February 2023 EMEA Market Structure Monthly

MICROSTRUCTURE OBSERVATIONS

• In February 2023, the average daily volume in EMEA equities increased to €46.4B, 13% higher than previous month (€40.9B); however, much below February 2022's volume, a decrease of 25% (€57.9B).

• The median quote size increased at the European Best Bid and Offer (EBBO) in February for STOXX 50 by 9% and STOXX 600 by 4% during the intraday trading period (08:30 to 16:00 GMT) compared to the previous month.

• Median quoted spreads at the EBBO didn't change significantly compared to the previous month; STOXX 50 decreased 7% to 3bps and STOXX 600 symbol spreads remained at 4.9bps during the intraday trading period.

• Volatility levels didn't change significantly compared to the previous month; STOXX 50 volatility increased by 2% and STOXX 600 volatility didn't change during intraday trading.

• The market share distribution between venue types changed minimally compared to the previous month. Primary Auctions market share increased by 1%. Both Primary and MTF lit market share decreased by 0.7% and 0.3%, respectively. Dark venues market share decreased by 0.6% and Frequent Batch Auctions ("FBA") venues market share decreased as well by 0.1% relative to the previous month.

• In February, the closing auction volume increased as a percentage of the daily volume; STOXX50 closing auction volume was up 2.6% to 25.7% and STOXX600 was up 1.1% to 26.8%.

EMEA MARKET STRUCTURE NEWS

European Securities and Markets Authority Published its first Trends and Risk Report

The European Securities and Markets Authority's (ESMA) publishes its first Trends, Risks and Vulnerabilities (TRV) Report of 2023. Overall, risks in ESMA's remit remain high, and investors should be prepared for further market corrections. The report highlights that the tightening of financial conditions globally has weighed on economic activity, while inflation remains very high. Volatility in energy markets stayed elevated despite a general decline in prices. Structural vulnerabilities expose markets and participants to the risk that shocks to markets could be amplified by liquidity supply and demand imbalances. https://www.esma.europa.eu/press-news/esma-news/esma-sees-high-risks-amid-fragile-markets

Consolidated Tape Collaboration Announced by European Exchanges

In response to the European Commission's proposal for an equities tape to contribute to the development of the Capital Markets Union, 14 European exchanges which represent all EU member states (except Slovakia) announced a joint initiative to participate in the future selection process for the provision of a consolidated tape (CT) for equities in the European Union. https://www.bolsasymercados.es/ing/Media/Press-Release/20230216/nota_20230216_2/European_exchanges_collabo-rate_for_the_provision_of_a_consolidated_tape_in_the_European_Union

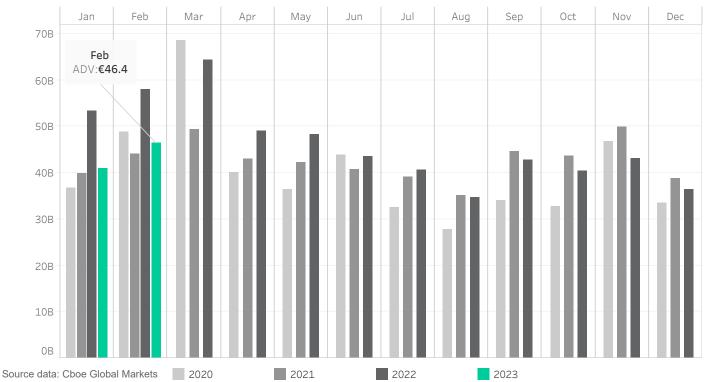
Deutsche Boerse and Google Announce Strategic Partnership Agreement

The German Exchange group announced that Google Cloud would power the exchange digital securities and asset business platform. This agreement is very similar to the London Stock Exchange Group agreement with Microsoft to build the exchange's next generation cloud-based analytics infrastructure for \$2.8 billion (£2.3 billion), which was announced in late 2022.

https://www.deutsche-boerse.com/dbg-en/media/press-releases/Deutsche-B-rse-Group-and-Google-Cloud-Announce-Strategic-Partnership-to-Accelerate-Innovation-3405724

Swiss and Spanish Exchange Trading Platform Consolidation Plan Scrapped

The original plan to migrate Spanish exchange platform on to the Swiss Exchange platform was to be completed in 2023. According to reports, the complex project has been suspended due to technological and legal challenges. https://www.thetradenews.com/six-scraps-multi-year-bme-trading-platform-integration-plans-due-to-unexpected-complexity/



Average Daily Market Volume

Venue Type Market Share

46.0%	45.0%	43.4%	41.3%	40.4%	41.3%	40.2%	38.9%	40.3%	39.0%	37.4%	38.7%	38.0%
20.6%	20.5%	21.1%	21.3%	21.5%	23.0%	22.9%	23.3%	25.1%	23.9%	22.9%	24.6%	24.3%
18.3%	19.7%	19.7%	21.9%	22.6%	19.8%	21.7%	22.8%	18.8%	21.9%	25.2%	20.2%	21.8%
9.5%	9.7%	10.3%	10.0%	9.7%	10.4%	10.1%	9.5%	9.9%	9.7%	8.7%	10.5%	9.9%
5.6%	5.1%	5.5%	5.6%	5.8%	5.6%	5.1%	5.5%	5.8%	5.6%	5.8%	6.1%	6.0%
Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23
Source data	a: Cboe Glol	bal Markets	Prir	mary 🚺 I	MTF	Auctions	DARK	FBA	Ą			

Dark Market Share

44%	43%	48%	47%	46%	46%	44%	46%	48%	45%	43%	42%	42%
24%	23%	22%	22%	22%	22%	24%	26%	22%	22%	24%	22%	21%
14%	15%	12%	11%	11%	12%	11%	1.00/	11%	11%	11%	12%	12%
11%	11%	11%	11%	12%	12%	12%	10%	12%	12%	12%	12%	12%
6%	5%	6%	6%	6%	6%	6%	11% 3%	5%	5%	6%	8%	8%
Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23
Cboe E	urope	Turquoise	Liqui	dnet	POSIT	UBS	MTF	Instinet	Blo Ac	quis	Sigma	<

Source data: Cboe Global Markets

Block Market Share

17%	14%	17%	16%	17%	16%	17%	18%	16%	16%	16%	16%	15%
28%	31%	26%	24%	25%	24%	25%	23%	24%	24%	24%	25%	25%
28%	27%	28%	32%	31%	32%	31%	33%	32%	32%	33%	32%	33%
17%	17%	18%	17%	18%	16%	17%	16%	17%	17%	16%	17%	16%
10%	10%	11%	10%	10%	11%	11%	10%	11%	11%	10%	10%	11%
Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23
	Turquoise		Liquidnet	📕 Ct	ooe Europe	Pos	it	📕 Other	rs			

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

Quotesize in Notional USD

		1Q :	22		2Q 22			3Q 22			4Q 22		1Q :	23
		Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23
8:00 - 8:30	Stoxx50	16.6K	17.5K	18.5K	18.1K	21.0K	16.8K	19.2K	18.3K	18.0K	23.6K	25.9K	29.8K	32.1K
	Stoxx600	9.6K	10.3K	11.1K		10.1K	9.6K	10.3K	11.1K	9.9K	10.8K	12.3K	13.7K	14.1K
8:30 - 16:00	Stoxx50	29.7K	23.1K	25.8K	26.4K	33.9K	26.0K	26.6K	25.8K	25.1K	34.3K	35.4K	40.6K	44.2K
	Stoxx600	15.5K	12.6K	14.0K		12.9K	11.9K	12.2K	13.4K	11.5K	13.0K	14.9K	16.7K	17.4K
16:00 - 16:30	Stoxx50	35.1K	28.3K		33.1K	39.8K	31.3K	31.4K	29.0K	28.8K	40.9K	42.2K	49.1K	47.8K
	Stoxx600	18.6K	14.6K	17.0K		15.4K	14.6K	14.7K	15.0K	13.8K	16.6K	18.6K	20.2K	21.3K

Spread Bps

8:00 - 8:30	Stoxx50	4.4	5.2	4.9	4.9	5.3	5.8	4.9	5.2	5.2	4.7	4.7	4.7	4.5
	Stoxx600	8.7	9.9	8.9	9.2	9.4	10.3		9.4	9.8	9.0	8.7	8.3	7.7
8:30 - 16:00	Stoxx50	2.7	3.2	3.0	3.0	3.4	3.6	3.2	3.5	3.4	3.1	3.1	3.2	3.0
	Stoxx600	5.0	5.8	5.2	5.6	5.9	6.3		5.9	6.0	5.3	5.1	4.9	4.9
16:00 - 16:30	Stoxx50	2.3	2.7	2.5	2.6	2.8	3.0	2.7	2.9	2.8	2.6	2.8	2.8	2.6
	Stoxx600	4.1	4.7	4.4	4.7	4.8	5.1		4.8	4.9	4.3	4.4	4.1	4.2

One Minute Volatility Bps

8:00 - 8:30	Stoxx50	16.8	21.5	17.8	16.2	16.3	21.5	14.2	17.1	16.9	13.4	11.5	11.6	12.4
	Stoxx600		20.8	16.8	15.9	15.6	17.8	13.8	16.9	17.4	14.8	12.2	12.0	11.4
8:30 - 16:00	Stoxx50	7.8	10.0	7.3		7.6	10.2	6.6	8.7	8.1	5.9	5.0	5.4	5.5
	Stoxx600		8.5	6.5	6.8	6.8	7.7	5.9	7.4	7.6	6.0	5.0	4.9	4.9
16:00 - 16:30) Stoxx50	7.0	9.5	7.2	8.4	8.1	9.2	6.9	8.5	8.5	6.0	5.5	5.6	5.7
	Stoxx600	5.5	7.3		7.0	6.5	6.8	5.4	6.8	7.0	5.4	4.8	4.6	4.7

Percent ADV by Time of Day

Open	Stoxx50	1.0%	0.9%	1.0%	0.9%	0.9%	0.7%	0.7%	0.7%	0.7%	0.7%	0.9%	1.1%	1.0%
	Stoxx600	0.6%	0.5%	0.5%	0.5%		0.4%	0.4%	0.4%	0.3%	0.4%	0.4%	0.6%	0.6%
8:00 - 8:30	Stoxx50	7.1%	6.1%	6.4%	5.8%	11.8%	17.0%	10.9%	11.5%	11.6%	10.1%	7.1%	6.4%	5.9%
	Stoxx600	5.6%	5.7%	6.0%	5.7%	6.1%		7.2%	7.9%	7.8%	7.4%	6.5%	8.8%	8.3%
16:00 - 16:30) Stoxx50	15.5%	16.9%	14.8%	15.3%	16.2%	16.1%	12.3%	11.0%	12.2%	10.2%	6.9%	5.5%	3.3%
	Stoxx600		12.4%	10.6%	11.9%	12.1%	12.7%	13.7%	12.9%	12.2%	11.8%	11.0%	13.1%	13.3%
Close	Stoxx50	21.2%	23.8%	23.7%	23.8%	25.4%	24.3%	22.4%	20.4%	18.1%	19.6%	23.5%	23.1%	25.7%
	Stoxx600	24.5%	24.2%	26.1%	24.3%	26.3%	23.2%	21.3%	20.5%	18.3%	18.6%	21.5%	25.7%	26.8%

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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