



## Answers to a changed FX market structure



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### The currency market in transition

The foreign exchange market has undergone significant structural changes in recent years. The liquidity structure has changed, since established market participants have less risk-bearing capacity due to regulatory reasons and have to react to the emergence of new market participants. The Dodd Frank Act in the United States and the European MiFID II regulation have also had an impact on the market structure and have forced trading, not least with currency derivatives, onto stock exchanges or electronic platforms, so-called trading venues.

As a result, FX trading has become increasingly electronic and automated. In addition, market participants must meet considerably more extensive best execution requirements. With regard to foreign exchange derivatives, market participants are expected to perform a more intelligent transaction cost analysis, in particular by anticipating pre-trading costs and comparing them with actual post-trading costs.

There is also increasing market acceptance of the FX Global Code of Conduct. The current list of 700 signa-

tories to the Code includes the 30 largest banks, EU central banks, selected sovereign wealth funds and supranational corporations. The Code contains 55 principles for best practice in the foreign exchange market, including ethics, transparency, governance, information exchange, electronic trading, algorithmic trading and prime brokerage. It identifies global best practices and processes to help review and develop internal procedures to restore public confidence in the market after numerous foreign exchange scandals.

For the first time in years, the financial industry has reached a point where most of the regulatory requirements have been implemented. Among other things, algorithmic execution and transaction cost analyses offer exciting opportunities to create new added value. Furthermore, the structural market changes lead to an increasing information density among market participants and present them with the challenge of processing the available data volumes and incorporating them into their decision-making processes.

### Implications for the liquidity structure

The liquidity structure in the currency market has changed significantly in recent years. One reason for this is the regulatory reduction in banks' risk capital, which has had an impact on market making. Regulation has considerably limited their ability to take risks in currency trading.<sup>1</sup>

One additional reason is that many large FX banks have significantly increased their investments in personnel and particularly in software as well as hardware in recent years. In addition, formerly established providers have reduced their activities or even withdrawn from the market. Some large FX houses have been able to significantly increase their market share through the investments mentioned above. The Triennial Central Bank Survey in 2016 has confirmed this as well.

A mere 5 to 6 banks account for 75% of global foreign exchange turnover. These banks continue to provide

their balance sheets as principals and actively take the risk in trading client positions. On the other hand, there is the agency model, in which brokers raise liquidity in the market for a fee and pass it on to customers at the same conditions.

In recent years, top tier banks have paid great attention to the so-called internalisation of trading flows. Internalisation means that the banks try to match the customer orders they have in their order book with the current flow rather than using the inter-bank market as they used to. Moore M, A Schimpf and V Sushko (2016) show this very clearly in their analysis of the BIS Survey data<sup>ii</sup>. According to the survey, more than 60% of the trading volume is internalised in the spot market. Market observers assume that, depending on geography and currency pair, some large liquidity providers internalise more than 90% of the volume. In order to generate the necessary volume, these major FX brokers operate on a large number of trading venues.

This is also reflected in declining trading volumes on the primary venues such as EBS and Thomson Reuters. Furthermore, the fragmented liquidity situation leads to challenges for the buy side. For example, FX brokers' willingness to trade is shown today on many trading venues and consequently the available liquidity can easily be overestimated.

A new type of market participant, the non-bank liquidity provider (NBLP), further contributed to this change in market structure. Historically, these market participants have been market makers who have tried to gain market advantage and profit from advanced technology. To do so, they acted at various trading venues, where they were also indirectly available as liquidity providers. Some of these players have changed their business model to also contact selected customers directly and provide them with liquidity.

This change can also be clearly seen in the FX rankings that are common in the industry. The Euromoney FX Survey 2018 places four of these alternative providers among the top 20 with a trading volume of almost 14%.<sup>iii</sup>

However, the business model of these market participants does not focus on warehousing positions but on neutralising risk positions within seconds.

According to Virtu Financial Inc., in a period of 1238 trading days, the company only generated a loss on one day.<sup>iv</sup> This means that NBLPs provide liquidity in normal times and contribute to competitive bid-ask spreads, but they also have a strong incentive to withdraw from their market-making role in times of abrupt volatility increases in order to avoid the risk of large price movements. As a result, overall liquidity can decline significantly in volatile market phases.<sup>v</sup>

## Implications for the trading process

The ability to trade foreign exchange on electronic platforms has been around for over two decades. However, this trend has accelerated since the Lehman crisis and has been exacerbated by regulation in recent years, which demands a higher level of transparency.

This development has been supported by advances in processor technology, inexpensive storage space and fast networks that allow data to be exchanged almost in real time. Whereas 10 years ago most of the daily FX volume was traded by telephone, about 70% of today's foreign exchange trading volume is handled electronically.<sup>vi</sup>

The resulting efficiency gains have also significantly reduced trading costs, measured as bid-ask spreads<sup>vii</sup>. At the same time, the increase in electronic trading has led to an elevated use of trading algorithms. On average, this resulted in a rise in individual tickets per order for the same order volume. This higher ticket volume thus entails an expanding need for post-trading automation. Only those who are able to process the majority of all transactions automatically can benefit from the opportunities offered by electronic trading.

A further consequence is the generation of an enormous amount of data. These data represent again the basis for a great number of analysis possibilities. An example is the life cycle of an order. From the generation of the order in the pre-trade phase up to the execution phase of the order and finally the so-called post-trade phase, the market participants have almost real-time analysis options at their disposal (see also preceding section).

## 7orcas responses to the evolving market structure

After a closer look at the change in the FX market structure, the following section shows how 7orca uses the resulting challenges and opportunities in currency overlay for the benefit of its customers.

## Increased efficiency in the life cycle of a transaction

MiFID II requires investment firms to take all necessary steps to obtain the best possible result for their clients when executing orders, taking into account costs, speed, probability of execution and settlement, size of the order and type of order.

The first MiFID regulation required only that asset managers take all reasonable steps to achieve the best result for their clients. In contrast, MiFID II requires companies to adopt a systematic approach and monitor all trading transactions.

7orca's aim is not only to meet regulatory requirements, but also to use best execution tools and transaction cost analysis to increase customer value. The execution quality makes a significant contribution to the overall

performance of currency overlay strategies. Therefore, the trading process is a major focus: 7orca's portfolio managers have many years of experience and expertise in the execution of currency transactions and are able to guarantee efficient execution in the most diverse market phases.

7orca's best execution process is based on the life cycle of a transaction and is divided into three phases: pre-trade analysis, trade execution and post-trade analysis.

The aim of the pre-trade analysis is to identify the strategy with the lowest transaction costs before the trade is even carried out.

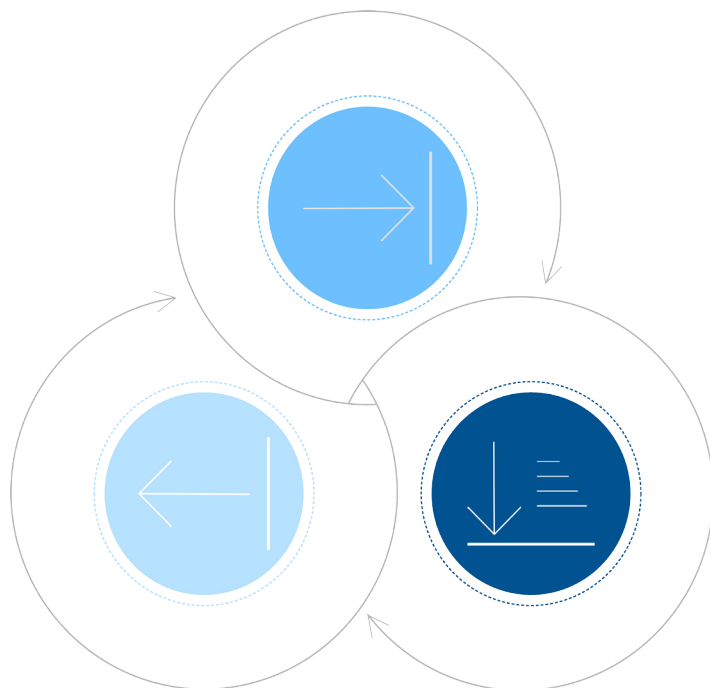
7orca analyses the ideal trading time based on the FX exposure to be hedged and the currency-specific liquidity curves. In addition, the current market depth and volatility determine the execution strategy. In this step, 7orca also determines whether a trade is to be executed directly or in a market-friendly manner using an algorithm. The aim is in particular to minimise the visible and non-visible transaction costs.

When implementing an overlay strategy, various hedging instruments come into consideration. For this reason, a decision must be made in the context of trade execution as to whether the trade is to be implemented using futures or forward transactions. The most competitive price for a futures transaction is already given by trading via the exchange's order book.

Forward transactions are carried out by 7orca with the largest and most competitive liquidity providers directly connected to the trading systems. 7orca places them in direct competition and is thus in a position to achieve interbank conditions. As part of the trade execution phase, 7orca monitors current market parameters and adapts the execution to changed market conditions.

The aim of the post-trade analysis is to monitor transaction costs in particular and, if necessary, to develop enhancements for the future trading process. The experience of 7orca has shown that regular broker communication can further improve prices. For this reason, an ongoing evaluation of the brokers is conducted.

**Fig. 1: Life cycle of a transaction**



#### Pre-Trade-Analysis

- Strategy identification with lowest transaction costs
- Analysis of currency-specific liquidity curves
- Analysis of liquidity and volatility
- Identification of ideal trading times
- Minimisation of signaling risk

#### Trade Execution

- Goal: minimisation of transaction costs
- Monitoring of current market parameters
- Adaptation of execution to changing market conditions

#### Post-Trade-Analysis

- Monitoring of achieved transaction costs
- Feedback loop on pre-trade assumptions
- Periodic broker evaluation
- Periodic algorithm evaluation
- Broker communication and feedback

### Increased efficiency through intelligent order execution

In implementing the system and trading architecture, 7orca placed a strong focus on intelligent order execution, straight-through processes and automation. As a result, manual intervention is largely avoided and operational risks due to human error are kept to a minimum.

The processes run without manual intervention, from order generation to checking legal and customer-specific limits, from the transmission of trading transactions to trading venues to order matching and confirmation via SWIFT. In order to reflect the changed liquidity struc-



ture as well as to tap a large number of different liquidity providers, 7orca has decided to work with the two leading multilateral trading facilities providers. The overlay manager thus has access to a range of advanced execution tools to intelligently access various liquidity sources.

Especially in the current environment with highly fragmented and sometimes significantly overestimated liquidity (see also „The implications for the liquidity structure“), these tools offer a wide range of opportunities to improve execution quality. Particularly in the case of large orders, it is important to keep the visibility in the market as low as possible. These orders are placed and executed successively in the market after being divided into smaller part-orders.

The key to success is a sound assessment of the current market situation. If the part-orders are placed too quickly on the market, the trading costs will be potentially too high. If the orders are placed too slowly in the market, the market risk increases as the market movement can be unfavourable. It is important to balance the conflicting priorities of market impact and market risk based on current market parameters.

Here, trading algorithms can be used to place small parts of the original order in the market, thus making optimum use of the available liquidity whilst significantly minimising the impact on the market. The decisive factor is the use of the most advanced algorithms to mitigate the signaling risk, i.e. to disclose the trading intention during execution.

As a result of the limited market depth and fragmented liquidity, certain market participants have found it easier to identify patterns in the market and use them with the intention of making a profit. During order execution, this can lead to significantly higher implicit costs and correspondingly higher trading slippage.

### Increased efficiency through the choice of instruments

The following three instruments are most suited to currency hedging:

- **FX forward and non-deliverable forward**  
Fully customisable instrument in which two parties in an OTC transaction (OTC = over the counter) agree to exchange two currencies at a future date at a specific amount and exchange rate.
- **FX Future**  
Standardised exchange-traded contract that specifies the rate of a currency at which another currency is bought or sold in a standard contract size on the due date.

- **FX Option**  
Derivative that gives the buyer the right, but not the obligation, to execute a currency transaction (purchase or sale) at an agreed amount, price and date.

Options have become less important in recent years because of their high cost as currency hedging instruments in currency overlay solutions.<sup>viii</sup> Therefore, this INSIGHT focuses on FX forwards and FX futures.

The choice of hedging instruments is based on the customer's requirements and specifications. The main success factors are liquidity and direct and indirect transaction costs, so as to be able to present the hedging strategy as efficiently as possible.

The currency pairs underlying the mandate essentially determine the choice of hedging instruments: should mandates with many currency pairs be hedged, a combined overlay solution with FX futures and FX OTC forwards can provide the best possible structure.

The advantages of this set-up are as follows:

- **Future-proof in terms of regulatory challenges:** Many market participants are affected by increasing regulation, impacting the choice of instruments and the capital requirements (e.g., solvency capital requirements (SCR) for Solvency II underlying entities, credit value adjustment (CVA) requirements for ESMA regulated entities, etc.). The use of both FX futures and FX OTC forwards guarantees the ability to act at all times
- **Ensuring maximum market depth and best execution** through access to both OTC and exchange liquidity
- **Free choice of the most cost-effective and efficient instrument** at the time of the transaction
- **Diversified trading structure and independence** from individual liquidity sources

While a mandate implementation that includes both FX futures and FX OTC forwards provides the best market access, it is also most complex and involves the highest structural expenses.

Depending on the individual mandate, it is recommended to assess whether additional costs are justified or whether an implementation with only one hedging instrument would be more effective.

### Hedging foreign currency risks with FX futures

In the case of a mandate with only USD exposure, for example, currency hedging with FX futures can be useful. A good solution is the implementation through the CME EUR/USD future, which has a daily average trading

**Fig. 2: Comparison of the advantages and disadvantages of FX futures and FX OTC forwards**

FX futures	FX OTC forwards
<ul style="list-style-type: none"> <li>+ High level of confidence, as stock exchange regulates the market segment</li> <li>+ Execution via stock exchange (CME/EUREX) guarantees transparent execution</li> <li>+ No individual collateral management solutions necessary</li> <li>+ No counterparty risk to financial institution</li> <li>+ Standardised settlement, as established processes for future clearing/settlement</li> <li>+ Regulatory „safe“ approach</li> <li>+ Possible margin netting with other future positions</li> </ul>	<ul style="list-style-type: none"> <li>+ Free choice of amount and terms</li> <li>+ Proven instrument for hedging currency risks</li> <li>+ All currency pairs available</li> <li>+ Very good liquidity situation</li> </ul>
<ul style="list-style-type: none"> <li>– More limited selection when choosing maturities (standardised maturities)</li> <li>– Initial margin/variation margin requirement                             <ul style="list-style-type: none"> <li>– However, possibility of liens</li> <li>– Cash equitisation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>– Counterparty/settlement risk</li> <li>– Regulatory changes possible</li> <li>– No standardised implementation</li> <li>– More complex contractual setup (for the capital management company)</li> <li>– Fragmented liquidity situation</li> </ul>

volume of approx. USD 30 bn and is therefore highly liquid.<sup>ix</sup>

Historically, forwards have been the preferred means in currency overlay programs. Futures have mainly been used in mandates where investors were subject to restrictions and allowed only listed derivatives.<sup>x</sup> Since the financial crisis, the use of FX futures has increased significantly. On the one hand, futures have other credit risks than forwards.<sup>xi</sup> On the other hand, significant cost savings (in some cases of up to 75%) can be realised relative to an OTC transaction.<sup>xii</sup>

While credit risk remains with the clearing house of the exchange and is largely eliminated by margining, the regulated segment of the exchange offers easy access to a wide range of market participants. Since FX futures are not traded with dedicated counterparties but through the exchange’s central limit order book, only one broker is required to provide this access. This direct market access enables the currency overlay manager to place transactions electronically directly on the exchange.

As a regulated and monitored central trading platform, the exchange offers excellent execution quality; there is no need for a separate collateral management.

Investors who already trade futures can scale their existing trading and clearing infrastructure and use netting effects to meet margin requirements.

The FX futures market cannot be viewed in isolation, which is another advantage of FX futures. In addition to exchange liquidity, off-exchange liquidity is also available. This is ensured by block trades and exchan-

ge-for-physicals. In this case, the price is determined off-exchange and implemented by concluding an FX futures contract.

#### **Use of FX OTC forwards in currency overlay**

FX OTC forwards offer a number of advantages due to their extensive customisation options. In some cases, FX futures provide limited availability, reduced market depth and restrictions due to their standardised hedging terms relative to the freely negotiable FX OTC forwards.

The lower market depth applies, for example, to emerging market currencies (e.g. the Brazilian real) and some G10 currencies, and as such, corresponding currency overlay solutions should use FX OTC forwards and non-deliverable forwards for these currencies.

Since FX OTC forwards are negotiated bilaterally by the overlay manager and the contracting bank, they can be adapted exactly to the amounts and maturities to be hedged.

The counterparty’s creditworthiness should also be reviewed on a regular basis in the light of the findings of the financial crisis. For this purpose, the credit default swap spreads can be used as an indication of the credit assessment by market participants and the ratings of the internationally active credit rating agencies are equally helpful. Rankings and awards from industry specialists also make a statement on the quality of execution of the counterparty.<sup>xiii</sup>

7orca has implemented a monitoring system which continuously monitors both the credit quality of each counterparty and its execution quality and derives alternative courses of action.

For reasons of risk diversification and the best possible presentation of hedging transactions, it is recommended that a large number of brokers are linked to the programme.

Currency overlay mandates are generally set up as a supplemental segment of a master fund. The foreign currency holdings of the entire fund are hedged in the overlay segment. Since the master fund acts as a counterparty for the FX hedging transactions and typically holds liquid assets, it has first-class creditworthiness. In addition, an overlay manager can achieve a favourable market position by aggregating trades across different mandates. In conjunction with a fully automated straight-through trading process, this leads to more advantageous broker conditions, which are passed on to the overlay mandates. Ultimately, the client receives interbank rates.

### **The answers to all your currency questions**

The changes in the FX market structure have led to challenges for many market participants. These changes also offer opportunities that need to be seized. Examples of this are the use of trading platforms including intelligent trading algorithms, which enable, among other things, the development of new sources of liquidity, as well as the manifold possibilities of transaction cost analysis and the appropriate choice of hedging instruments.

When selecting an FX Overlay Manager, clients should not only refer to the past but also focus on how changes are handled in order to be optimally positioned for the future.

This is precisely where the strengths of independent investment boutiques such as 7orca lie. With their expertise, experience and continuous development, they consistently meet these requirements and thus provide their customers with sustainable added value. Studies such as that of the Affiliated Managers Group Inc. confirm this.<sup>xiv</sup>

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