EUREX Architects of trusted markets

Whitepaper

Liquidity Reboot: A New Chapter for EURO STOXX 50® Options

This document is meant for distribution to Qualified Institutional Buyers only.

Taking Stock of Liquidity Improvements across the EURO STOXX 50® Options Ecosystem

Contents

Introduction 03

Market Participants and Execution 04

Changing the Liquidity Provisioning Framework to Increase Tradability 08

What's in Store for the Future 12

Introduction

Introduced in February 1998, the EURO STOXX 50® index is the bedrock of European equity markets. Representing fifty of the largest companies in the Eurozone by free float market cap, its derivative contracts listed exclusively on Eurex are among the most liquid and heavily traded derivatives in Europe. The index continues to evolve, shifting when the Eurozone's borders change and when new stocks reach the peak of Europe's corporate ladder.

While financial markets in other regions of the world have gotten their share of publicity in recent years, an increased focus on Europe makes it worthwhile to have a look at the EURO STOXX 50® product suite. This paper refreshes readers on what's available for trading across the EURO STOXX 50® ecosystem and how participation has evolved over the decades. Furthermore, this paper examines new shifts in liquidity visible in the EURO STOXX 50® options complex, specifically shifts intentionally introduced by Eurex to improve liquidity. As we inch towards the 30th birthday of the EURO STOXX 50®, Eurex recognizes that ongoing improvements in EURO STOXX 50® liquidity are essential for consistently enhancing the vibrancy and global relevance of Europe's financial markets.

EURO STOXX 50® Related Derivatives Available for Trading on Eurex (data as of 31 August 2025):

Title	Code	Description	Notional ADV (in Euros)
EURO STOXX 50® futures	FESX	Europe's most liquid index future; quarterly listing	36.7 billion
Micro EURO STOXX 50® futures	FSXE	1/10th the size of FESX	9.8 million
EURO STOXX 50® Total Return futures	TESX	exchange-listed solution for implicit equity repo trading, quoted in basis points	1.9 billion
EURO STOXX 50® options	OESX	The most liquid index options in Europe; cash settled; European exercise; mid-day settled	47.5 billion
EURO STOXX 50 End-of-Day Settled "Daily" options	OEXP	Short dated options, consisting of the first 5 trading days and the first three month-end contracts; European exercise; end-of-day, cash settlement	1.7 billion
Market on Close futures	FES1	Exchange listed solution to trading the FESX basis; clears into standard EURO STOXX 50 future	38.1 million
Quanto futures	FESQ	Futures that track EURO STOXX 50 in USD terms	-

Market Participants and Execution

It's impossible to discuss liquidity without first understanding the types of exchange participants in the EURO STOXX 50® ecosystem and how they interact with the market. It's worth noting that there are three main account types at Eurex:

A-Accounts: undisclosed agency trades

P-Accounts: typically, accounts of prop trading firms or banks' house accounts

M-Accounts: market making and liquidity-providing accounts

A chart of common users of each account type can be found below.

Common Users of Each Account Type:

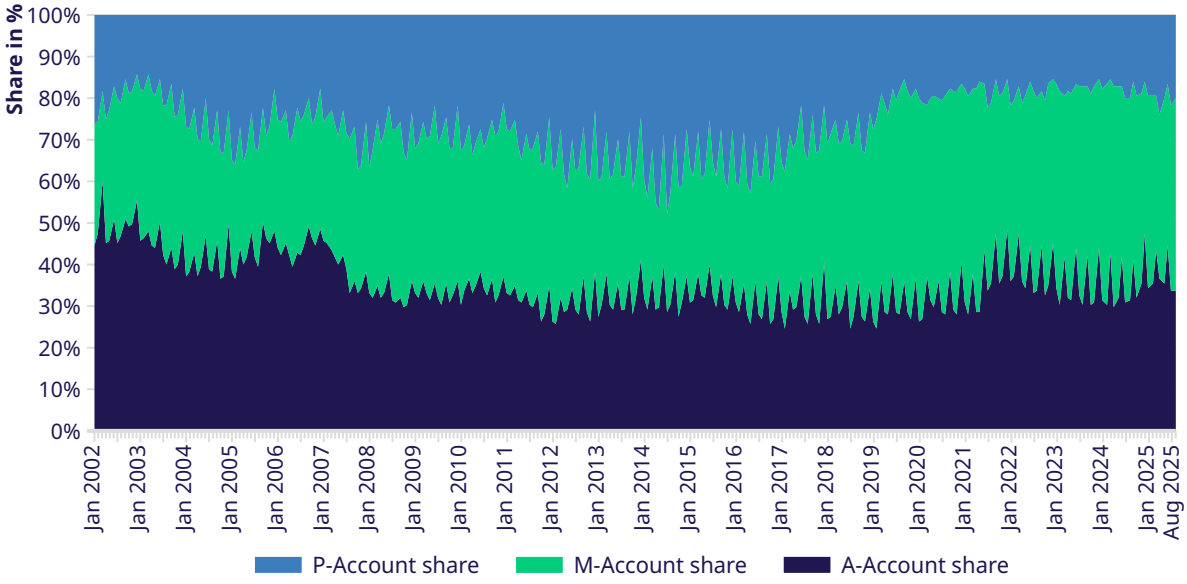
A-Account (undisclosed)	P-Account (disclosed)	M-Account (disclosed)
Hedge funds	House accounts of banks	Liquidity providers
Asset managers	Prop trading firms	
Smaller banks trading in an omnibus account	Disclosed hedge funds	
Retail		

Focusing on EURO STOXX 50® futures (FESX), mid-day settled EURO STOXX 50® options (OESX), and end-of-day settled "daily" options (OEXP), we plot how the split between these account types has evolved over the years in terms of their share of overall trading.

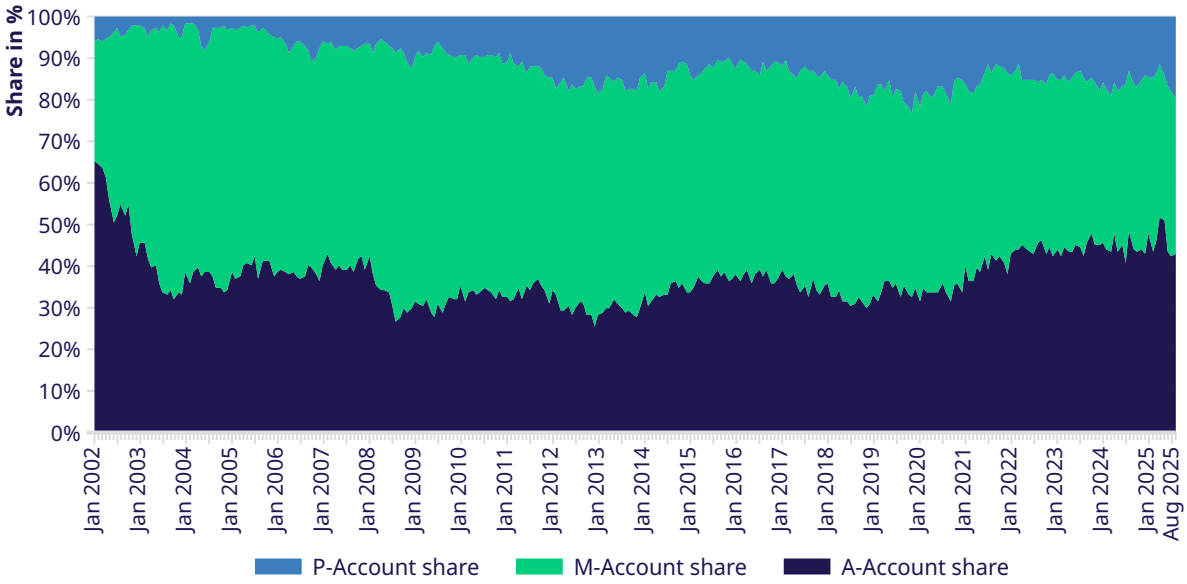
With current open interest of roughly EUR 99 billion and an average daily trading volume of about 698 thousand contracts, the EURO STOXX 50® index futures have seen a relatively stable percentage of A-Account flow over the last decade. Most variance in the overall pie can be seen in the split between P- and M-Accounts, which is largely the result of the growing importance of non-bank liquidity providers and more liquidity providers taking advantage of liquidity programs more broadly.

EURO STOXX 50® index options (current ADV of roughly 959 thousand contracts and OI of EUR 1.2 trillion) have, on the other hand, experienced slightly more variability in A-Account volumes, with the A-Account share increasing since the COVID pandemic.

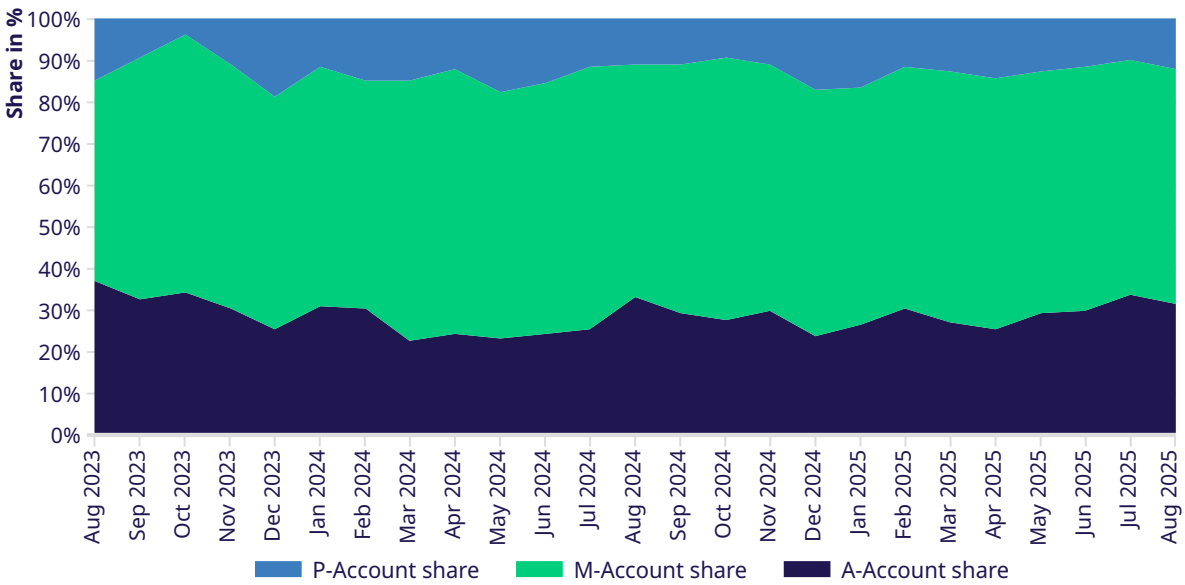
Historical EURO STOXX 50® Index Futures (FESX) Trading by Account Type – Chart 1



Historical EURO STOXX 50® Index Options (OESX) Trading by Account Type – Chart 2



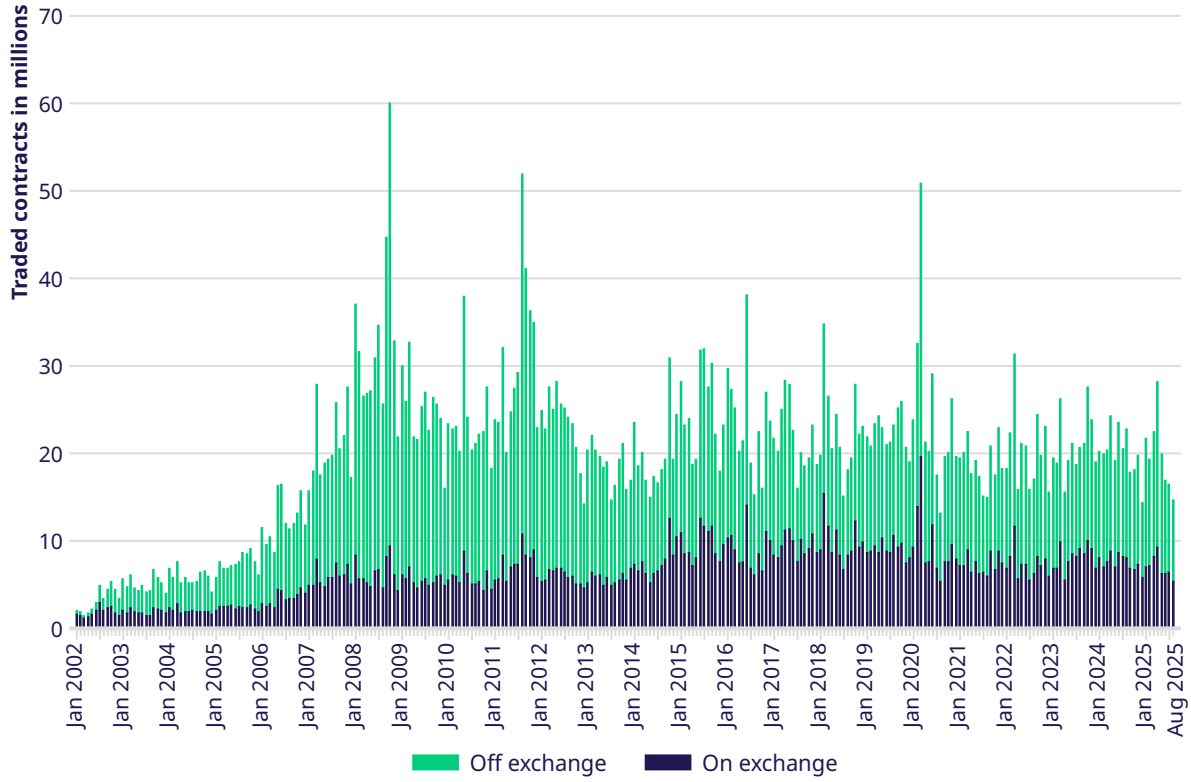
Historical EURO STOXX 50® End-of-Day Settled Options (OEXP) Trading by Account Type – Chart 3



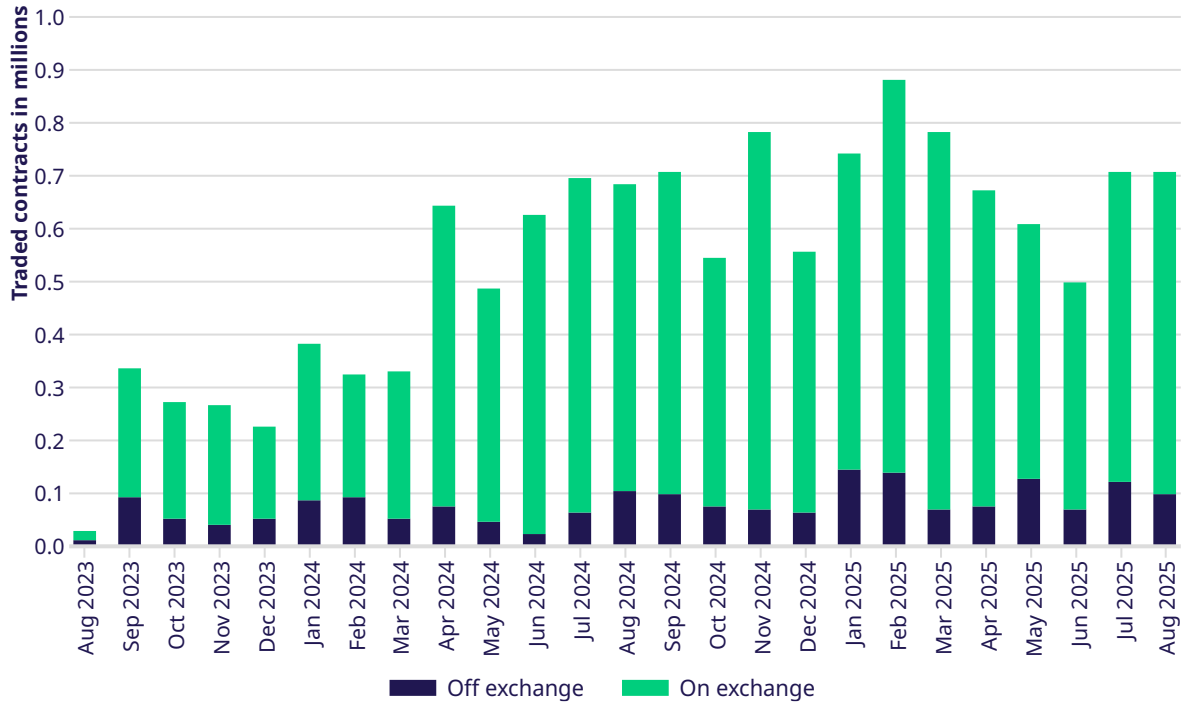
Throughout the rest of this paper, we'll specifically focus on EURO STOXX 50® options (both OESX and OEXP), exploring how trades have been executed over time. TES ("Trade Entry Service") refers to various forms of block trading on Eurex, while order book volumes indicate trades that happen within the central limit order book. Overall, we observe that order book volumes in OESX, as a percentage of total trading, have generally remained in the 30 to 40 percent range over the past twenty years. There is also considerable variability between the type of instrument traded, with outrights and simple options strategies trading more heavily in the order book. In contrast, delta-hedged strategies are traditionally heavily skewed towards block trading. A summary of OB ratio developments in the main instrument types can be seen in the table below. Looking historically, through and around the global financial crisis, order book volumes generally stayed sub 30 percent, eventually rising to the 45 to 50 percent range heading into the 2020 pandemic as markets became more electronic. Since the pandemic, order book volumes generally stayed in the mid to high 30 percent range.

Conversely, OEXP, the daily expiring version of EURO STOXX 50® options which is just celebrating its second birthday, has generally been an order book traded contract. Likely due to their high delta and high theta nature (not to mention the fact that the majority of trading is occurring in the zero day to expiry contract), 80 to 90 percent of OEXP volumes have occurred in the order book.

OESX: Volumes by Trade Type – Chart 4



OEXP: Volumes by Trade Type – Chart 5



Year	Outright (simple instrument)	Standard option strategy	Option volatility strategy (delta hedged)
2020	56%	59%	12%
2021	51%	64%	12%
2022	47%	63%	10%
2023	52%	58%	13%
2024	52%	57%	11%
2025	47%	57%	12%

While the exchange is agnostic around how clients execute trades, two decades of data clearly show that OESX order book volumes have generally stayed within the 30 to 40 percent range of total volumes, with 60 to 70 percent being blocked. This pattern persists even when focusing on end-user (A-Account) volumes specifically. At the same time, other exchanges worldwide have experienced a signif-icant shift in options trading moving into the order book over the last decade, along with a rise in end-user trading. This raised the question of whether liquidity issues were behind the consistently high TES percentage in OESX. In other words, if quoted screen markets were tighter and more consistent, would we see order book volumes as a percentage of total volumes increase, and would we see an increased end user participation?

Changing the Liquidity Provisioning Framework to Increase Tradability

To ensure order books are consistently liquid throughout the trading session, Eurex offers liquidity schemes for the majority of its contracts to incentivize order book quotation. Again, while the exchange is generally indifferent towards how trades are executed, order book quotation promotes price discovery for participants and is critical for the daily marking of positions and risk management more broadly. Throughout most of the lifetime of EURO STOXX 50®, these schemes have been rule and parameter-based. Quite simply, schemes required that a liquidity provider quote markets a certain width and certain size for a certain percentage of the trading day. The liquidity provider would then be eligible for financial incentives. While this model generally ensured consistent quoting, it did not necessarily encourage order book competition. Instead, quoting was generally based on parameters set by the exchange. For OESX, this spread requirement was usually 8 percent wide, with a size requirement of 100 contracts. Strikes required to be quoted were 7 out of 15 around the money strikes, with optionality in strike selection and no incentive for overperformance. Furthermore, weekly expiries were not considered mandatory under the main framework.

Starting in 2024, Eurex launched a market-wide consultation on a radical framework change for EURO STOXX 50® options. Under this proposed framework, liquidity providers would generally be rewarded based on the competitiveness of their quotes. Parameters regarding the time required to be in the book were retained to ensure order books stay populated during market stress, but spread width and size quoted would be determined by the market. With support from the liquidity-providing community, testing for this framework change began on 1 May 2025, with full implementation of the requirements taking effect on 1 July 2025. This new program targets contracts from the shortest dated weekly out through two years, with a 75 delta range and a 90 percent quotation time requirement.

Early results:

While we are only two full months into full implementation, the improvement in liquidity has been resoundingly apparent. We look at three metrics: average spread quoted, "aggressive" trading and market coverage.

Average spread quoted: This is simply the time weighted average width of the bid/ask of quotes in the order book. Since there are thousands of strikes to quote, making the calculation quite intensive, we simplified this process and focused on around-the-money options across the entire quoted expiration curve. The improvement is apparent. While calls were on average quoted 27.41 basis point wide in March 2025 (pre-scheme change), they were quoted 7.97 basis point wide and 8.44 basis point wide in July and August. Similar improvements can be found in puts.

Average BBO Spread/notional (in bps)

Month	Calls	Puts
Feb 2025	25.30	16.07
Mar 2025	27.41	24.19
Apr 2025	51.63	78.62
May 2025	20.91	18.81
Jun 2025	14.20	13.94
July 2025	**7.97**	**6.93**
Aug 2025	**8.44**	**8.72**

This begs the question: did this improvement come at the expense of quoted size? The answer is clearly no, with the average size quoted also increasing in puts and remaining stable and robust in calls. It should be noted that the average traded size in OESX is just around 35 contracts for the order book, indicating the BBO is capable of easily absorbing not only the average order book execution but the 75th percentile as well.

Average Size on BBO (bid+ask)/2

Month	Calls	Puts
Feb 2025	280	359
Mar 2025	267	343
Apr 2025	306	182
May 2025	235	268
Jun 2025	274	279
July 2025	**296**	**345**
Aug 2025	**275**	**340**

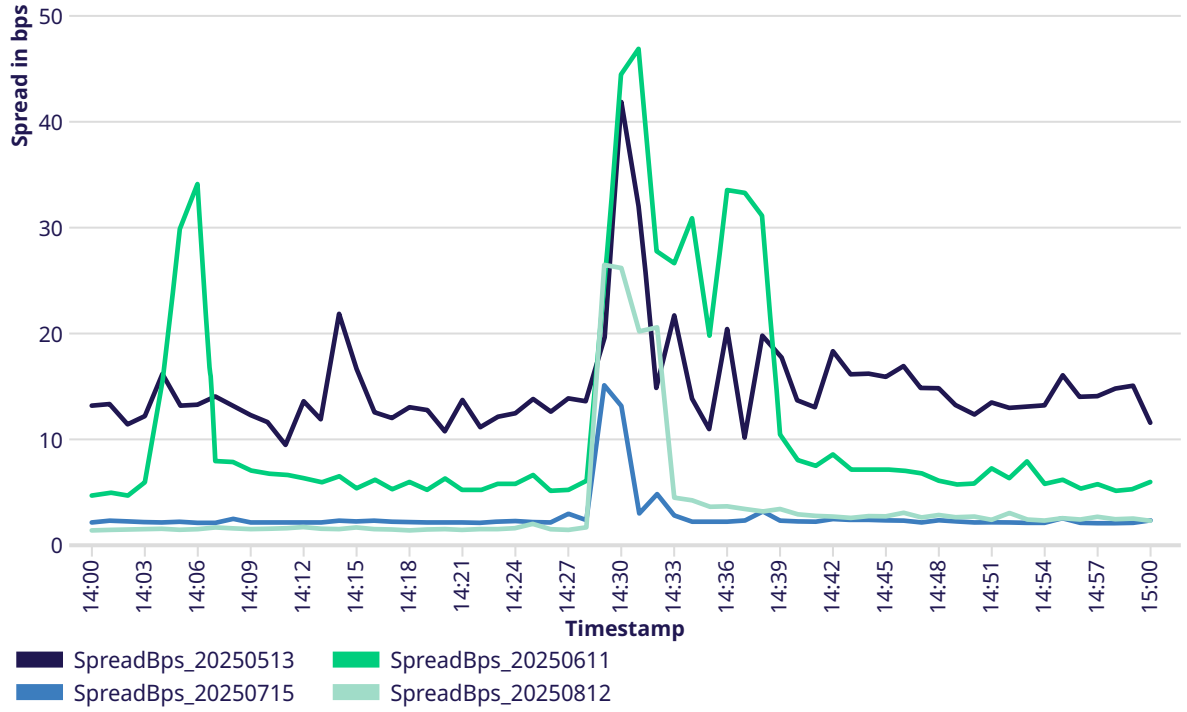
We can also look at how markets fared through events that we know can stress the market, like US CPI data releases. The chart below plots the two CPI releases between the implementation of the new scheme with the two after. The data clearly shows that (1) spreads remain consistently tighter, even during events that could introduce volatility, and (2) the market reverts to its pre-stressed levels faster.

Aggressive trading: Eurex's mantra with this new framework was "a good quote is a tradable quote." Given that, we define an "aggressive" order as one that hits a bid or lifts an offer, directly interacting with a lit quote. Here again, while it's still early days, the data shows a slight but noticeable increase in aggressive trading by A-Accounts.

Aggressive Trading in Simple Instruments

Month	Agency	Market Making	Proprietary
Jan 2025	15%	80%	6%
Feb 2025	15%	81%	4%
Mar 2025	12%	84%	3%
Apr 2025	12%	86%	2%
May 2025	15%	80%	6%
Jun 2025	17%	78%	6%
Jul 2025	**19%**	74%	7%
Aug 2025	**16%**	79%	5%
Grand total	**15%**	**80%**	**5%**

Average Spreads during CPI Announcements



We also notice a clear increase in overall order book volumes after 1 July. On some days in August, order book volumes in simple instruments exceeded 70 percent of total trading. In fact, 17 out of 23 days in July and 15 out of 21 in August traded above the yearly average of trades executed in the order book.

Coverage: Most market participants value the importance of lit price discovery, even if the trade ultimately prints via a block. The table below shows the number of strikes quoted in the OESX order books. As a reminder, the new scheme went into full effect on July 1st. On average, we found that the number of strikes quoted between April and August increased by 35 percent.

Simple Instruments

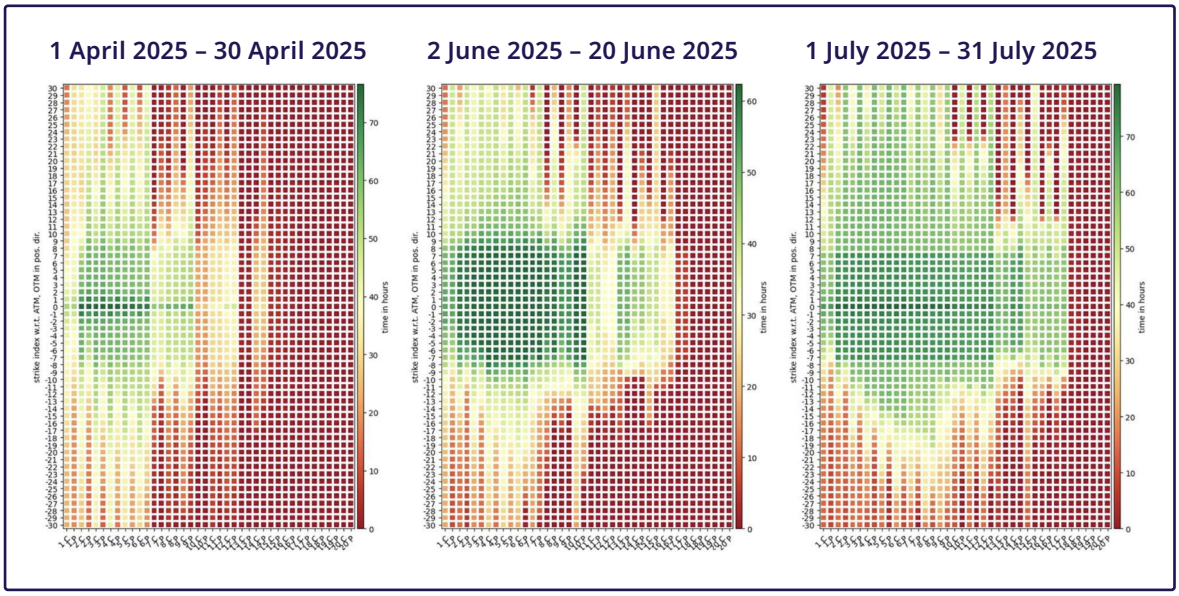
Row labels	OB	TES	Total	OB ratio
Jan	3,968,072	5,195,305	9,163,377	43%
Feb	3,800,462	3,366,404	7,166,866	53%
Mar	4,611,481	4,389,379	9,000,860	51%
Apr	4,779,125	6,459,000	11,238,125	43%
May	3,425,883	4,931,436	8,357,319	41%
Jun	3,580,438	3,838,115	7,418,553	48%
Jul	3,782,694	3,546,518	7,329,212	52%
Aug	3,557,487	3,510,103	7,067,590	50%
1 Aug	374,734	273,170	647,904	**58%**
4 Aug	171,228	125,149	296,377	**58%**
5 Aug	172,794	86,446	259,240	**67%**
6 Aug	128,692	56,565	185,257	**69%**
7 Aug	219,335	199,396	418,731	**52%**
8 Aug	236,107	295,804	531,911	**44%**
11 Aug	117,097	342,129	459,226	**25%**
12 Aug	150,568	136,206	286,774	**53%**
13 Aug	190,463	191,471	381,934	**50%**
14 Aug	168,061	147,387	315,448	**53%**
15 Aug	264,923	380,435	645,358	**41%**
18 Aug	108,358	136,395	244,753	**44%**
19 Aug	133,235	198,926	332,161	**40%**
20 Aug	159,917	98,836	258,753	**62%**
21 Aug	109,999	98,300	208,299	**53%**
22 Aug	196,175	435,609	631,784	**31%**
25 Aug	105,916	27,240	133,156	**80%**
26 Aug	130,985	89,643	220,628	**59%**
27 Aug	96,211	59,256	155,467	**62%**
28 Aug	119,250	53,607	172,857	**69%**
29 Aug	203,439	78,133	281,572	**72%**
Sep	241,368	149,725	391,093	62%
Grand total	**31,747,010**	**35,385,985**	**67,132,995**	**47%**

Instrument Level Quotation

Month	Average # of strikes quoted	Min # of strikes quoted	Max # of strikes quoted
Jan 2025	2,887	2,586	3,049
Feb 2025	3,345	3,153	3,574
Mar 2025	3,221	2,889	3,592
Apr 2025	3,055	1,347	3,703
May 2025	3,514	3,147	3,933
Jun 2025	3,690	3,099	4,000
Jul 2025	4,436	3,886	4,630
Aug 2025	4,241	4,089	4,516

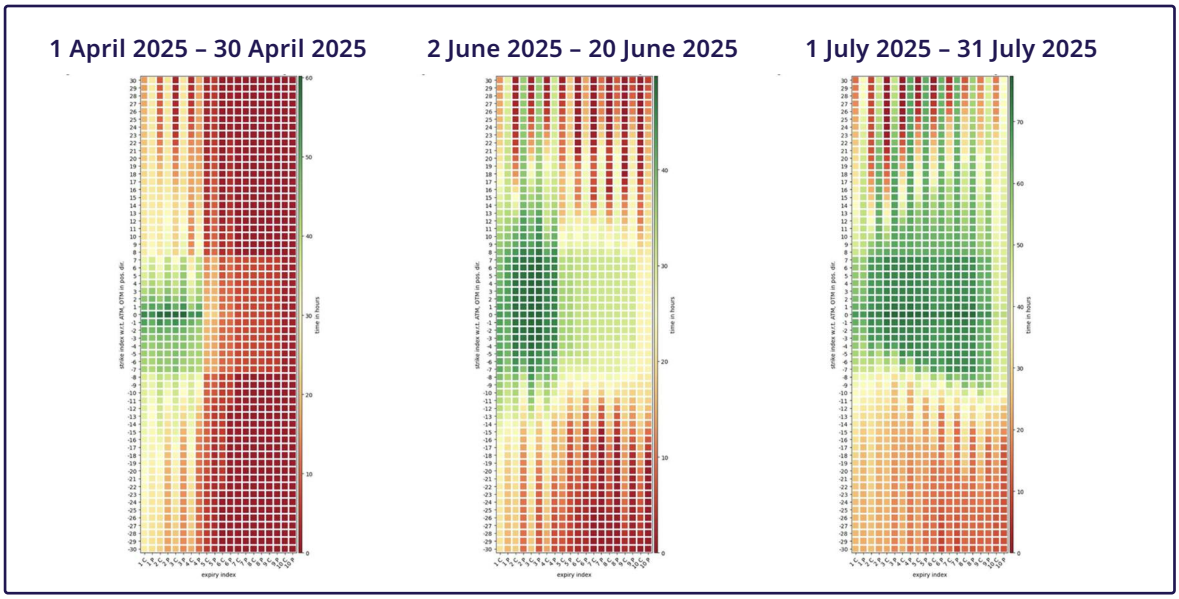
We can also visualize time quoted, based off of moneyness and expiry. The plot on the left shows the pre-scheme data (April 2025). The middle plot is from June 2025, during the testing period. The plot on the right is immediately after full implementation. What's clear is that significantly more strikes are being quoted for longer periods of the trading day.

Average Covered Time in OESX



We see a similar but even more pronounced trend when we focus on weekly contracts.

Average Covered Time in OESX Weeklies



Although we're only two months into the new program, the early evidence is that quoted OESX spreads are significantly tighter (even during stress-inducing events), the quoted size is increasing, and market coverage has expanded. While two months don't establish a trend, early data indicate that this improved liquidity could be directly linked to a higher percentage of trading in the order book, as well as increased interaction between end-traders and lit quotes in the book.

What's in Store for the Future:

Options volumes worldwide are increasingly shifting toward shorter maturities, and Europe is no exception. If data continues to indicate that order book liquidity has improved in OESX, Eurex may consider implementing a similar framework for end-of-day settled EURO STOXX 50® contracts (OEXP) in the coming months. This would ensure that the entire front end of the curve (out through two years) is covered by the same liquidity provisioning model, harmonizing the curve. This model could also be applied to similar index products, such as DAX® and STOXX® Europe 600, as well as single-stock equity options.

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

Contact

SALES AMERICAS
Matt Koren
T +1-917-495 2997
matthew.koren@eurex.com

BUSINESS ANALYSIS AND DEVELOPMENT
Strahinja Trenkic
strahinja.trenkic@eurex.com

© Eurex, September 2025

Published by
Eurex Frankfurt AG
Mergenthalerallee 61
65760 Eschborn
Germany

www.eurex.com

ARBN Number
Eurex Frankfurt AG ARBN 100 999 764

© 2025 by Deutsche Börse AG. Eurex®, the EX® and EC®-Logo are registered trademarks of Deutsche Börse AG. This publication is published for information purposes only and does not constitute accounting advice, investment advice or an offer, solicitation or recommendation to acquire or dispose of any investment or to engage in any other transaction. While reasonable care has been taken in the preparation of this publication neither Eurex Frankfurt AG, nor any of its affiliates make any representation or warranty regarding the information contained herein. Customers should consider the legal, accounting and regulatory requirements in the jurisdictions relevant to them before using Eurex® products or services. All descriptions, examples and calculations contained in this publication are for illustrative purposes only.

Find out more online at
www.eurex.com