

**J.P. Morgan Private Bank Algorithmic Trading Guide  
(U.S. Market)**

A new way to trade in a disruptive era

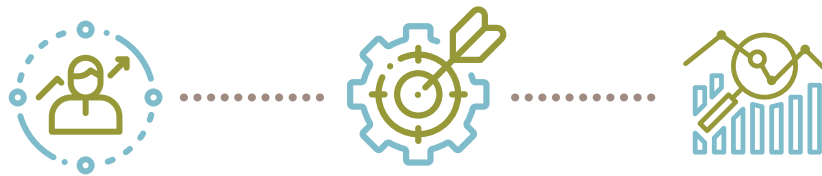


*J.P. Morgan*



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# OVERVIEW



Our strategies are designed with a focus on performance, flexibility and ease of use. Every algorithm is driven by quantitative models that determine the optimal scheduling and order placement logic.

# POV

## Objective

Participate at a user specified percentage of the market volume.

## Trading Behavior

Trade to target a percentage of the market volume. Avoid trading in reaction to volume of unusual size.

## Order Example

“Buy 45,000 GOOG targeting 15% of the market volume.”

## Strategy Parameters

Parameter Name	Type	Default	Mandatory parameter?	Comments
Target Percentage of Volume	Percent		Yes	Orders will be subject to a max of 50% of Volume. Order submitted for this parameter higher than 50% will be rejected.
Limit Price	Number			
Would Price	Number			
Participate on Open	Y/N			
Start Time*	Default to “now” or “start of trading section” (whichever later), no other values supported.			
End Time*	Default to “End of trading section” of respective exchanges, no other values supported.			

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# TWAP

### Objective

Trade the order evenly over the order duration.

### Trading Behavior

Execute based on a linear schedule from start time to end time.

### Order Example

“Buy 30,000 PFE. Trade evenly throughout the day”

### Strategy Parameters

Parameter Name	Type	Default	Mandatory parameter?	Comments
Limit Price	Number			
Maximum Percentage of Volume	Percent	50		Orders will be subject to a max of 50% of Volume. Order submitted for this parameter higher than 50% will be rejected.
Would Price	Number			
Start Time*	Default to “now” or “start of trading section” (whichever later), no other values supported.			
End Time*	Default to “End of trading section” of respective exchanges, no other values supported.			

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# VWAP

## Objective

Minimize the slippage relative to the VWAP over the order duration.

## Trading Behavior

Trade proportionately to the expected market volume over the order duration.

## Order Example

“Sell 150,000 CSCO over the day, trying to match VWAP.”

## Strategy Parameters

Parameter Name	Type	Default	Mandatory parameter?	Comments
Limit Price	Number			
Maximum Percentage of Volume	Percent	50		Orders will be subject to a max of 50% of Volume. Order submitted for this parameter higher than 50% will be rejected.
Would Price	Number			
Participate on Open	Y/N			
Participate on Close	Y/N			
Start Time*	Default to “now” or “start of trading section” (whichever later), no other values supported.			
End Time*	Default to “End of trading section” of respective exchanges, no other values supported.			

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## IS

**Objective**

Minimize the slippage relative to a user-specified benchmark: arrival price, previous close, day's open or user strike.

**Trading Behavior**

Trade at the optimal participation rate given the order characteristics and urgency level. Optionally, work in undisplayed venues to reduce market impact. Allow for price adaptation based on user's input.

**Order Example**

"Sell 50,000 WERN targeting the arrival price. Let a piece of the order sit in the dark. Get more aggressive as the price moves my way."

**Strategy Parameters**

Parameter Name	Type	Default	Mandatory parameter?	Comments
Limit Price	Number			
Urgency	Text	"Medium"		"Low" or "1", "Medium" or "2", "High" or "3"
Maximum Percentage of Volume	Percent	50		Orders will be subject to a max of 50% of Volume. Order submitted for this parameter higher than 50% will be rejected.
Strike Price	Number			
Price Adaptation	Text	"None"		"None" or "AIM" or "PIM"
Would Price	Number			
Benchmark	Text	"Arrival"		"Arrival" or "Open" or "PrevClose" or "UserStrike"
Start Time*	Default to "now" or "start of trading section" (whichever later), no other values supported.			
End Time*	Default to "End of trading section" of respective exchanges, no other values supported.			

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# CLOSE

## Objective

Minimize the slippage relative to the day's closing price.

## Trading Behavior

Send a slice into the closing auction. Optimally work the balance into the close to reduce market impact.

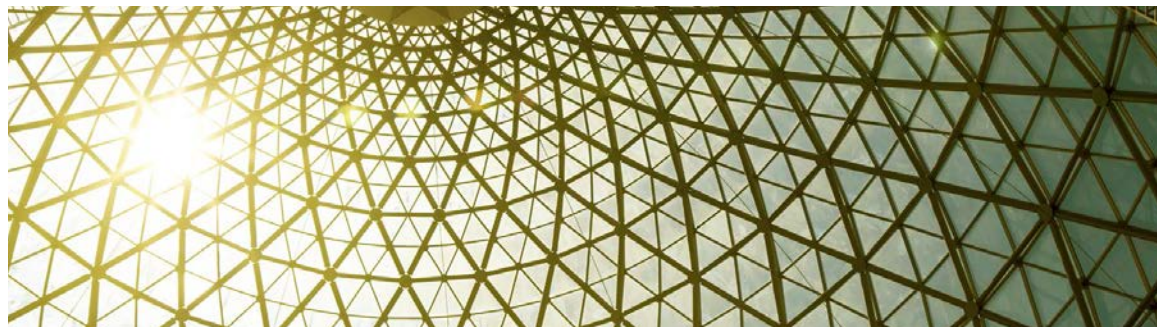
## Order Example

"Buy 75,000 IBM. Slice up to 10% of the expected closing volume into the auction. Work the balance into the close."

## Strategy Parameters

Parameter Name	Type	Default	Mandatory parameter?	Comments
Limit Price	Number			
Urgency	Text	"Medium"		"Low" or "1", "Medium" or "2", "High" or "3",
Maximum Percentage of Volume	Percent	50		Orders will be subject to a max of 50% of Volume. Order submitted for this parameter higher than 50% will be rejected.
Only Trade at Close	Y/N	No		
Start Time*	Default to "now" or "start of trading section" (whichever later), no other values supported.			

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# LADDER

## Objective

Adjust the participation rate based on the current price level.

## Trading Behavior

Target a percentage of the market volume. Increase the participation rate when the price moves favorably beyond a user-specified price level.

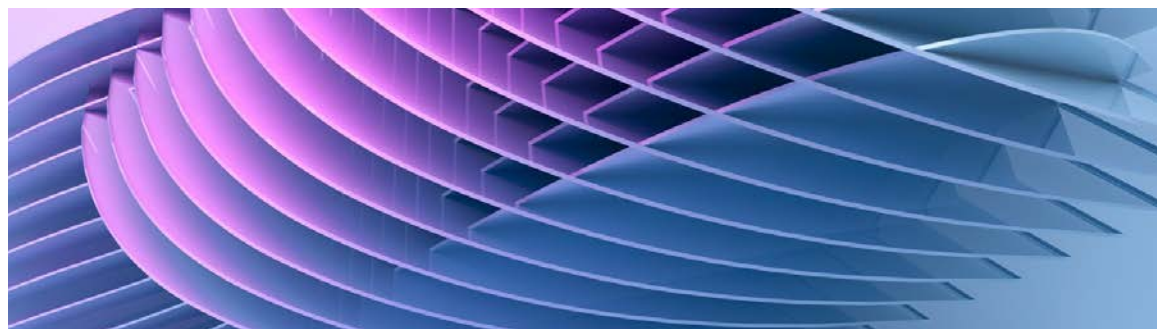
## Order Example

“Sell 60,000 KO targeting 20% of the market volume. Increase the trade rate to 30% and 40% if the price moves above \$61 and \$62, respectively.”

## Strategy Parameters

Parameter Name	Type	Default	Mandatory parameter?	Comments
Limit Price	Number			
Base Rate	Percent		Yes	Max Rate capped at 50%
Second Step Price	Number			
Second Step Rate	Percent			Max Rate capped at 50%
Third Step Price	Number			
Third Step Rate	Percent			Max Rate capped at 50%
Would Price	Number			
Start Time*	Default to “now” or “start of trading section” (whichever later), no other values supported.			
End Time*	Default to “End of trading section” of respective exchanges, no other values supported.			

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## AQUA

- Provides access to more than 20 undisplayed venues, including J.P. Morgan's internal liquidity pool.
- Leverages J.P. Morgan's proprietary Fair Value Model to identify favorable trading opportunities and to price undisplayed orders to limit adverse selection.
- Proprietary Short-Term Market Impact Model drives execution to effectively balance liquidity access and price impact.
- Proprietary Dynamic Minimum Quantity model determines the optimal minimum fill quantity for dark pool orders.
- Model-driven approach to order routing helps maximize fill rates while limiting information leakage.

Urgency (Min Percent Vol)	Objective	Trading Behavior	Order Example
LOW (5%)	Seek undisplayed liquidity and trade opportunistically in the lit markets.	Work the order passively across lit and undisplayed venues. Capture liquidity in the event of favorable price and size opportunities.	"Buy 30,000 COP. Work the order in dark venues, taking size from lit markets when available."
MEDIUM (15%)	Participate while searching for undisplayed and outsized liquidity.	Participate at a moderate percentage of the market volume. Post orders across lit and undisplayed venues. Take liquidity in the event of favorable price and size opportunities.	"Buy 35,000 KO. Trade in-line but post dark and grab outsized liquidity when available."
HIGH (30%)	Decisively take liquidity but pace execution to limit impact and allow the order book to replenish.	Trade aggressively while allowing for liquidity in the order book to replenish. Simultaneously post passively in lit and undisplayed venues.	"Sell 20,000 CSX. Capture stock frequently to complete the order."

# AQUA (continued)

## Strategy Parameters

Parameter Name	Type	Default	Mandatory parameter?	Comments
Urgency	Text	"Medium"	Yes	"Low" or "1", "Medium" or "2", "High" or "3"
Limit Price	Number			
Maximum Percentage of Volume	Percent	50%		Orders will be subject to a max of 50% of Volume. Order submitted for this parameter higher than 50% will be rejected.
Would Price	Number			
Start Time*	Default to "now" or "start of trading section" (whichever later), no other values supported.			
End Time*	Default to "End of trading section" of respective exchanges, no other values supported.			

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