EUREX Architects of trusted markets

Option Volatility Strategies

The delta neutral trading strategy



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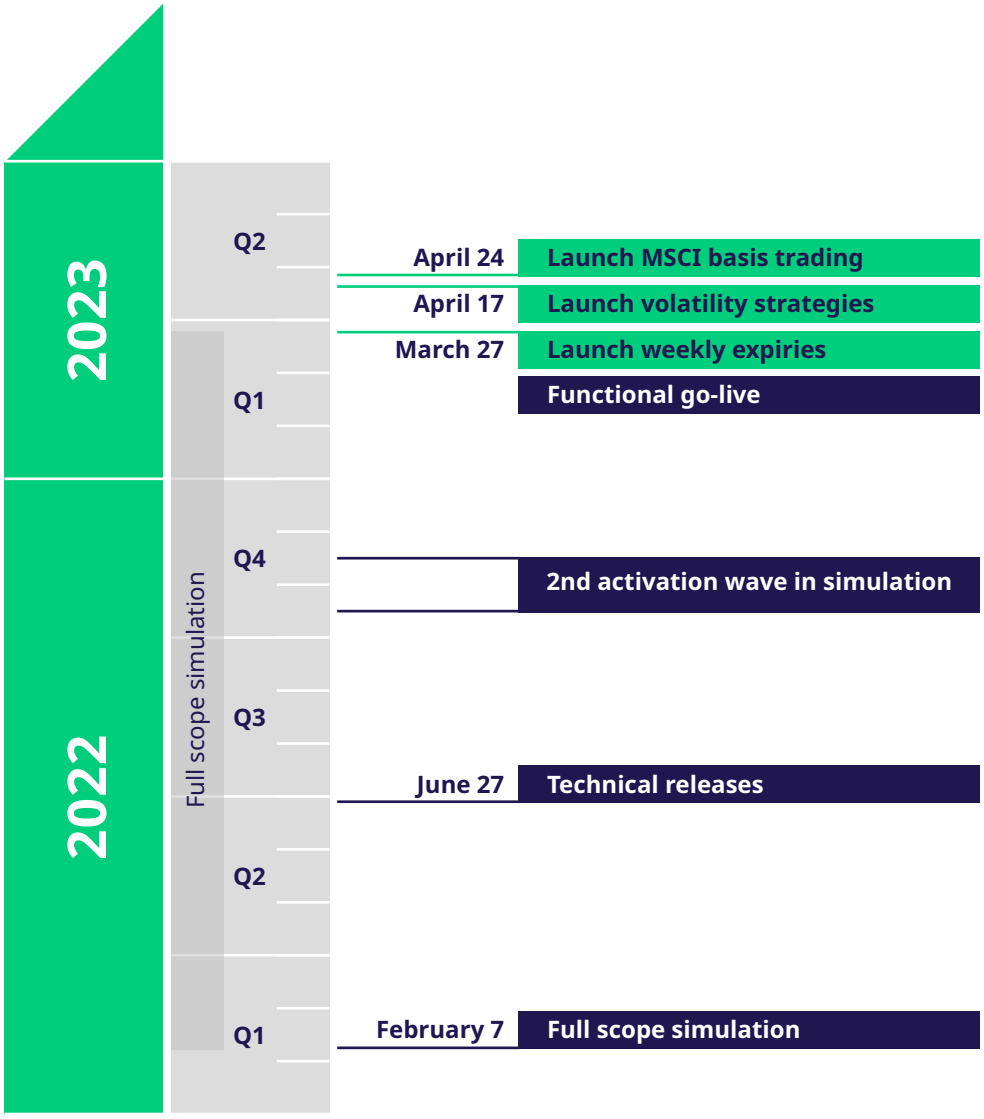
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Option Volatility Strategies
Introduction

Currently, Eurex offers Option Volatility Strategy (OVS) trading in equity index- and fixed income products on its platforms. The technical launch of NextGen ETD also extends this functionality to single equities. In this paper, we look deeper into the benefits and use cases of OVS trading using existing product examples, especially EURO STOXX 50® options. We will also explain how the upcoming OVS functionality on Single Stock Options expands these benefits, making trading on Eurex easier and more flexible.

NextGen initiatives and products – timeline



The Delta-neutral trading strategy, the trade enabler

Many buy-side investment strategies have a directional view on the market, asset class or instrument. For them, derivates are an excellent way to create extra exposure to price changes in the underlying or, reversely, protection from these price changes. The sensitivity to changes in the underlying is called Delta when pricing an option. This delta is a significant determinant in option pricing, but it's not the only one. Option volumes would not be very high if option trading only consisted of opposing delta views. The other factors are dividends, interest rates, and volatility. Naturally, there are many buy-side firms with views or trading strategies on these factors as well. For simplicity, we leave these out of this example.

Many sell-side strategies deployed by banks and market makers evolve around anything but a directional market view. To provide liquidity to the market, they need to eliminate the delta risk while profiting from arbitrage opportunities in, e.g., volatility. This way, predefined risk limits on total market exposure are not exceeded, while trading (and providing liquidity) can continue. Their trading strategies, therefore, are mostly "delta-neutral," i.e., their profit or risk exposure does not depend on changes in the underlying price. In other words, they hedge their delta.

One vehicle that enables these delta-neutral strategies are Option Volatility Strategies, in short: OVS. These derivatives contracts consist of both an option leg and the underlying leg, with the latter neutralizing the delta risk of the construct.

The following provides an example of a concrete OVS instrument in EURO STOXX® 50 (ESX):

OESX C 100 Jun23 4300 vs 41 FESX Jun23 @ 4220

- Leg 1: BUY Option. OESX Call Option, multiplier 100, June 2023 expiry; exercise price 4300
- Leg 2: SELL Underlying. FESX Future, June 2023 expiry, at current market price 4220 index points. To achieve delta neutrality, a total of 41 contracts are required.

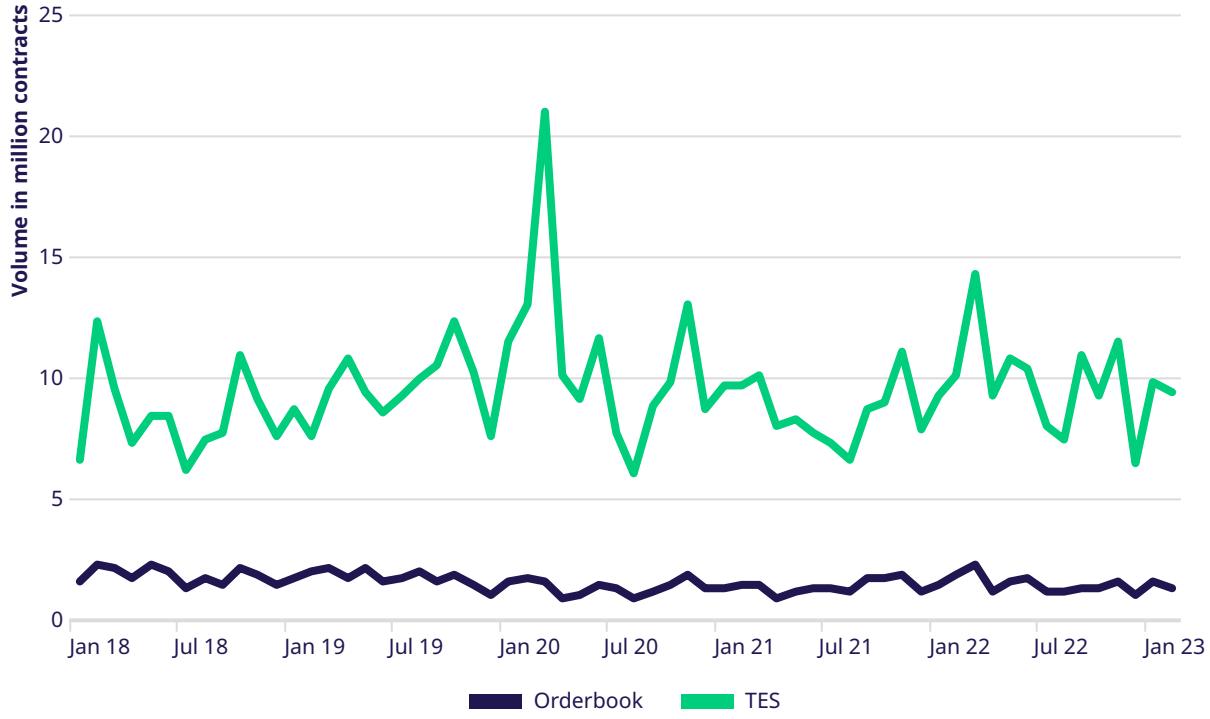
The benefits of delta-neutral products

The main benefit of OVS is that they are delta-neutral by design. This means that an increase in the underlying leg price is offset by the decrease in the options leg price by the same amount. As a result, you don't have to cope with the delta risk because

- They are **straight-through-processed** in a single market, saving the time and effort necessary to act separately on the underlying market, such as the cash or the futures exchange.
- It **saves on the market impact cost on the underlying market**; the OVS implicitly assumes a transaction at the mid-point of the bid-offered spread.
- Not acting separately in the underlying market means your position isn't exposed to the underlying market, **reducing counterparty risk or the risk of information leakage**. It also means that you might face **lower margin requirements**.

Trading OVS at Eurex: Choice of execution venues

Figure 1: Eurex EURO STOXX 50® OVS transaction volume in order book and TES

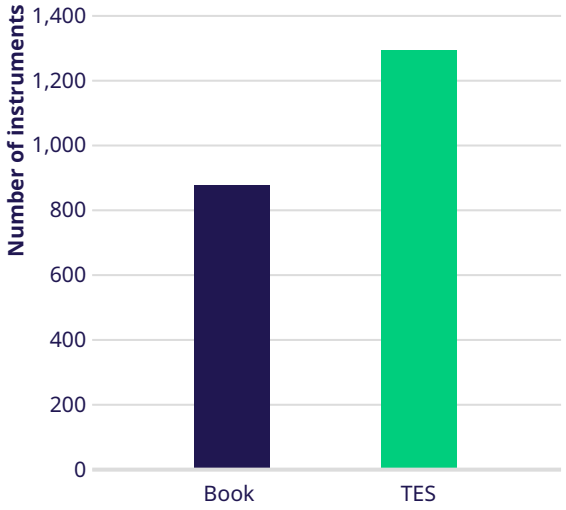


Eurex offers OVS trading in equity index- and fixed income products on its platforms, and soon also for single equities. Whereas these products are mostly traded in blocks on Eurex's TES platform (off the order book), the order book is established as a well accepted mechanism for trading Eurex OVS (Figure 1).

The optics of Figure 1 might suggest that the TES market is dominating OVS trading on Eurex with approximately 85% market share, leaving the order book with the remaining 15%. This is explained by the large TES ticket size of approximately ten times the median trade size in the book: Larger trades are predominantly made on TES and smaller trades in the order book. This is unsurprising, as TES is the block market specifically designed to handle larger trades.

However, when comparing the number of OVS instruments traded by Eurex participants (Figure 2), the difference is not that large: an OVS instrument created on Eurex is almost equally likely to be executed in TES or the order book.

Figure 2: Number of traded strategy instruments in Eurex EURO STOXX 50® order book and TES (February 2023).

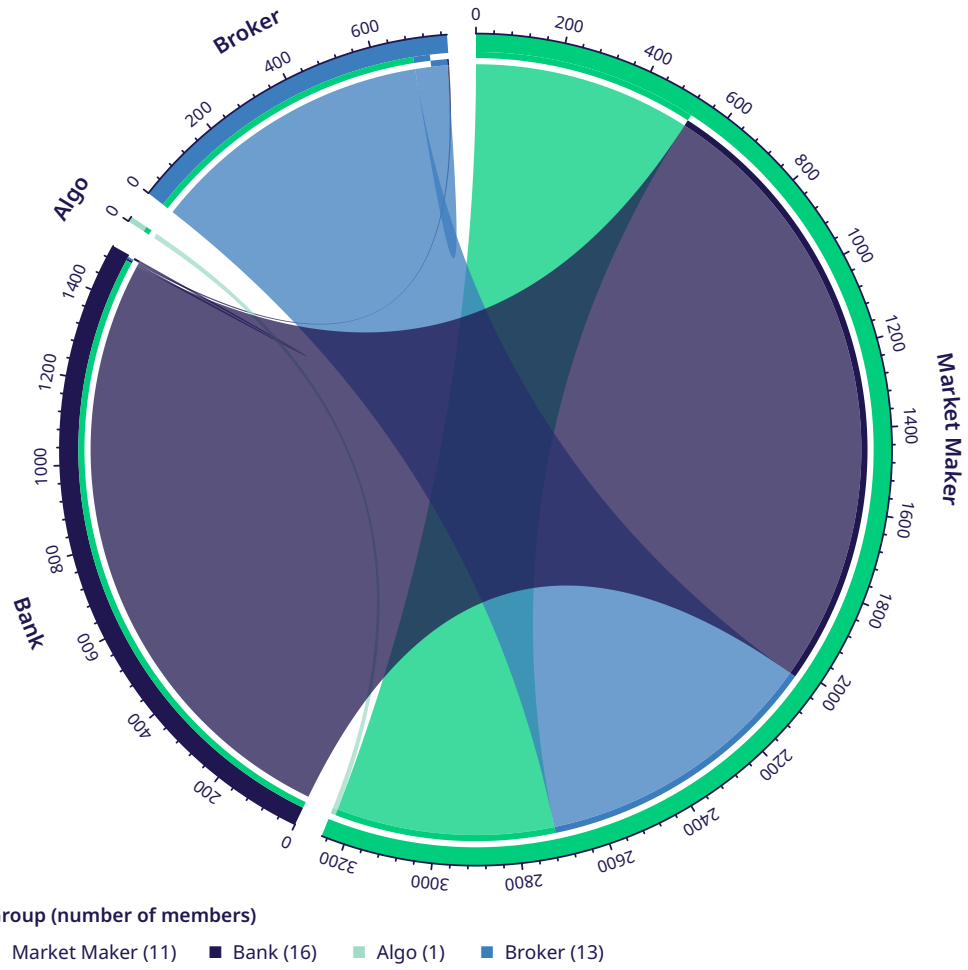


The hidden qualities of the order book

It is worthwhile investigating the market structure of the order book compared to the one of TES. To that end, the cord chart displays the trades concluded in the EURO STOXX 50® (OESX) Option Volatility Strategy in February 2023 (Figure 3).

Each trade is represented as a chord string stretched between the buyer and the seller, then grouped into the groups Market Makers, Banks, Algo Trading and Brokers (this categorization follows Eurex's discretion).

Figure 3: Eurex EURO STOXX 50® Order Book trade counts in OVS (February 2023).



The insights are in favor of the order book as they show:

- There is a total of 41 participants interacting with each other in the order book market. This is quite a significant number, as it shows the magnitude of parties actively trading in OVS. As the corresponding number of TES participants in the same period is only slightly higher (see Figure 4 on page 7), it demonstrates the order book's strength.
- Individual participants are grouped into Market Makers, Banks, Algos and Brokers. The figures show quite a diverse clientele interacting in the order book: While we have eleven Market Makers, there are 16 banks and 13 brokers. In addition, we have one "algo" participant. This large number of participants demonstrates that the OVS order book market is quite lively and heterogeneous.
- The chart shows that Market Makers do around 60% of OVS order book trades. This means that Market Makers are the dominant suppliers of order book liquidity in OVS.
- Banks contribute around a quarter of order book trades. The chord shows that banks seem to source their entire OVS liquidity exclusively from Market Makers.
- A total of 13 brokers participate in the OVS order book market with around 15% trades. Interestingly, we have 17 participants in the TES market (see Figure 4 below), meaning that

brokers utilize both platforms. It is interesting to note that also Inter-Dealer-Brokers care to use the order book to ensure that they get the best deal fortheir clients.

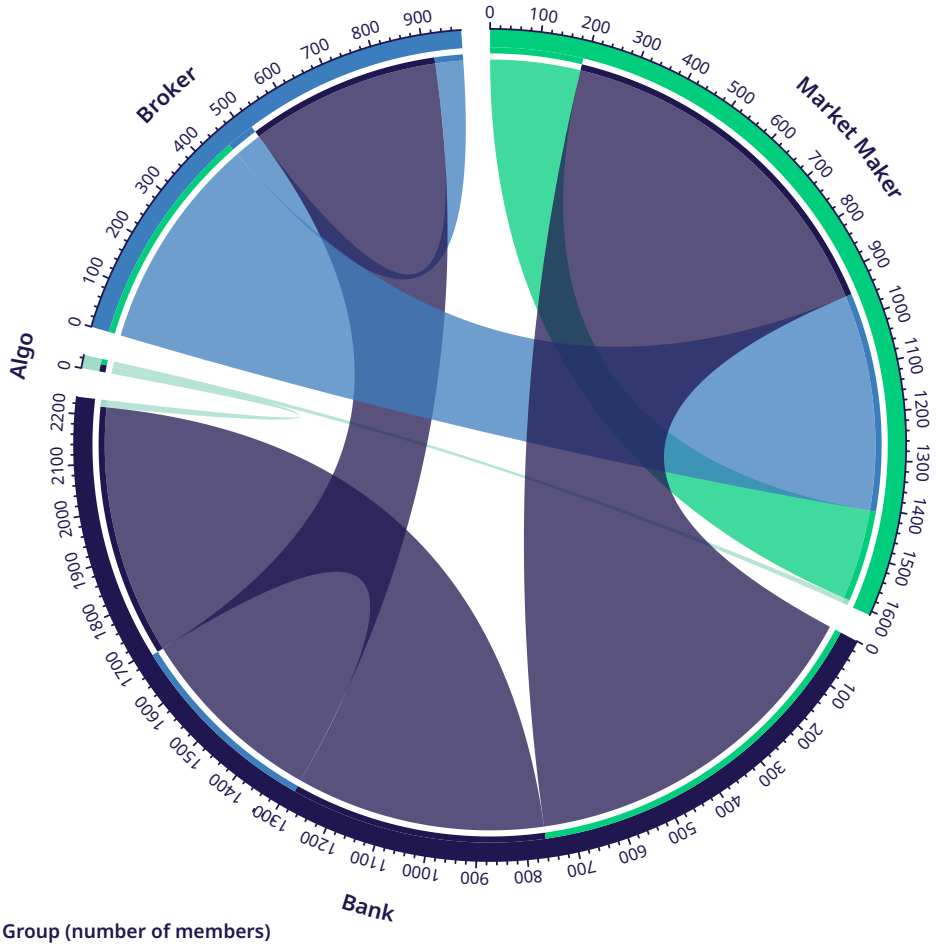
The main reason for the Market Maker dominance in order book trading might be quite technical: Once a client creates an OVS strategy in the order book, the likelihood of finding a "natural counterparty" for that instrument is close to zero. This is because the futures leg needs to be revisited every time the futures price changes to preserve the delta neutrality of the construct (see Box 1). That kind of trading need can only be filled by highly specialized intermediaries, who are ready to take the offered instrument and then offset the individual legs in follow-up trading or hedging processes.

Counterparties trading in the off-book space

The same type of chord chart can be shown for TES trading (Figure 4):[1]

- TES has slightly more (51) participants than the order book.
- Banks trade approximately 40%, followed by Market Makers and Brokers.
- The role of Market Makers in TES is not as crucial as in the order book. This is probably because the broker often moderates off-book trading, which could also find their counterparties amongst the group of banks. The process is mostly done via voice, thus allowing a certain degree of flexibility.

Figure 4: Eurex EURO STOXX 50® TES trade counts in OVS (February 2023)



[1] On Eurex, brokers can trade either via the traditional way or in the "Brokerage functionality". If the latter is used, they would not appear in the below-mentioned stats, as the Broker Mode only considers the eventual buyer and the eventual sellers, and the broker steps out of the trade. If the former is used, then Brokers appear as part of the trade.

Comparing order book with off-book trading

Comparing the two trade forms of the order book and TES, we conclude that the community generally accepts the order book. But due to the lower trade sizes, it has yet to develop its full potential by encouraging participants to submit larger order sizes. Eurex has recently introduced requirements for Market Makers to respond to OVS quote requests to help absorb larger trade sizes in the order book. Such requirements already exist for standard options strategies: Since the introduction of quotation requirements in standards in 2013, they have helped to lift the order book share from 13% to around 50% today.

Focus: New OVS functionality for Single Stock Options

With the NextGen ETD initiative, Eurex allows a similar index option OVS methodology on Single Stock Options (SSOs). The NextGen ETD concept allows listing physically settled single stock futures with daily expiries. Those contracts can be used as an underlying instrument to achieve delta neutrality. The physically settled single stock futures are traded along the options trade, similar to the index OVS. The position expire on the same day triggering a physical settlement through Eurex Clearing. This way, the underlying stock is exchanged within the trade with T+2 settlement, all within the CCP environment, without exchanging the underlying stock bilaterally. The solution allows replicating delta-neutral trades within the Eurex risk framework in a straight-through process. There is no need for additional bilateral contractual relations, KYC processes and respective risk limits.

The solution also allows trading the OVS combination on-screen via the strategy books or via Eurex EnLight. Currently, SSO delta-neutral strategies are limited to off-book trades. This new solution allows trading smaller clips with new counterparties and liquidity providers.

Automating the Deal Price

A recent industry trend is the execution form of “Deal Price”. In this setting, a bank can shop its large order while minimizing market impact. This is achieved by approaching a limited, predefined number of trustworthy Market Makers and asking them for an “all-or-nothing” quote for the full size. Each Market Maker replies with their quote, and the broker will offer the best quote to the client, who can either accept or decline. In this setting, volumes across market makers are not combined to prevent information leakage. Nor will there be further shopping around with other Market Makers or on other markets. This exercise can be performed by approaching the Market Makers directly or via a broker.

Eurex EnLight is an electronic negotiation platform that is technically suited to replicate this process, as it allows to send an RFQ to selected Market Makers. To preserve requestor anonymity, Eurex deploys EnLight Anonymous Negotiation. When used, Market Makers will not know who requested the quote. To protect Market Makers from malevolent requesters, protection mechanisms such as trade-to-request and trade-to-quote ratios are implemented, which enable Market Makers to block any requestors with poor metrics.

Eurex EnLight assists members in complying with MiFID II / MiFIR obligations, specifically around Best Execution. With the trade capture and reporting functionality, handwritten desk blotters, voice calls and chats can be superseded with exchange data and reporting for assistance with proof of Best Execution. The platform does not impose Best Execution interpretation but offers the tools to monitor and enforce the firm’s policy.

Conclusion

Using delta-neutral products can improve the risk management practices of sell-side firms and provide a valuable investment tool for investors looking for delta-neutral alternatives. The Eurex OVS order book provides a healthy environment for different execution needs. The planned introduction of quote request requirements for market makers will further increase the tradeable sizes. This is echoed by Cathal Hardiman from IMC, a major Eurex market maker: "We agree that in the future, there should be more order book trading on Eurex, and we are happy to support this." On top of this offering, Eurex EnLight provides a search and negotiation market for investors looking to automate the current manual processes in search for OVS liquidity.

> **"We agree that in the future, there should be more order book trading on Eurex, and we are happy to support this.**
>
> Cathal Hardiman, IMC

About Eurex

Eurex stands for the leading European derivatives exchange and – with Eurex Clearing – one of the leading central counterparties globally. Being architects of trusted markets characterized by market liquidity, efficiency and integrity, we provide our customers with innovative solutions to seamlessly manage risk. On the trading side, we master-mind the most efficient derivatives landscape by pioneering ingenious products and infrastructures as well as by building 'smart' into technology – offering a global product range, operating the most liquid fixed income markets in Europe and featuring open and low-cost electronic access. As central counterparty, Eurex Clearing builds trusted relationships with and amongst market participants, enabling effective risk management and delivering high efficiencies to clients.

Architects of trusted markets

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