



# Using FX algos

## Towards smarter execution

Algorithmic execution strategies could satisfy increasing demand for intelligent trading solutions with full transaction cost analysis capabilities, says HSBC. The right provider should be able to deliver access to liquidity and client-driven solutions that span the foreign exchange markets

### Key points

- New regulations have led to a growing demand for risk management solutions that can enhance transparency.
- Algorithmic execution solutions (algos), such as those offered by HSBC, can assist users with their pre- and post-trade analysis requirements.
- HSBC has designed a range of algos to provide risk management solutions for its clients that are based on advanced and sophisticated quantitative-based models.
- As a key FX market-maker, HSBC also offers clients access to liquidity throughout most FX markets, across a suite of G10 and emerging market currency pairs.



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Recent advances in technology, as well as scrutiny of the market and of new regulations, have led HSBC to develop a robust range of algorithmic strategies to support investors as they navigate the volatile global FX markets. By leveraging the breadth of HSBC's liquidity network, emerging markets franchise and FX expertise, these strategies could help investors to make their FX execution more efficient.

### Why should investors consider algorithmic execution in markets such as FX?

New financial regulations have led to increased demand for risk management solutions that can support greater transparency. HSBC has developed its algorithmic execution range to cater to this need, particularly in relation to best execution. Under Europe's Markets in Financial Instruments Directive II, for example, organisations must be able to explain venue choice, timing, trading costs and prices to regulators, as well as stakeholders such as senior management and shareholders.

### How can algos help with transparency needs in the current regulatory environment?

HSBC's algo strategies provide access to full transparency upon execution. Users receive details of every transaction executed as part of their overall trade – time-stamped and ready to be incorporated into the organisation's own analysis for risk management purposes. This provides a full record of evidence for the board, investors, regulators and any other relevant stakeholders to review.

By using algos, clients can also access pre-trade analysis for optimum execution of their trading strategies. In the current market and regulatory environment, analysis should be much more statistically driven and quantitatively based. HSBC's algo strategies can provide this pre-trade insight.

### How can HSBC's algorithmic execution strategies be used in the FX markets?

The following solutions, available from HSBC, have been developed to support a wide variety of risk management requirements and cost expectations:

- Time-weighted average price (TWAP) strategy
- Liquidity-seeking strategy
- Implementation shortfall strategy

### TWAP strategy

This FX algo is designed to trade at an even pace over a specified time period, adapting to the prevailing market conditions and choosing the best venue of execution for trades. HSBC has developed a third-generation version of this solution. First-generation algorithms operate under statically predefined schema; second-generation algorithms introduce some optionality in how the execution progresses – for example, by randomising quantity and time between child orders – but the rules are still statically configured and heuristic. The HSBC TWAP third-generation algo uses a probabilistic assessment of market activity in real time that is based on the bank's in-depth market expertise. As a result, clients can decrease the market impact of their activity by slicing the order while leaving no obvious footprint, and execute child orders while taking into account the market microstructure.

### Liquidity-seeking strategy

Designed for clients that wish to reduce the impact of a transaction even further, this passive algo will match order flow across a range of venues and execute proportionally to reduce market footprint. The algo learns how the market fills its child orders and adjusts the underlying fill probability model in real time. Clients that use this strategy could benefit from HSBC's significant access to liquidity, which will provide them with the ability to explore a range of venues and other liquidity pools without the typical costs of gaining access. Often referred to as a 'floating iceberg', this strategy is suitable for large transactions in more illiquid currencies and, again, clients could benefit from HSBC's ability to offer all major currencies including G10 and emerging market pairs.

### Implementation shortfall strategy

Classified at present as an 'aggressive' strategy in the HSBC product suite, this algo strikes a balance between market risk and market impact. It aims to execute an order by minimising slippage from market price at the order start time. It optimises the number of child orders to place in the market, their size, venue and the time between them. The algorithm also balances the opportunity cost between placing passive orders and crossing the spread by using proprietary fill probability and market impact models, as well as real-time machine learning-based prediction analytics. HSBC is able to offer clients control over execution pace, adjusting the strategy based on their sensitivity to volatility risk.

### What does the future hold for HSBC's algo FX product suite?

Applying new thinking to investor solutions is an integral part of HSBC's initiative to build the 'dealing room of tomorrow'<sup>1</sup>. This aims to anticipate and address the challenges that clients may face as a result of fast-moving regulatory and technological change, as well as long-term shifts in market conditions. As such, HSBC has enriched its range of FX algo solutions to meet ever-changing market conditions and client requirements. Innovative algos will be released in the coming months:

- The Gamma Hedger strategy will support option desks in developing gamma-neutral positions.
- The Contingent Order strategy will allow clients to implement trades based on signals from economic data.
- Volume-weighted average price and per cent of volume algorithms based on HSBC's proprietary assessment of market liquidity and trading volume.

The Liquidity Plus strategy will provide a gateway to access all HSBC algorithms. Clients will be able to configure the strategy to use different algorithms under different market conditions and modify the parameters of the order, as well as the execution algorithm itself, to explore different trading opportunities. HSBC's transaction cost analysis (TCA) capabilities will show which algo is operating for each individual child fill. Beyond these innovations, HSBC also offers bespoke execution facilities to provide clients with access to a variety of solutions that will fit even the most unique requirements.

Please note that the use of algorithms does not guarantee performance of the execution and, depending on market moves during the execution of the order, it may result in a disadvantageous outcome.

<sup>1</sup> [gbm.hsbc.com/dealing-room-of-tomorrow](http://gbm.hsbc.com/dealing-room-of-tomorrow)

### Why partner with HSBC for FX algos?

In addition to the range of specific solutions HSBC can offer, there are major benefits to partnering with an institution with such a strong balance sheet and deep expertise across both G10 and emerging markets.

### Balance sheet and liquidity access

"For an algorithm to operate well, it should be based on an advanced and sophisticated quantitative-based model, but access to liquidity is also key. Not only does HSBC have that sophistication, we also have better access to liquidity throughout the FX markets, thanks to the size of our balance sheet," says Olivier Werenne, head of eRisk liquidity management, EMEA at HSBC. "Our own internal liquidity is also significant. This means that, when clients are trading with us, they have confidence that we can execute any and all of their orders when conditions allow."

### Transparency requirements and time saving

The HSBC FX algorithms also allow trading desks to reduce execution time, leading to greater transparency and improved risk management capabilities. As Mathijs Peeters, director, FX & commodities institutional sales at HSBC, points out, before algos were available, trading desks would spend a significant amount of time executing trades. Now, he explains, "our clients have realised that, as the regulatory environment has changed – particularly in relation to price transparency – our algo strategies can be used to kill two birds with one stone by addressing their transparency needs and saving an enormous amount of execution time."

### Reliable quantitative execution models

"HSBC invests in quantitative research, co-operates with academia and integrates modern knowledge of market dynamics, optimal execution and artificial intelligence into its algorithms," says Alexander Barzykin, FX eRisk director at HSBC. "By design, the software architecture allows HSBC to quickly introduce innovations. All algorithms and models are verified by an independent team and thoroughly tested post-implementation. Our aim is to provide HSBC clients with reliable and efficient tools to suit their execution needs, aid decision-making with pre-trade analytics and ensure transparency with our TCA."

*For professional clients and eligible counterparties only.*

### Contact

For more information on HSBC's FX Algorithmic solutions, please email: [markets.insights@hsbc.com](mailto:markets.insights@hsbc.com)

[www.gbm.hsbc.com/solutions/markets/fx-algos](http://www.gbm.hsbc.com/solutions/markets/fx-algos)