

Information on our MiFID order handling & execution policy

Product General Procedure – UBS Macro Electronic Execution

This is a supplement to the information on our MiFID Order Handling & Execution Policy



Product General Procedure – UBS Macro Electronic Execution

1 Purpose

- (a) This document provides information on the application of UK MiFID and EU MiFID (**MiFID**) Best Execution by UBS Investment Bank entities in the UK or EEA (**UBS**)¹ when handling or executing transactions for Professional Clients² in the context of FX and Listed Derivatives electronic execution services, collectively referred to as **UBS Macro Electronic Execution**:
 - (i) **FX Execution** - enables Clients to access Spot FX & Precious Metal (PM) liquidity from a range of sources.
 - (ii) **Listed Derivatives Execution** - enables Clients to access Listed Derivatives on futures exchanges.
- (b) This document should be read as a supplement to Information on our MiFID Order Handling & Execution Policy (**Policy Information**) available at: www.ubs.com/ibterms.
- (c) Capitalized terms not defined in this document shall have the same meaning as in the Policy Information document.

2 Scope of Best Execution for UBS Macro Electronic Execution

- (a) UBS has undertaken a detailed analysis of the application of MiFID Best Execution obligations (**Best Execution**) to these services, in line with the relevant FCA rules and EU/FCA guidance. Specifically, UBS has determined that Best Execution requirements for the UBS Macro Electronic Execution business will apply to some degree in respect of the services: specifically, each aggregation, smart order routing, Direct Market Access (DMA) and algorithmic execution service where we execute Orders on behalf of Clients in circumstances where such Clients may legitimately be relying upon UBS to look after their interests. Where relevant, Orders will also be executed in line with any instructions and constraints placed on the Order by the Client. The following paragraphs explain in more detail when and how Best Execution obligations apply in the context of UBS Macro Electronic Execution:

(b) **FX Execution**

- (a) FX Execution enables Clients to access Spot FX & PM liquidity from a range of sources. UBS accepts the following order types:
 - (i) Firm Limit Orders: An Order that includes a limit price and can be executed at that price or better without subsequent confirmation from the order submitter.
 - (ii) Stop Loss Limit Order: An Order that includes a stop loss limit price and can be executed at that price or at the next best available price without subsequent confirmation from the order submitter.
 - (iii) Algorithmic Order: An Order that includes a number of defined parameters based on the order type and Client selection. The order will be executed in one or multiple executions at the best available price without subsequent

¹Information on legal entities comprising UBS Investment Bank entities in the UK and EEA can be found on our website at www.ubs.com/ibterms.

² UBS does not deal directly with Retail Clients and dealings with Eligible Counterparties are not subject to regulatory Best Execution and order handling requirements.

- confirmation from the order submitter. For example, a TWAP (time weighted average price) algorithm would typically allow a Client to stage the execution of a larger notional order into relatively small 'child' orders over a period of time on one or more liquidity sources. All executions will be averaged to provide a single final trade at the average price of all individual executions.
- (b) All Orders may, depending upon a Client's connectivity, be submitted by the Client directly to the service via electronic means or submitted to a UBS Execution Specialist to submit to the market via an "Authorized Channel" (electronically or by telephone).
 - (c) Firm Limit Order Service
 - (i) These Orders will be submitted by the Client with a stated price and which are specified to be either (i) valid until cancelled, (ii) valid until end of day or (iii) valid between two provided time stamps. The Order is executable at the limit price or at a better price and the execution is neither contingent nor subject to any confirmation by the Client once the Order has been submitted.
 - (ii) This is a Best Execution service as Clients may legitimately rely on UBS for seeking the best outcome for the Client.
 - (iii) The execution of Firm Limit Orders is undertaken through the use of UBS's FX Execution Smart Order Router (SOR). The logic employed by this SOR and how it addresses Best Execution can be found in Section 4.
 - (d) Stop Loss Limit Order Service
 - (i) These Orders will be submitted by the Client with a stated price and which are specified to be either (i) valid until cancelled, (ii) valid until end of day or (iii) valid between two provided time stamps. The Order is executable at the limit price at the next best available price and the execution is neither contingent nor subject to any confirmation by the Client once the Order has been submitted.
 - (ii) This is a Best Execution service as Clients may legitimately rely on UBS for seeking the best outcome for the Client.
 - (iii) The execution of Stop Loss Limit Orders is undertaken through the use of UBS's FX Execution SOR. The logic employed by this SOR and how it addresses Best Execution can be found in Section 4.
 - (e) Algorithmic Order Service
 - (i) In submitting an Algorithmic Order, the Client chooses the particular algorithm to be used as well as parameters specific to that algorithm. These parameters can include, but are not limited to, a start and end time, a limit price, a trigger price and an urgency level.
 - (ii) This is a Best Execution service as Clients may legitimately rely on UBS for seeking the best outcome for the Client.
 - (iii) The execution of Algorithmic Orders is undertaken through the use of UBS's FX Execution SOR. The logic employed by this SOR and how it addresses Best Execution can be found in Section 4.

(c) Listed Derivatives Execution

- (a) Listed Derivatives Execution enables Clients to access futures exchanges. UBS accepts the following order types:

- (i) Direct Market Access (DMA) Orders: An Order type which matches the order types offered natively by the futures exchange being accessed.
 - (ii) Advanced DMA Orders: An Order type with parameters that Clients use to execute but which falls short of more advanced algorithmic strategies. Where Advanced DMA Orders are not supported natively by the exchange, UBS may make such capabilities available to Clients. For example a 'One Cancels Other' order type works two orders until one order is complete or partial fills on both until total order quantity is filled and the remaining order quantity cancelled.
 - (iii) Algorithmic Orders: An Order that includes a number of defined parameters based on the order type and Client selection. The order will be executed in one or multiple executions at the best available price without subsequent confirmation from the order submitter. For example, a TWAP (time weighted average price) algorithm would typically allow a Client to stage the execution of a larger notional order into relatively small 'child' orders over a period of time on one or more liquidity sources. All executions will be averaged to provide a single final trade at the average price of all individual executions.
- (b) All Orders may, depending upon a Client's connectivity, be submitted by a Client directly to the service via electronic means or submitted to a UBS Execution Specialist to submit to the market via an "Authorized Channel" (electronically or by telephone).
- (c) DMA Order Service
- (i) Macro Electronic Execution offers Clients access to exchange listed futures products through UBS hosted infrastructure. The Order types available for DMA are the same order types offered by the specific futures exchange.
 - (ii) This is a Best Execution service as Clients may legitimately rely on UBS for seeking the best outcome for the Client.
- (d) Advanced DMA Order Service
- (i) Macro Electronic Execution offers additional DMA order types with parameters that clients use to execute without use of algorithmic strategies.
 - (ii) This is a Best Execution service as Clients may legitimately rely on UBS for seeking the best outcome for the Client.
- (e) Algorithmic Order Service
- (i) In submitting an Algorithmic Order, the Client chooses the particular algorithm to be used as well as parameters specific to that algorithm. These parameters can include, but are not limited to, a start and end time, a limit price, a trigger price and an urgency level.
 - (ii) This is a Best Execution service as Clients may legitimately rely on UBS for seeking the best outcome for the Client.
- (f) Listed Derivatives contracts are generally specific to a single exchange and no Smart Order Router is used within Listed Derivatives Execution. For more details please refer to the UBS document *Product General Procedure: Exchange-traded Derivatives*.

3 Application of Best Execution requirements to UBS Macro Electronic Execution

In summary, Best Execution is available in respect of the following order types in the context of UBS Macro Electronic Execution:

- (a) FX Execution:

- (i) Firm Limit Orders
 - (ii) Stop Loss Limit Orders
 - (iii) Algorithmic Orders
- (b) Listed Derivatives Execution³:
- (i) DMA Orders
 - (ii) Advanced DMA Orders
 - (iii) Algorithmic Orders
- (c) **Order Execution – (applicable to all UBS Macro Electronic Execution where Best Execution available):**
- (i) Best Execution for Orders across all UBS Macro Electronic Execution will be achieved through the use of Smart Order Routers, Direct Market Access (DMA) algorithmic execution, or a combination of these capabilities.
 - (ii) The basis for all Best Execution pricing within all UBS Macro Electronic Execution is an aggregated set of individual venue or participant pricing streams. Orders are executed depending on the nature of the Client Order handling method and the specific Client instructions, which may involve execution by a Smart Order Router, Direct Market Access (DMA) algorithmic execution or a UBS Execution Specialist.
 - (iii) The Execution Factors for any Order to which Best Execution requirements apply are price, cost, speed, likelihood of execution and settlement, size, nature and any other consideration relevant to the execution of an Order. Orders might potentially be subject to all Execution Factors, but the relative importance of each factor is determined by the Execution Criteria, which include the following contributing elements:
 - (1) Order typology;
 - (2) The liquidity profile of the instrument(s);
 - (3) The size of the Order;
 - (4) The Execution Venues to which the Order can be directed; and
 - (5) Specific instructions given by the Client.
 - (iv) The primary Execution Factor for the purposes of discharging the Best Execution obligation that the UBS Macro Electronic Execution aim to take into account will usually be price. Where accessing markets electronically, UBS's routing decisions for Firm Limit Orders are made by the UBS SOR (detail regarding how each of the SORs operate is outlined in section 4.). The decision as to which Execution Venues/Liquidity Providers and price points to target will be taken based upon both the explicit instructions accompanying the relevant Order and/or the SOR's programmed "judgment". The primary objective of the SOR is to achieve the best possible outcome for our Clients. UBS's interactions with Execution Venues/Liquidity Providers are guided by objectively observed and calculated parameters.

³ The order handling rules for US Equity Options can be found here: <https://neo.ubs.com/shared/d2tQOebKhp>

- (v) Where the Client is able to provide specific instructions with respect to the execution of an Order, it will be executed in accordance with those instructions. To the extent that UBS accepts and follows Client instructions, UBS will have satisfied any Best Execution requirements with respect to those aspects of the Order. Any remaining elements of the Order not covered by the Client's specific instructions will remain subject to Best Execution requirements and will be determined by UBS according to the Execution Factors and Execution Criteria, as set out above.

4 Smart Order Router Descriptions

(a) FX Smart Order Router

FX Execution operates a Smart Order Router (SOR) for FX. Clients can choose to include or exclude specific venues on request and this is configured in their profile.

(i) FX SOR

- (I) When a Client order is placed, the FX SOR will manage the parent order with the aim of providing optimal order execution. To do so the FX SOR analyzes market liquidity from sources available to the SOR at the time of the order, calculates the optimal child orders and submits these orders to execution venues in UBS's name. Liquidity sources available to the SOR may vary for reasons including, but not limited to, technical issues or if a high number of price misses are observed by the SOR on a given liquidity source. If a small residual amount remains to be executed at the end of an order, and no external liquidity source can accommodate the order size, the balance will be filled by liquidity from the UBS eFX Principal Desk. Current liquidity sources available include UBS eFX Principal, EBS, Reuters, FXAll, CBOE (HotSpot), ParFx, Currenex and CME (Futures). As liquidity sources can be subject to change and differ by offered currencies a full list of available venues can be requested at any time from the UBS Macro Electronic Execution team under OI-ElectronicExecution@ubs.com.
- (II) The FX SOR aggregates liquidity across multiple execution venues and in multiple correlated instruments with the goal of improving order execution quality. By aggregating liquidity across multiple venues, the FX SOR aims to source cheaper liquidity with a greater fill probability than using a single venue. This becomes increasingly important the larger the order size. For example, rather than expensively taking liquidity from multiple levels of the order book on a single venue, the FX SOR could more cheaply take liquidity from the top level of several venues' order books. In attempting to access aggregated liquidity across multiple execution venues there is a risk of degrading execution quality due to latency arbitrage in which the presence of an order in one market may influence the availability in another market. The FX SOR has been designed to minimize these risks using a dynamic order synchronization algorithm. In deciding how to route an order, the SOR will consider a number of factors including, but not limited to, observed price, historic fill ratios and where missed prices have been recently encountered. When posting liquidity externally, the FX SOR will generally post the order to the 'Primary' venue for that currency pair, i.e. the venue where trading in that pair predominantly occurs.
- (III) Liquidity management: During the process of choosing the optimal child orders across multiple execution venues and multiple correlated instruments,

the FX SOR aims to obtain the best price and fill the largest volume in the shortest time possible with the least amount of market impact. The SOR also considers price misses when routing orders to a liquidity source. If an order is sent based on available market data but no fill is received, the SOR will automatically penalize venues and liquidity providers that have a lower fill probability and higher market impact on rejects, through its machine-learning algorithm.

- (IV) Use of Correlated instruments: The FX SOR may submit a child order(s) for an instrument, y , which is correlated with parent order instrument, x . For example, a parent order for Spot FX could be partly fulfilled with a child order in a corresponding futures contract. In these scenarios the Client will receive the requested parent order instrument, x , and the FX SOR will add the correlated instrument to an internal UBS Principal book. UBS will manage the basis risks between instruments x and y appropriately. In doing so, the FX SOR is potentially able to source cheaper liquidity than would be available using the parent order instrument alone.

- (V) Last look: Where your FX order executes against the UBS eFX Principal Desk as part of the liquidity profile, this will be subject to the eFX Principal Desk's last look practices. Please refer to the "Foreign exchange last look disclosure document" available at <https://www.ubs.com/global/en/investment-bank/regulatory.html> for more information. Executions on external venues as part of the liquidity profile will be subject to the last look principles of the respective venue.
In order to achieve best execution of child orders the FX SOR adjusts execution routing based on fill probability of every child execution based on historic impacts of missed orders due to last look. Additionally a quarterly liquidity performance review is done to identify liquidity where last look has negative impact and liquidity sources can be updated based on the review.

5 Monitoring

(a) Post Trade Monitoring:

All orders to which Best Execution obligations apply are subject to post-trade monitoring. This monitoring comprises of order handling reports which feed into metric based monitoring, discussed in the product working group. Negative trends or outliers are highlighted for further analysis.

(b) Liquidity Source Review:

- (i) When selecting the range of execution venues, liquidity providers and exchanges accessible via Macro Electronic Execution, UBS evaluates potential liquidity sources based on functional criteria. Examples of these criteria can include the liquidity available, the long-term viability of the liquidity source, market micro-structure and the clearing and settlement infrastructure adopted.
- (ii) UBS performs a regular assessment of each of our liquidity sources to ensure that they continue to provide the best possible outcome for our Clients on a consistent basis and to consider whether any changes are merited. The evaluation includes an assessment of execution venues, liquidity providers and exchanges that we are connected to as well as a sample of sources that we are not currently connected to. This assessment takes place quarterly.

6 Client Fees and Commissions

(a) FX Execution:

- (i) The price attained by the Client for a trade is that price provided by the liquidity source in addition to a mark-up/mark-down added by UBS.
- (ii) Upon request from the Client, UBS is able to provide the schedule of the mark-up/mark-down or a breakdown of the mark-up/mark-down on a per trade basis.

(b) Listed Derivatives Execution:

- (i) Commission rates are agreed through negotiation between UBS and the Client. These can be set at default or negotiated on a per-trade basis. UBS is able to offer flexibility on commission structures by market, flow, fund and other bases, as well as a 'Cost+' model.
- (ii) Upon request from the Client, UBS is able to provide the schedule of commissions on a per trade basis.

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