equity only)	<ul style="list-style-type: none"> <li>&gt; Trading trajectory is created based on an Multi-Factor Volume Profile model ("System Fit")</li> <li>&gt; Incorporate effects of special event days: Quarter/month end days, future/option expiry days, and index rebalance days</li> </ul>

## Trading Behaviors

Aim to Finish	The order is expected to complete just before End Time or in the closing auction where applicable. The exact completion time varies by security, exchange, and market dynamics.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.

Close Trading Trajectory vs. Schedule



Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDIATION
> Order urgency is too high relative to its size	> May create significant impact in the close	> Use a lower urgency level

# Target Percentage of Volume (TPOV, Volume in Line)

Trade at a specific percentage of market volume or scale participation rates based on the stock's price

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; For large orders where the goal is to participate with volume</li> <li>&gt; Use Scaling, to alter participation level depending on where the market is trading between two price points</li> </ul>	<ul style="list-style-type: none"> <li>&gt; When trading illiquid stocks, the strategy may pay the spread in order to keep in line with the traded volume</li> <li>&gt; When approaching market close or end time and must complete order</li> </ul>

## Applicable Products

Cash Equity, Listed Derivatives

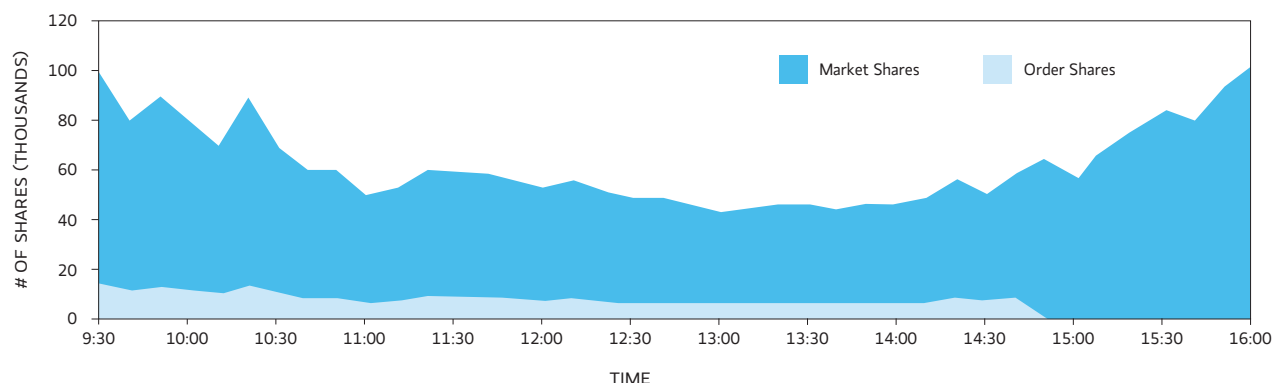
## Parameters

Target % of Volume	Specify a volume participation target
I Would Lit/Dark (cash equity only)	Enable orders to execute in lit and/or dark at a specified price or better. Dark liquidity interaction is configured per client request.
Duration	<ul style="list-style-type: none"> <li>&gt; Configure opening and closing auction (cash equity only) participation where available</li> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation based on realtime auction matching volume where available, and historical where not</li> </ul>
Scaling	The user can select upper and lower price points and associated target participation rates. TPOV will scale participation rates between those prices and participation rates.
Opt-In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks.
Urgency	Higher urgency tracks the target volume more closely
Relative Price Limit (cash only)	Adjust price limit in-line with index/sector move
Volume prediction model adjustments (cash equity only)	<ul style="list-style-type: none"> <li>&gt; Trading trajectory is created based on an Multi-Factor Volume Profile model ("System Fit")</li> <li>&gt; Incorporate effects of special event days: Quarter/month end days, future/option expiry days, and index rebalance days</li> </ul>

## Trading Behaviors

Aim to Finish	The order is not guaranteed to complete. It will complete as quickly as market volume permits. At end time, the order will be canceled if it is not complete. Can finish execution before end time or market close.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.

### TPOV Trading Trajectory vs. Schedule



### Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDATION
<ul style="list-style-type: none"> <li>&gt; The percentage of volume is large</li> <li>&gt; Trading illiquid markets (e.g. wide spread, infrequent prints, low average daily volume)</li> <li>&gt; Setting higher urgency</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The strategy may pay the spread in order to keep up with the traded volume. Client may participate at potentially disadvantageous prices.</li> <li>&gt; The order may be held or rejected. Client may miss prints.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Use lower percentage of volume and/or tighter limit price</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Trading a stock with sporadic volume (may have volume spike)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The strategy may pay the spread in order to keep up with the traded volume. Client may participate at potentially disadvantageous prices.</li> <li>&gt; The order may be held or rejected. Client may miss prints.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Use tighter limit price</li> <li>&gt; Consider using scheduled algorithms</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Percentage of volume is too small</li> <li>&gt; Order duration is too short</li> </ul>	<ul style="list-style-type: none"> <li>&gt; May not complete execution</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Consider using scheduled algorithms</li> <li>&gt; Use higher percentage of volume</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Submit multiple TPOV orders in the same name and on the same side.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Multiple TPOV orders compete with one another for liquidity. Client may participate at potentially disadvantageous prices.</li> <li>&gt; The market impact will be the sum of all percentage of volume for the stock traded</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Combine orders and use a suitable target percentage of volume for one order.</li> </ul>

# Dynamic

Switch between a higher and lower participation rate based on the stock's price relative to benchmark

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; For large orders where the goal is to participate with volume</li> <li>&gt; To alter participation level depending on where the market is trading relative to a dynamic reference price</li> </ul>	<ul style="list-style-type: none"> <li>&gt; When trading illiquid stocks, the strategy may pay the spread in order to keep in line with the traded volume</li> <li>&gt; When approaching market close or end time and must complete order</li> </ul>

## Applicable Products

Cash Equity, Listed Derivatives

## Parameters

I Would Lit/Dark (cash equity only)	Enable orders to execute in lit and/or dark at a specified price or better. Dark liquidity interaction is configured per client request.
Duration	<ul style="list-style-type: none"> <li>&gt; Configure opening and closing auction (cash equity only) participation where available</li> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation based on realtime auction matching volume where available, and historical where not. The participation rate is at the mid-point of the two volume targets where no valid reference is available</li> </ul>
Lower/Upper % of Volume	The user can switch between a specific higher and lower participation rate based on the stock's price relative to a dynamic scaling reference price.
Scaling Reference Price	The dynamic scaling reference price can be day VWAP, interval VWAP, arrival price, average price, absolute price, open and previous close
Urgency	Higher urgency tracks the target trajectory more closely
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks.
Relative Price Limit (cash only)	Adjust price limit in-line with index/sector move

## Trading Behaviors

Aim to Finish	The order is not guaranteed to complete. It will complete as quickly as market volume permits. At end time, the order will be canceled if it is not complete. Can finish execution before end time or market close.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.

**Potential Market Impact and Risks to Market Integrity**

SCENARIO	CONSEQUENCES	REMEDIATION
<ul style="list-style-type: none"> <li>&gt; The percentage of volume is large</li> <li>&gt; Trading illiquid markets (e.g. wide spread, infrequent prints, low average daily volume)</li> <li>&gt; Setting higher urgency</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The strategy may pay the spread in order to keep up with the traded volume. Client may participate at potentially disadvantageous prices.</li> <li>&gt; The order may be held or rejected. Client may miss prints.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Use lower percentage of volume and/or tighter limit price</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Trading a stock with sporadic volume (may have volume spike)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; The strategy may pay the spread in order to keep up with the traded volume. Client may participate at potentially disadvantageous prices.</li> <li>&gt; The order may be held or rejected. Client may miss prints.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Use tighter limit price</li> <li>&gt; Consider using scheduled algorithms</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Percentage of volume is too small</li> <li>&gt; Order duration is too short</li> </ul>	<ul style="list-style-type: none"> <li>&gt; May not complete execution</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Consider using scheduled algorithms</li> <li>&gt; Use higher percentage of volume</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Submit multiple Dynamic orders in the same name and on the same side</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Multiple Dynamic orders compete with one another for liquidity. Client may participate at potentially disadvantageous prices.</li> <li>&gt; The market impact will be the sum of all percentage of volume for the stock traded.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Combine orders and use a suitable target percentage of volume for one order</li> </ul>

# NightVision (Dark Access)

Access dark-only liquidity

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; To access dark-only liquidity in external/internal dark venues</li> <li>&gt; Potentially improve execution price</li> <li>&gt; To minimize pre-trade information leakage (does not display quotes)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; When you want to participate in lit markets</li> <li>&gt; Need to complete</li> <li>&gt; When execution certainty is more important than market impact or timing risk</li> </ul>

## Applicable Products

Cash Equity

## Algorithm Parameters

Duration	> Both Start Time and End Time can be selected
Minimum Quantity	A minimum execution quantity can be selected where supported
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will interact with high-touch desks.
Smart Order Router Technology (SORT)	NightVision flow does not interact with Smart Order Router
Relative Price Limit (cash only)	Adjust price limit in-line with index/sector move
Mid or Better	Can enable client to only execute mid or better per client request

## Trading Behaviors

Aim to Finish	The order is not guaranteed to complete. It will complete as quickly as dark volume permits. Can finish execution before end time or market close. At end time, the order will be cancelled if it is not complete.
Dark Venue Posting	Distribute orders across internal/external venues accordingly to maximize liquidity access

## Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDIATION
> Order size is much larger than average and/or current touch sizes on the exchange(s)	> Potentially to get fully filled at an adverse price resulting in post-trade reversion.	> Use suitable pegging instruction and tight limit price

# NightOwl

Seek liquidity aggressively in both lit and dark venues while optimizing liquidity versus impact cost

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; To seek liquidity aggressively in both lit and dark venues with a tight limit or an illiquid stock</li> <li>&gt; Want to take a view on stock price</li> <li>&gt; To control the speed of execution through urgency levels</li> </ul>	<ul style="list-style-type: none"> <li>&gt; For low conviction orders</li> <li>&gt; Want to participate passively</li> </ul>

## Applicable Products

Cash Equity

## Parameters

Urgency Level	<ul style="list-style-type: none"> <li>&gt; Ultra-Low: Capture liquidity at the far touch when the far touch becomes small relative to the near touch</li> <li>&gt; Low: Capture when spread is narrow but do not take all the liquidity at the far touch price</li> <li>&gt; Medium: Less sensitive to spread cost but do not take all at the far touch price</li> <li>&gt; High: Capture more levels with a lower wait period</li> <li>&gt; Ultra-High: Capture most aggressively with minimal wait period</li> <li>&gt; Ultra-Low, Low, and Medium allow both limit orders and market orders</li> <li>&gt; High and Ultra-High limit orders only</li> </ul>
Minimum Quantity	A minimum lit capture quantity can be selected
Display Quantity	Can specify a particular display quantity to not expose full order size; if not selected NightOwl uses an randomized quantity based on the current order book
Duration	<ul style="list-style-type: none"> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation up to POV limit or an appropriate percentage of the predicted volume</li> </ul>
% of Volume	Allow traders to limit volume participation (does not apply to order balance posted in the dark)
Post	If "Post = Yes," client order will post on the passive side. Must select "Post = Yes" when shortselling in markets with uptick rule
Relative Price Limit (cash only)	Adjust price limit in-line with index/sector move
Opt-In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks

## Trading Behaviors

Aim to Finish	The order is not guaranteed to complete. It will complete as quickly as market volume permits. At end time, the order will be canceled if it is not complete. Can finish execution before end time or market close.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.



### Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDICATION
> Set urgency level to High or Ultra High with an aggressive limit price	> NightOwl order may create significant market impact	> Change limit price to less aggressive level > Change urgency to lower level > Use a low maximum percentage of volume
> Use a market order	> NightOwl order may create significant market impact	> Add a tight limit > Use a low maximum percentage of volume
> Order size is much larger than average and/or current touch sizes on the exchange(s)	> Potentially to get fully filled at an adverse price resulting in post-trade reversion	> Use suitable pegging instruction and tight limit price

# Discretionary

Specify the size and price to post passively and to capture far-side liquidity aggressively

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; To seek liquidity aggressively with a tight limit or an illiquid stock</li> <li>&gt; Want to take a view on stock price</li> <li>&gt; To control the speed of execution through posting display quantity and capture quantity</li> </ul>	<ul style="list-style-type: none"> <li>&gt; For low conviction orders</li> <li>&gt; Want to participate passively</li> </ul>

## Applicable Products

Cash Equity, Applicable to Limited Clients on Legacy Infrastructure

## Parameters

Limit Price	The ultimate limit price that the algorithm will capture at; mandatory parameter
Maximum quantity percentage	The largest amount that the algorithm will capture as a percentage of the far side liquidity. If maximum quantity percentage is not selected, the algorithm will capture the entire far side liquidity up to the pocket quantity
Discretionary Price	The price at which the algorithm will capture at the maximum quantity percentage of the far side liquidity; more passive than Ultimate Price
Minimum Capture Quantity	The minimum amount that the algorithm will capture on the far side
Display Price	The price that the portion of an order is posted on the passive side; more passive than Limit Price
Display Size	The quantity posted on the passive side at Display Price to not expose full order size. If a display price is selected, the algo will participate in auctions with the quantity specified
Duration	Both Start Time and End Time can be selected
Random Time Delay	The breathing period that the engine will wait before slicing out again on the passive side or aggressive side of the order book
Percent Of Volume	The maximum percentage of the total order that can be executed on the far side
Relative Price Limit (cash only)	Adjust price limit in-line with index/sector move
Opt-In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks

## Trading Behaviors

Aim to Finish	The order is not guaranteed to complete. It will complete as quickly as market volume permits. At end time, the order will be canceled if it is not complete. Can finish execution before end time or market close.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.
Passive posting	If client selects display price and display quantity, the algorithm will post at such price and with such quantity on the passive side; if display price and display quantity are not selected, the algorithm will not post
Capturing	If discretionary price is selected, the algorithm will capture at the discretionary price until the maximum quantity percentage if selected; if discretionary price is not selected, the algorithm will capture until prices reaches the ultimate limit price

### Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDATION
> Set an aggressive discretionary price	> May create significant market impact	> Change discretionary price to less aggressive level > Use a low maximum percentage of volume > Add a tight limit
> Display size is much larger than average and/or current touch sizes to the market(s)	> May create significant market impact	> Use suitable display quantity and tight limit price

# Pegged

Post based on peg instructions and optionally capture

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; To maximize spread capture</li> <li>&gt; To float on the offer when short selling in markets with uptick rule</li> <li>&gt; If the market is illiquid</li> <li>&gt; Minimize market impact</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Want to complete execution</li> <li>&gt; When the name has a long queue</li> </ul>

## Applicable Products

Cash Equity, Listed Derivatives

## Parameters

% of Volume	Allow traders to limit volume participation (may not complete)
Capture	Option to capture far side liquidity when order book imbalance shifts against order
Peg Price	Must specify pegged price level. This will limit the PEGGED algorithm from placing orders in the order book beyond the Peg Price (e.g., relative to the mid, near or far side of the order book.)
Urgency	Optional ability to choose a behavior that will: peg to near (LOW), peg to mid (MEDIUM), peg to 1 tick less aggressive than the far (HIGH), peg to near while capturing/taking the far touch when it is likely to disappear but limiting impact (ULTRAHIGH); if not specified, PEGGED will peg to the near price only
Display Size Quantity	Specify a particular quantity to show in the order book to limit impact; if not specified, PEGGED limits impact by using an optimal quantity to place in the order book
Duration	<ul style="list-style-type: none"> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation up to POV limit or an appropriate percentage of the predicted volume</li> </ul>
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks.

## Trading Behaviors

Aim to Finish	The order is not guaranteed to complete. At end time, the order will be canceled if it is not complete. Can finish execution before end time or market close.
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.

## Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDATION
> Peg to passive price when order books has a long queue	> May not complete execution	> Change pegged price to a more aggressive level
> Display quantity is too large compared to the average touch size	> May create market impact	> Use a suitable display quantity

# Capture

Maximize passive execution while retain discretion to cross the spread

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; To work an order on the bid or offer with the discretion to cross the spread if there is a significant change to the far side of the order book</li> <li>&gt; Capture will be aimed at trading contracts with low volatility, and high bid/offer sizes e.g. Bonds and Interest Rate futures as well as Spreads</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Markets with low bid/ask sizes, high volatile contracts</li> </ul>

## Applicable Products

Listed Derivatives

## Parameters

Capture Trigger	Capture the far size and far price, if the far price is within the order limit. When we send the capture slice, we will be sending IOC order type to avoid creating new price level.
Capture Price	Expressed relative to the far price in terms of ticks. When this is specified, capture will only run when the far price is within the capture price. I.E. Capture Price = 2 (Capture mechanism for far side is taken only if the spread $\leq$ 2 ticks wide)
Urgency	(Low) Remain as passive as possible when prices changes; (High) will capture on price improvements
Display Size Quantity	A display slice on the near side can be posted during the entire life time of the order, based on display size (Relative % /Absolute) and display price parameters provided.
Duration	> Start Time and End Time can be selected

## Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDIATION
> High order book volatility	> May not complete execution	> Consider using liquidity seeking algorithms such as FuturesOwl.

# SORTDMA (Smart Order Routing Technology)

Directly access primary exchange and alternative liquidity sources

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; To directly access primary exchange and alternative liquidity sources and seek markets with the best price</li> <li>&gt; To post a passive order on the primary exchange and/or alternative venues</li> </ul>	<ul style="list-style-type: none"> <li>&gt; For large size orders</li> <li>&gt; When orders are required to be split up</li> </ul>

## Applicable Products

Cash Equity, Listed Derivatives

## Parameters

Duration	<ul style="list-style-type: none"> <li>&gt; Both Start Time and End Time can be selected as well as a specific duration such as "Now plus 30 minutes"</li> <li>&gt; Auction participation will route to the Primary venue only</li> </ul>
Order type	SORT engine supports IOC, MOO, MOC, LOO, LOC, stop, stop limit order type
Oversized order	SORT engine may send oversized orders in markets where hidden/iceberg orders may exist
Display Quantity	Specify a particular quantity to show in the order book to limit impact; if not specified, SORTDMA places the entire order quantity in the order book
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks.

## Trading Behaviors

When order is marketable	Aggressively-priced orders are sent first to the venue with the best price. If two or more exchange/lit venues offer the best price for an aggressive order, MSET's routing logic is adjusted based on our estimation of probability of fill and cost.
When order is not marketable	Post passive orders on the primary exchange and/or alternative venues where eligible unless otherwise instructed by the client. When the order becomes marketable on venue different to where the passive quotes are currently being displayed, the passive slices are cancelled and routed to the exchange where marketable
Smart Order Router Technology (SORT)	<p>A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors. Passive posting, consolidated price and volume tracking are configurable. The default setups for specific countries are as below:</p> <ul style="list-style-type: none"> <li>&gt; Japan: Access SBI Japannext, Chi-X Japan, and TSE</li> <li>&gt; Australia: Access ASX, ASX Centre Point, and Chi-X Australia</li> <li>&gt; India: Access NSE and BSE</li> <li>&gt; Thailand: Access the local and foreign board.</li> </ul>

## Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDATION
<ul style="list-style-type: none"> <li>&gt; Order size is much larger than average and/or current sizes on the exchange(s)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; If the order is a market order, may create high impact</li> <li>&gt; If the order has a passive limit price, may result in signaling risk</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Use a rule-based or schedule-based algorithm (consult with your MSET coverage)</li> <li>&gt; Set a smaller iceberg (display) quantity</li> </ul>

# Algorithm Manager

Switch between strategies based on price, time or liquidity

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; Start the order in one algorithm and switch to a different algorithm and/or setting depending on current market conditions, time or quantity executed</li> <li>&gt; Automate strategy switch based on time, quantity filled, price change, and liquidity change</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Only want to use one strategy to execute</li> </ul>

## Applicable Products

Cash Equity, Listed Derivatives

## Parameters

Strategy 1 and 2	Indicate the two execution strategies (e.g., VWAP, NightOwl, Arrival Price, Pegged, etc.) and their respective urgency, price, and maximum percentage of volume; please reference the relevant section of training material for further detail on the behavior of each strategy
Switching conditions	> Can be set to use: last price (abs=absolute price or bps=basis points), far price(abs=absolute price or bps=basis points), quantity complete (abs=absolute shares or %=percentage of order), far side quantity(abs=absolute shares or %=percentage of order), or minutes from end time
Switch direction	This specifies whether the switching condition will be evaluated as ">=" or "<="
Smart Order Router Technology (SORT)	A smart direct market access router that seeks liquidity in both primary exchange and alternative venues and handles specific exchange behaviors.
Opt In (cash equity only)	When client selects "Opt In = Yes," MSET order will interact with high-touch desks.
Duration	<ul style="list-style-type: none"> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation will depend upon the algo selected. Algorithm Manager will not toggle between Strategies during Auctions</li> </ul>

## Potential Market Impact and Risks to Market Integrity

SCENARIO	CONSEQUENCES	REMEDIATION
<ul style="list-style-type: none"> <li>&gt; Select inappropriate or incorrect switch condition</li> <li>&gt; Mis-specify the switch level and/or switch direction</li> </ul>	<ul style="list-style-type: none"> <li>&gt; May switch to an aggressive or passive algorithm setting at an unintended point in the order, causing unexpected market impact</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Use tight limit prices</li> <li>&gt; Use low % of volume caps</li> <li>&gt; Create standardized default settings to simplify order entry</li> </ul>

# MS Port

Trade a basket while balancing risk and cash

## Trading Characteristics

WHEN TO USE	WHEN TO AVOID
<ul style="list-style-type: none"> <li>&gt; To balance market impact and execution Risk or Cash balance at the portfolio level</li> <li>&gt; For baskets with diverse names</li> <li>&gt; Trade multiple asset classes</li> <li>&gt; Manage large two-sided list in a systematic, Risk Reduced or Cash balanced approach</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Want to control individual stock trading schedules</li> <li>&gt; When market volumes are deviating drastically from historical distribution</li> <li>&gt; When there is high volatility in the market</li> </ul>

## Applicable Products

Cash Equity

## Parameters

<b>Risk or Cash Balance</b>	Risk balance will schedule trajectories to reduce volatility of the basket; Cash balance will schedule trajectories to limit deviation from buy and sell notional constraints
<b>% of Volume</b>	Allow traders to limit volume participation of individual stock (may not complete)
<b>Duration</b>	<ul style="list-style-type: none"> <li>&gt; By default participate in opening auction (cash equity only), but the trader can opt out. Specific settings for closing auction (cash equity only) per client request.</li> <li>&gt; Can be traded as full day order or as any interval</li> <li>&gt; Start Time and End Time can be selected</li> <li>&gt; Auction participation based on realtime auction matching volume where available, and historical where not</li> </ul>
<b>Urgency</b>	Higher urgency creates a more front-loaded trajectory so that more of the order will finish earlier
<b>Opt In (cash equity only)</b>	When client selects "Opt In = Yes," MSET order will be visible to high-touch desks.
<b>Relative Price Limit (cash only)</b>	Adjust price limit in-line with index/sector move

## Trading Behaviors

<b>Volume prediction model adjustments (cash equity only)</b>	<ul style="list-style-type: none"> <li>&gt; Trading trajectory is created based on an Multi-Factor Volume Profile model ("System Fit")</li> <li>&gt; Incorporate effects of special event days: Quarter/month end days, future/option expiry days, and index rebalance days</li> </ul>
<b>Aim to Finish</b>	The order is expected to complete just before End Time. A few minutes before the End Time, it will try to finish by crossing the spread with either market orders or limit orders. The exact completion time varies by security, exchange, and market dynamics.
<b>Risk Balance</b>	Seek to complete
<b>Cash Balance</b>	May not complete



**Potential Market Impact and Risks to Market Integrity**

SCENARIO	CONSEQUENCES	REMEDIATION
> Some stocks trade more quickly to reduce the overall volatility of the basket	> May cause price impact	> Use tight limits > Use low % volume caps > Use Morgan Stanley Analytics (MSA) pre-trade tools to check individual stock schedules in advance

## MSET Risk Checks

Morgan Stanley's risk check tools allow for a level of defense against trading errors through our comprehensive suite of real-time pre- and intra-trade price impact limit checks that allow for the prevention or suspension of trading of orders that exceed specified conditions.

### Pre-order Entry Checks

- > Help prevent errors or orders that exceed certain limits from being routed to the market
- > Includes single order and aggregate limits
- > Single order limit checks include: order quantity, value, liquidity, price away and reject market order logic
- > Aggregate limit checks consist of cumulative value, net value, number of orders and quantity
- > Both soft and hard limits are available for single orders. Soft limits suspend orders for review while hard limits reject orders directly if the applicable threshold is exceeded
- > Both aggressive and passive limits are available for single orders

#### Limits can be customized according to:

- |  |  |
|--|--|
| > Trader                                 | > Price range  |
| > Account                                | > Issue type (e.g., equities, options, futures, swaps) |
| > Symbol                                 | > Product type (e.g., ETF, ADR, FUND, WARRANT, etc.)   |
| > Destination                            |  |
| > Region                                 |  |
| > Exchange                               |  |
| > Benchmark / Strategy                   |  |
| > Order type<br>(i.e., market vs. limit) |  |

### Intra-trade Price Impact Checks

- > Designed to suspend orders trading in algorithms based on specified price movements
- > Once suspended, your MSET account manager has the ability to release these orders to resume trading, or cancel them

### MS Watch : Added Protection

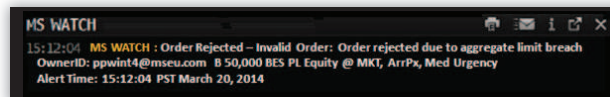
MS Watch offers real-time alert notifications for orders trading electronically.

Notifications for which you are subscribed to will alert you to potentially important changes in your order's status, or to changes in the market that impact the names you are trading.

Alerts are available through Bloomberg chat room, Instant Messenger, or email.

Alerts for Passport orders can also be delivered through the Passport front end.

#### Bloomberg chatroom screenshot



# Market Circuit Breaker Information

## Australia

- > ASX Anomalous Order
- > Thresholds triggered for orders above/below a dynamic reference price.
- > Market operators must identify and cancel executed transactions within the Extreme Cancellation Range as prescribed by ASIC.

## India

- > 10% move of either index (Sensex/Nifty), 1hr halt if before 1 p.m. At or after 1 pm but before 2:30 p.m., halt for ½ hour. No halt at or after 2:30 p.m.
- > 15% move, 2hr halt before 1 p.m. 1hr halt on or after 1 p.m. but before 2 p.m. After 2 p.m., halt for rest of the day.
- > 20% move, halt for the rest of the day.

## Japan

- > SGX N225 futures  $\pm 22\%$  move from previous close price
- > OSE has a 2,000 points absolute limit

## Korea

- > Drop of 10% for 1 minute or longer triggers circuit breakers (once only in a day) for 20 minutes. Trading resumes by periodic call auction.
- > Sidecar – 5 minute suspension for Program trading (5% move in futures)
- > Suspensions resume during the last 40 minutes before close.

## China

For IPO shares on the first trading day, when stock price beyond  $\pm 10\%$  of the opening price for the first time, suspended for 30 min (but the suspension not impact the trading in last 5 mins in SSE and last 3 min in SZSE)

## Indonesia

- > First stage: If the IDX composite index falls by 10% from the previous day's close, all trading in listed securities will be halted for 30 minutes.
- > Second stage: If the index falls by 15% from the previous day's close (i.e. another 5%), trading in all listed securities will be suspended until the closing time of that session, or more (given the approval by Bapepam)

## Malaysia

- > 10%, 15% and 20 declines in the FTSE based Composite Index (FBM KLCI). For further details, please check <http://www.bursamalaysia.com/market/securities/equities/trading/circuit-breaker/>

## Thailand

- > First stage: SET index falls by 10% from the previous close triggers 30 minutes trading halt.
- > Second stage: ISET index falls by 20% from the previous close (i.e., another 10%), triggers 60 minutes trading halt.
- > If the trading time left in a session is less than 30 minutes, or one hour (as the case may be) after the circuit breaker comes into effect, trading will be halted for the session and resume in the next session.

## Philippines

- > PSEi decreases by at least 10% compared to previous closing level.
- > Trading will resume within 15 minutes after a circuit breaker is discharged.
- > Market Halt due to the breach of the circuit breaker shall be implemented only once in a Trading Day.
- > A circuit breaker will not be triggered 30 min before Market Close.

## Listed Derivatives

- > SFE: There are no predefined circuit breakers in place for SFE products
- > HKFE: There are no predefined circuit breakers in place for HKFE products
- > OSE: <http://www.ose.or.jp/e/derivative/5378>
- > TSE: <http://www.tse.or.jp/english/rules/derivatives/topixf/spec.html>  
<http://www.tse.or.jp/english/rules/derivatives/jgbf/spec.html>
- > KRX: [http://eng.krx.co.kr/m3/m3\\_3/m3\\_3\\_1/m3\\_3\\_1\\_1/UHPENG03003\\_01\\_01.html](http://eng.krx.co.kr/m3/m3_3/m3_3_1/m3_3_1_1/UHPENG03003_01_01.html)
- > TFX: Circuit breaker or Market halt of futures will follow that of the cash SET50 index [http://www.set.or.th/en/products/trading/equity/tradingsystem\\_p8.html](http://www.set.or.th/en/products/trading/equity/tradingsystem_p8.html)
- > SGX: <http://sgx.com/wps/portal/sgxweb/home/products/derivatives/equity>
- > TAIFEX: There are no predefined circuit breakers in place for TAIFEX products
- > TOCOM: <http://www.tocom.or.jp/guide/cb/index.html>

# Individual Stock Daily Limit Up/Down Information

## India

±2%, ±5%, ±10% or ±20% Exchanges imposes dynamic price band of 10% in securities where there is no price band

## Japan

- > Special Quotes on imbalance
- > Static amount at different price levels  
(see [http://www.tse.or.jp/english/faq/list/stockprice/p\\_g.html](http://www.tse.or.jp/english/faq/list/stockprice/p_g.html))
- > Ranges from +/- 10% to 30%

## Korea

±15% from previous close per stock intraday

## Singapore

- > Circuit breaker triggers 5 minute cooling-off period if orders causes trade 10% away from dynamic reference price

## Taiwan

- > ±3.5% move – matching suspended for 2 to 3 mins
- > Limit high/low lockup at ±7% move from prev close price
- > No price limit for first 5 trading days of new issue

## China

- > Daily Price ±10% from previous closing price for normal stock (±5% for stocks under “special treatment”)
- > For stocks without daily up/down limit, ±10% of best offer/bid in Continuous Auction and within 50% - 200% of Previous Closing price in Opening/Closing Auction
- > For IPO stocks, ±20% of the public offering price in the Opening; Collectively Auction; 64%-144% of public offering price in the Continuous Auction and SZSE closing auction
- > For stock connect, buy orders with input prices lower than 3% the current best bid (or last traded price in the absence of current best bid, or previous closing price in the absence of both) will be rejected

## Indonesia

- > < Rp 200 (Min IDR50) +/- 35% from prev close
- > Rp 200 – 5,000 +/- 25% from prev close
- > > Rp 5,000 +/- 20% from prev close
- > For LQ45 names, limits up and down apply during pre-open auction, then becomes the price reference of the continuous trading limit up and down

## Malaysia

- > The fluctuation limit for individual stocks is 30% of the reference price in a single trading session
- > The reference price of a stock is normally the closing price of the stock on the preceding market day
- > For stocks where the reference price is below RM1, the limit of the fluctuation is set at 30 sen (RM1 = 100 sen)

## Thailand

- > The SET allow prices of a stock traded on the Exchange to fluctuate within a range of 30 percent of the previous closing price on the local stock. However, if the calculated daily price limit is less than ±1 Price spread, stock prices may fluctuate within a range of ±1 Price spread.
- > The price limit on foreign shares can be within a range of 60 percent of the previous closing price of the local shares

## Philippines

- > +50% of the previous day's Reference or Closing Price or the Last Adjusted Closing Price







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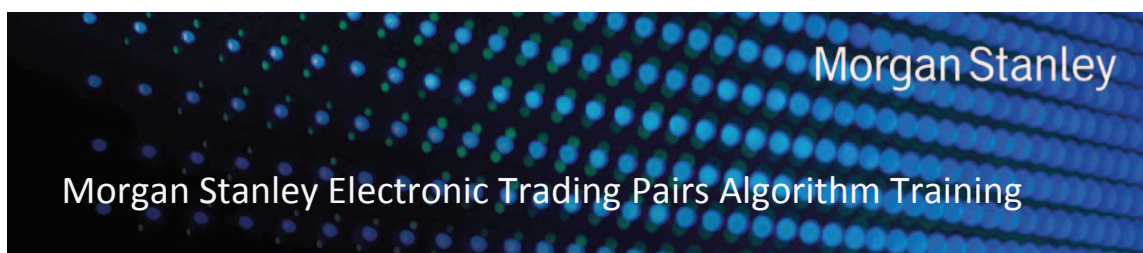
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# Morgan Stanley





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**Pairs:**  
**Applicable to Asian Cash Equity and Listed Derivatives**

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• **Trading Characteristics**

When to Use	When to Avoid
<ul style="list-style-type: none"> <li>• Trade two securities based on a function of the spread, ratio or performance spread</li> <li>• Trade merger arbitrage, relative value arbitrage, intra-sector switching, and cash plays across markets or across futures and equities in Asia</li> </ul>	<ul style="list-style-type: none"> <li>• Intend to trade the pair in auction session</li> <li>• Trade in fast moving market where liquidity is scarce where one side can be easily legged</li> </ul>

## Parameters

<b>Pricing Policies</b>	<ul style="list-style-type: none"> <li>Ratio pairs (Buy Price/Sell Price, Sell Price/Buy Price)</li> <li>Cash Switching (Ratio of Notional to be Bought / Sold)</li> <li>Spread pairs (Buy Price-Sell Price, Sell Price-Buy Price)</li> <li>Discount/ Premium Pairs (Buy Price/Sell Price-1, 1-Buy Price/Sell Price)</li> <li>Performance Spread (Performance Buy Price-Performance Sell Price)</li> </ul>
<b>Cash</b>	Cash adjustment associated with both legs/sides of the trade.
<b>Currency</b>	Prices of both legs/sides of the trade are normalized to buy leg currency.
<b>Pairs Limit Price</b>	<p>When a Pairs order becomes marketable, the engine will start sending an initiating clip.</p> <p><i>Note for Cash Switching: The Limit Price is not set by the trader. Instead, the algo will set a limit price at an appropriate % higher (more aggressive) than the mid-point at the time the order is received.</i></p>
<b>Pairs Limit Price Offset (for unlegging only)</b> aka Cover Limit Offset	<p>An offset to adjust the Pairs Limit Price for the hedge leg. Specified in ticks.</p> <p>Each pair of clips may violate Pairs Limit Price.</p>
<b>Auto Unleg</b>	Auto-unleg keeps the overall average price within Pairs Limit Price. An individual clip may execute outside the Pairs Limit Price.
<b>Initiate</b>	Determine which leg will trade first.
<b>Execution Pace</b>	Determine whether to execute whenever Pairs Limit is marketable or over the day (TWAP). Cash Switching will always use TWAP.
<b>Hedge Strategy</b>	<p>Allow unwinding the Hedge Leg in three ways:</p> <ul style="list-style-type: none"> <li>Spread limit: Hedge Leg is priced based on the execution price of the initiating clip and the Pairs Limit Price. (Each pair of clips is executed within Pairs Limit Price).</li> <li>Hedge Work: Initially the same as Spread Limit. When market moves away from the current price of hedge order, engine will automatically re-price more aggressively per configuration to unwind. (Each pair of clips may violate Pairs Limit Price).</li> <li>Market: Hedge leg is always sent out as market order. (maintain net buy/sell balance – Each pair of clips may violate Pairs Limit Price).</li> </ul>
<b>% of Volume</b>	Allow traders to limit volume participation.
<b>Duration</b>	Start Time and End Time can be selected.
<b>Quantity Ratio</b>	<ul style="list-style-type: none"> <li>Allow calculation of the second leg size based on fixed ratio versus the first leg</li> <li>Use to calculate the relative clip size between the two legs/sides of the trade</li> </ul>
<b>Notional</b>	<ul style="list-style-type: none"> <li>Total value to be traded on each leg/side of trade</li> </ul>
<b>Clip Size/Max # of clips</b>	<ul style="list-style-type: none"> <li>If not supplied, the default will be an appropriate percent of the average quote size of both order books</li> <li>The quantity of each slice that the algorithm sends out in each wave</li> <li>Defines the maximum exposure at any one time on the order book</li> </ul>
<b>Clip Interval</b>	The minimum interval time to wait before sending out another clip
<b>Urgency</b>	Use to set pre-defined parameters for Clip Size, unlegging controls, etc. Higher urgency leads to bigger clip size and more aggressive unwinding process

## Trading Considerations

Scenario	Consequences	Remediation
<ul style="list-style-type: none"> <li>Applying incorrect weight or cash adjustment to the Pairs</li> </ul>	<ul style="list-style-type: none"> <li>Can potentially create market impact (Spread collapsing immediately)</li> <li>Can potentially not execute at all, missing trading opportunity</li> </ul>	<ul style="list-style-type: none"> <li>Always create a synthetic quote display to verify the inputted formula</li> </ul>
<ul style="list-style-type: none"> <li>Trading a cross market pairs without a base currency defined</li> </ul>	<ul style="list-style-type: none"> <li>Algorithm will use the Buy leg currency as the base currency to normalize prices</li> <li>Price evaluation will not work as intended</li> </ul>	<ul style="list-style-type: none"> <li>Define a base currency</li> </ul>
<ul style="list-style-type: none"> <li>Intend to trade over the day with a loose pairs limit</li> </ul>	<ul style="list-style-type: none"> <li>Algorithm will execute and can complete earlier if the Pairs Limit Price is marketable</li> </ul>	<ul style="list-style-type: none"> <li>Select TWAP for over the day trading</li> </ul>
<ul style="list-style-type: none"> <li>One leg has a trading limitation (e.g. Buying FOL names, short selling stocks with short sell restrictions), and the initiate leg was not defined</li> </ul>	<ul style="list-style-type: none"> <li>Unwinding leg may be unlegged/closed before the hedge leg is filled</li> </ul>	<ul style="list-style-type: none"> <li>Select the leg with trading limitation as the initiating leg</li> </ul>
<ul style="list-style-type: none"> <li>Intend to trade within Pairs Limit Price only, but HedgeWork or Market is selected as Hedge Strategy</li> </ul>	<ul style="list-style-type: none"> <li>Executions can potentially violate Pairs Limit Price</li> </ul>	<ul style="list-style-type: none"> <li>Select Spread Limit as Hedge Strategy</li> </ul>
<ul style="list-style-type: none"> <li>When using Cash Switching, intend to Balance Sells vs Buys by notional value.</li> </ul>	<ul style="list-style-type: none"> <li>The algo will maintain the quantity ratio of shares on each of the buy and sell legs, regardless of the notional value of each position.</li> </ul>	<ul style="list-style-type: none"> <li>Specify a matched notional value on each of the buy and sell legs</li> </ul>
<ul style="list-style-type: none"> <li>Intend to maintain precise</li> </ul>	<ul style="list-style-type: none"> <li>The algo will price base on the</li> </ul>	<ul style="list-style-type: none"> <li>Hedge the currency as soon</li> </ul>

base currency position	Pairs Limit Price in the base	as possible or specify a
when trading in across	currency at the time of slicing.	tighter limit price to account
currency pairs	An FX movement could occur	for expectations in FX
	after fills are received leaving	movement.
	the pair out of limit in the	
	base currency	

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