

November 2022

EMEA Market Structure Monthly

MICROSTRUCTURE OBSERVATIONS

- In November 2022, the average daily volume in EMEA equities increased to €43.2B, 7% higher than previous month (€40.4B) yet below November 2021's volume by 15% (€49.9B).
- The median quote size increased at the European Best Bid and Offer (EBBO) in November for STOXX 50 by 36% and STOXX 600 by 13% during the intraday trading period (08:30 to 16:00 GMT) compared to the prior month.
- Median quoted spreads at the EBBO decreased in November compared to the prior month. STOXX 50 decreased by 9% to 3.1bps and STOXX 600 symbol spreads decreased by 12% to 5.2bps, during the intraday trading period.
- Volatility levels decreased significantly in November, STOXX 50 decreased by 26% and STOXX 600 decreased by 21% during intraday trading compared to the prior month.
- The market share distribution between venue types changed from the prior month. Primary Auctions market share increased by 2.1% largely driven by the MSCI rebalance at the end of November. Both Primary and MTF lit market share decreased by 0.7% and 1.2% respectively. FBA venues and Dark venues market share didn't change significantly relative to the prior month.
- Cboe dark market share decreased by 2% while SigmaX increased by 1% following their launch of support for conditional order types.
- In November, the closing auction volume did not change significantly as percentage of the daily volume. STOXX50 was 19.3% and STOXX600 was 18.6%.

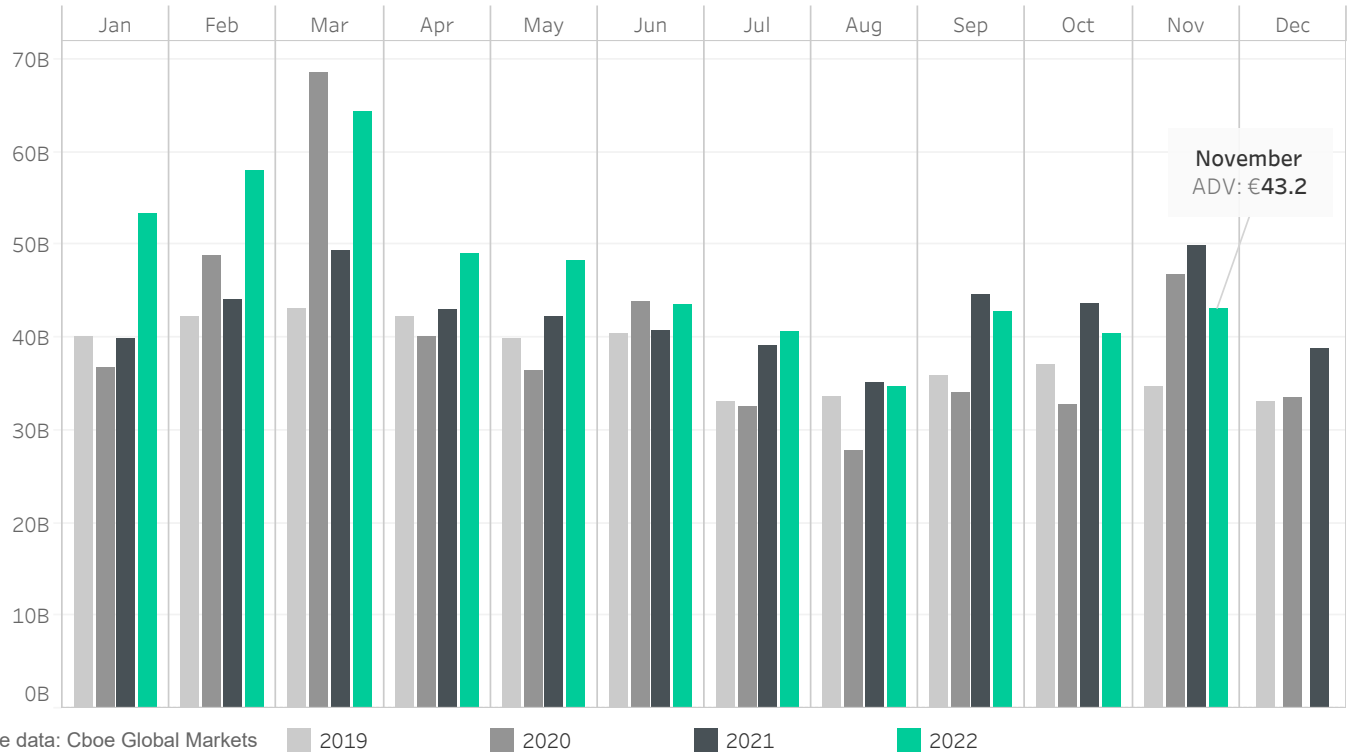
EMEA MARKET STRUCTURE NEWS

Additional Financial Institutions Expanding Their Digital Business

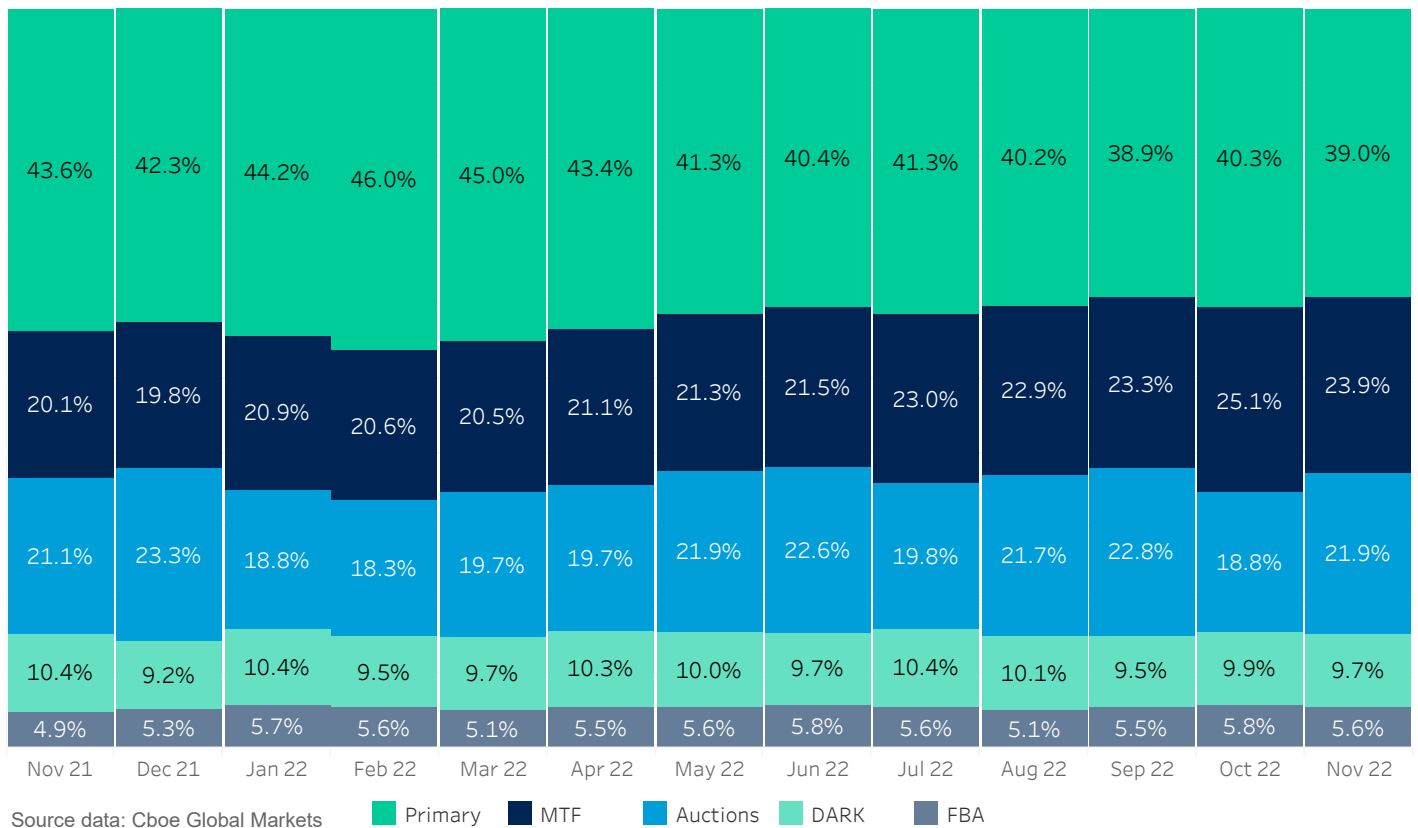
Cboe Global Markets / Goldman Sachs and other financial institutions are expanding into the blockchain technology. Goldman Sachs has launched its digital asset platform (GS DAP), with the issuance of a €100 million (\$104m) digital bond for the European Investment Bank (EIB) on the private GS blockchain. Cboe Global Markets has recently announced new investor partners for its Cboe Digital Business which already operates a spot market, derivatives market and clearing platform and is planning to develop and distribute a range of digital assets data product subject to regulatory approvals. Virtu is one of Cboe's investor partners.

<https://ir.cboe.com/news-and-events/2022/11-29-2022/cboe-global-markets-finalizes-investor-partners-cboe-digital-business> <https://www.ledgerinsights.com/goldman-sachs-unveils-digital-asset-platform-with-eib-e100m-blockchain-bond/>

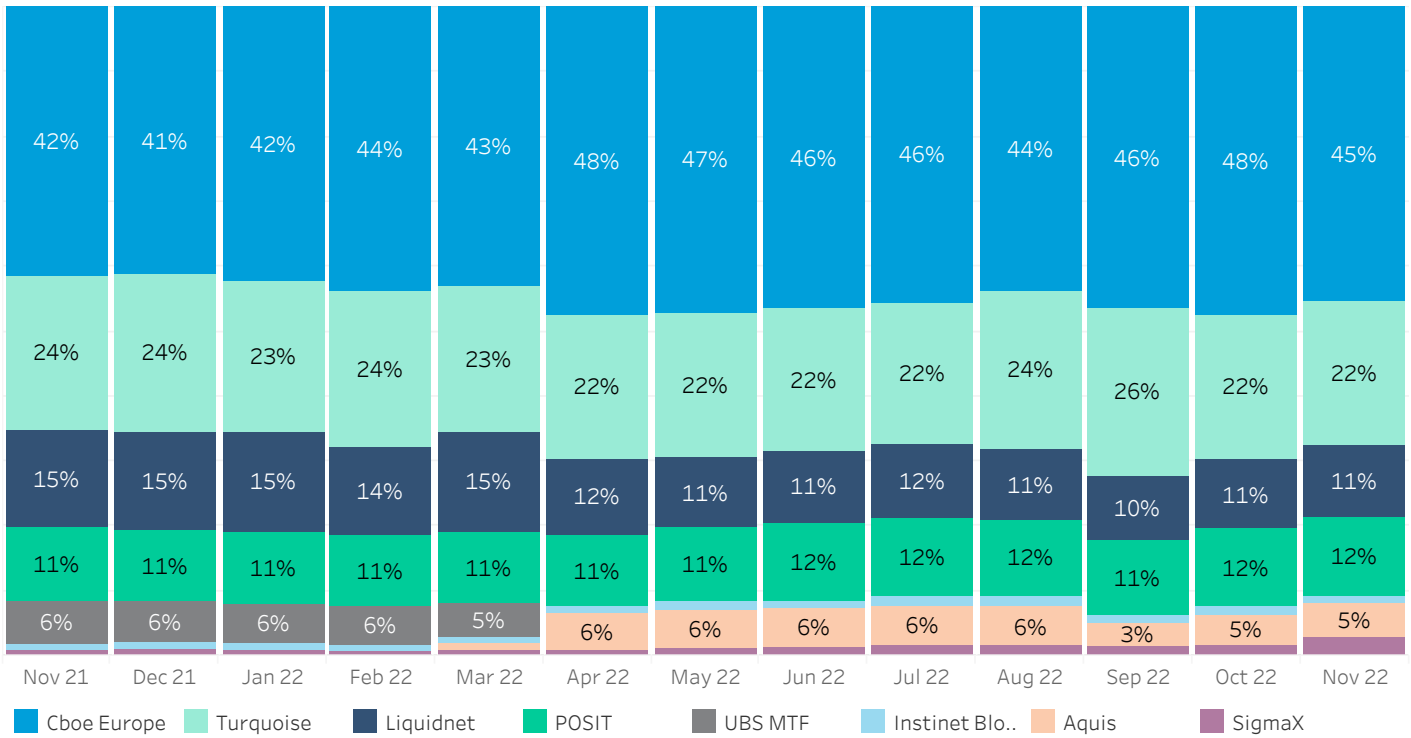
Average Daily Market Volume



Venue Type Market Share

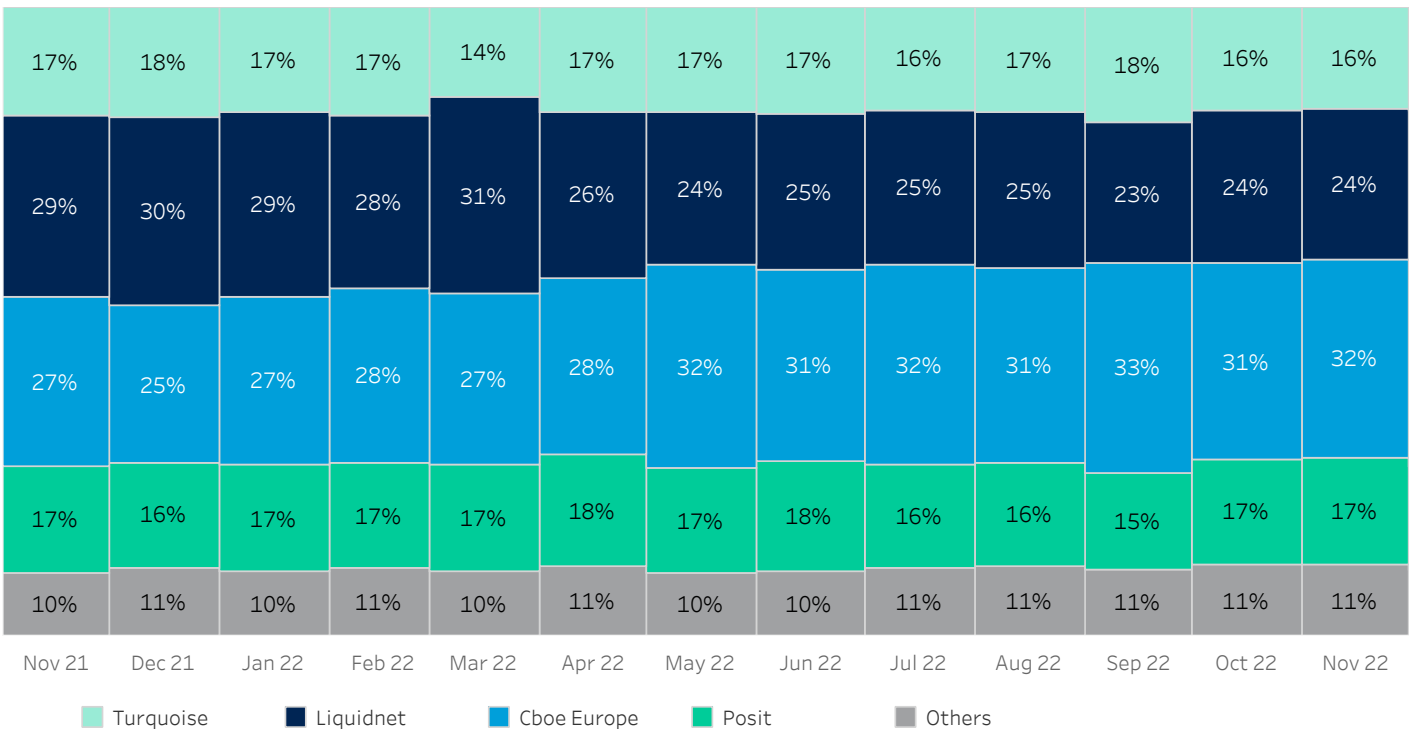


Dark Market Share



Source data: Cboe Global Markets

Block Market Share



Large In Scale values as per defined per symbol by ESMA; Source data: Virtu Financial

Quotesize in Notional USD

		4Q 21		1Q 22			2Q 22			3Q 22			4Q 22	
		Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22
8:00 - 8:30	Stoxx50	18.0K	18.5K	18.8K	16.3K	17.3K	18.3K	17.9K	21.0K	16.8K	19.2K	18.2K	18.0K	23.5K
	Stoxx600	10.1K	10.6K	10.4K	9.6K	10.1K	11.0K	10.5K	10.0K	9.5K	10.2K	10.9K	9.8K	10.7K
8:30 - 16:00	Stoxx50	32.0K	33.6K	33.8K	29.7K	23.1K	25.8K	26.4K	33.9K	26.0K	26.6K	25.8K	25.1K	34.3K
	Stoxx600	16.3K	17.0K	17.0K	15.5K	12.6K	14.0K	13.3K	12.9K	11.9K	12.2K	13.4K	11.5K	13.0K
16:00 - 16:30	Stoxx50	38.1K	39.3K	37.9K	35.1K	28.3K	33.3K	33.1K	39.8K	31.3K	31.4K	29.0K	28.8K	40.8K
	Stoxx600	18.9K	19.0K	19.1K	18.6K	14.6K	17.0K	16.0K	15.4K	14.6K	14.7K	15.0K	13.8K	16.6K

Spread Bps

8:00 - 8:30	Stoxx50	4.2	4.2	4.0	4.5	5.3	4.9	5.0	5.4	5.9	5.0	5.3	5.3	4.8
	Stoxx600	8.1	7.8	8.2	8.8	10.1	9.1	9.4	9.6	10.4	9.2	9.6	9.9	9.1
8:30 - 16:00	Stoxx50	2.4	2.5	2.5	2.7	3.2	3.0	3.0	3.4	3.6	3.2	3.5	3.4	3.1
	Stoxx600	4.5	4.5	4.7	5.0	5.8	5.2	5.6	5.9	6.3	5.4	5.9	6.0	5.3
16:00 - 16:30	Stoxx50	2.1	2.2	2.2	2.3	2.7	2.5	2.6	2.8	3.0	2.7	2.9	2.8	2.6
	Stoxx600	3.8	4.0	4.1	4.1	4.7	4.4	4.7	4.8	5.1	4.5	4.8	4.9	4.3

One Minute Volatility Bps

8:00 - 8:30	Stoxx50	12.9	12.1	14.8	17.6	22.3	18.2	16.5	16.9	22.3	14.6	17.4	17.3	13.8
	Stoxx600	12.5	11.0	14.1	16.5	21.5	17.3	16.3	16.2	18.2	14.1	17.4	18.0	15.2
8:30 - 16:00	Stoxx50	5.6	5.3	6.6	7.8	10.0	7.3	7.3	7.6	10.2	6.6	8.7	8.1	6.0
	Stoxx600	5.2	4.9	5.9	6.7	8.5	6.5	6.8	6.8	7.7	5.9	7.4	7.6	6.0
16:00 - 16:30	Stoxx50	4.9	5.6	6.7	7.0	9.5	7.2	8.4	8.1	9.2	6.9	8.5	8.5	6.0
	Stoxx600	4.5	4.8	5.5	5.5	7.3	6.0	7.0	6.5	6.8	5.4	6.8	7.0	5.4

Percent ADV by Time of Day

Open	Stoxx50	0.9%	0.9%	1.0%	1.0%	0.9%	1.0%	0.8%	0.9%	0.7%	0.7%	0.7%	0.6%	0.7%
	Stoxx600	0.5%	0.6%	0.7%	0.6%	0.5%	0.6%	0.5%	0.5%	0.4%	0.4%	0.4%	0.3%	0.4%
8:00 - 8:30	Stoxx50	9.4%	9.0%	9.9%	9.2%	7.8%	7.5%	7.6%	15.1%	22.2%	14.5%	15.5%	14.8%	14.4%
	Stoxx600	7.3%	6.8%	8.3%	7.9%	7.8%	8.2%	7.7%	8.3%	9.3%	9.6%	9.9%	9.8%	9.8%
16:00 - 16:30	Stoxx50	18.3%	19.4%	16.1%	15.5%	16.9%	14.8%	15.3%	16.2%	16.1%	12.3%	11.0%	12.2%	10.2%
	Stoxx600	12.8%	13.6%	12.7%	12.2%	12.4%	10.6%	11.9%	12.1%	12.7%	13.7%	12.9%	12.2%	11.8%
Close	Stoxx50	25.8%	28.7%	22.2%	21.9%	23.6%	23.5%	23.8%	25.7%	24.4%	22.5%	20.7%	18.2%	19.3%
	Stoxx600	26.3%	29.0%	24.0%	24.5%	23.8%	26.0%	24.2%	26.3%	23.2%	21.1%	20.3%	18.3%	18.6%

Median used for all metrics

One minute volatility is calculated using the difference between the high and low price within a one minute time bin, divided by that bin's VWAP

Source data: Virtu Financial

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