

January 2023

US Market Structure Monthly



US Market Microstructure Observations

- The average daily share volume in US equities was 11.3B shares in January 2023, up 5% month over month (MoM) but down 9% year over year (YoY).
- Trade reporting facility (TRF) share volume as a percent of total consolidated share volume increased 2.6% MoM to 46.5% in January 2023, its highest monthly level since February 2021.
- Spreads in S&P 500 and Russell 2000 stocks narrowed in January 2023 compared to the prior month. Excluding the first and last half hour of the day, the median S&P 500 stock's spread declined 4% to 4.9bps in January, from 5.1bps in December 2022, while the median Russell 2000 stock's spread narrowed 3% to 18.1bps in January 2023, from 18.6bps the prior month.

Market Structure News

NYSE Technology Issue Results in Failed Opening Auctions

One January 24th, a technology issue at the New York Stock Exchange (NYSE) prevented the opening auction from occurring in 2,824 NYSE listed securities, resulting in numerous trading halts and the exchange needing to bust over 4,000 trades in 251 symbols. The following day, the NYSE released a statement that the technological issue was caused by a 'manual error involving the exchange's disaster recovery configuration at system start of day.' On February 6, the NYSE announced it would reimburse members in full for any losses incurred in the affected symbols for orders submitted to the NYSE. Orders submitted to non-NYSE venues that incurred losses would not be covered.

<https://www.reuters.com/markets/us/some-nyse-listed-stocks-briefly-halted-trading-after-market-open-2023-01-24/> <https://www.cnbc.com/2023/01/25/nyse-says-tuesdays-trading-glitch-due-to-manual-error-.html> <https://www.reuters.com/markets/us/nyse-plans-compensate-brokerage-claims-after-glitch-2023-02-07/>

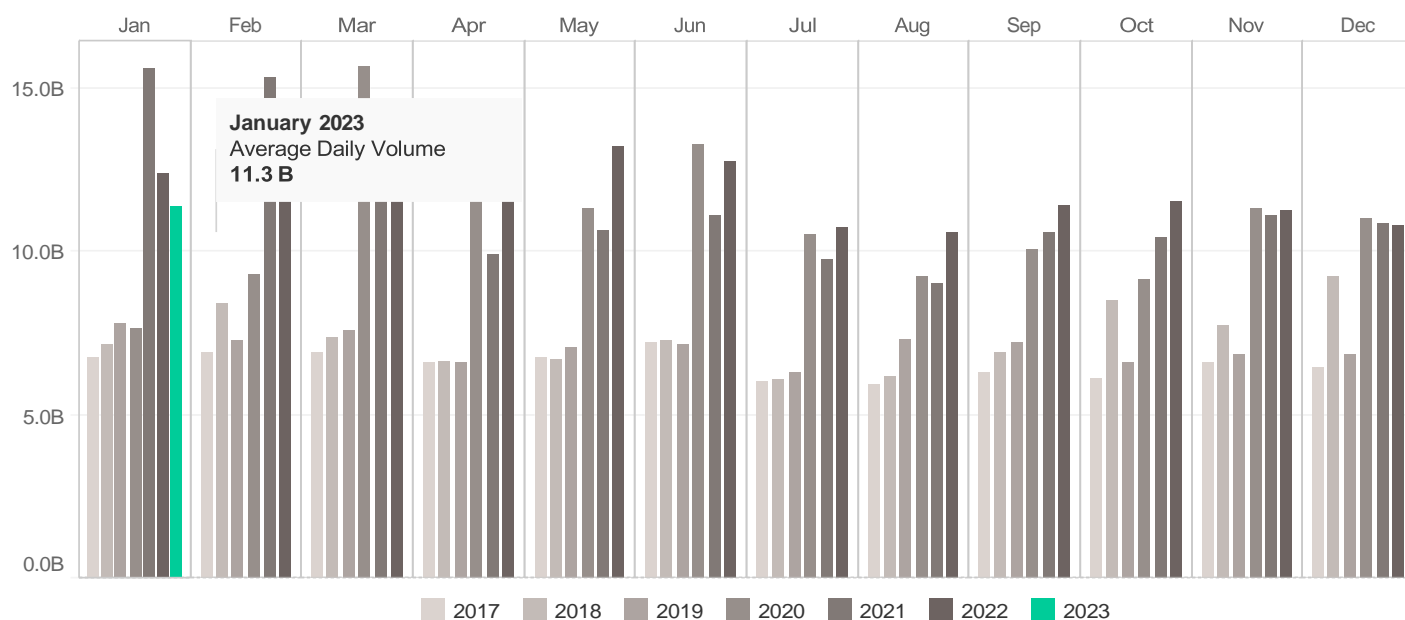
SEC Considers Easing Climate Disclosure Rules

The Securities and Exchange Commission (SEC) is considering reducing the climate disclosure requirements of companies when it releases its final version of its climate related rules later this year. In March 2022, the SEC released a rule proposal requiring companies to make certain climate related disclosures on their registration statement and periodic reports. Companies including Amazon, Walmart, and Blackrock have pushed back on the rule proposal, citing overly burdensome requirements, high costs to implement, and a high level of subjectivity in implementing the requirements which would lead to information that is of little use to end investors.

<https://www.wsj.com/articles/sec-considers-easing-climate-disclosure-rules-after-investor-pushback-11675416111> <https://www.sec.gov/news/press-release/2022-46>

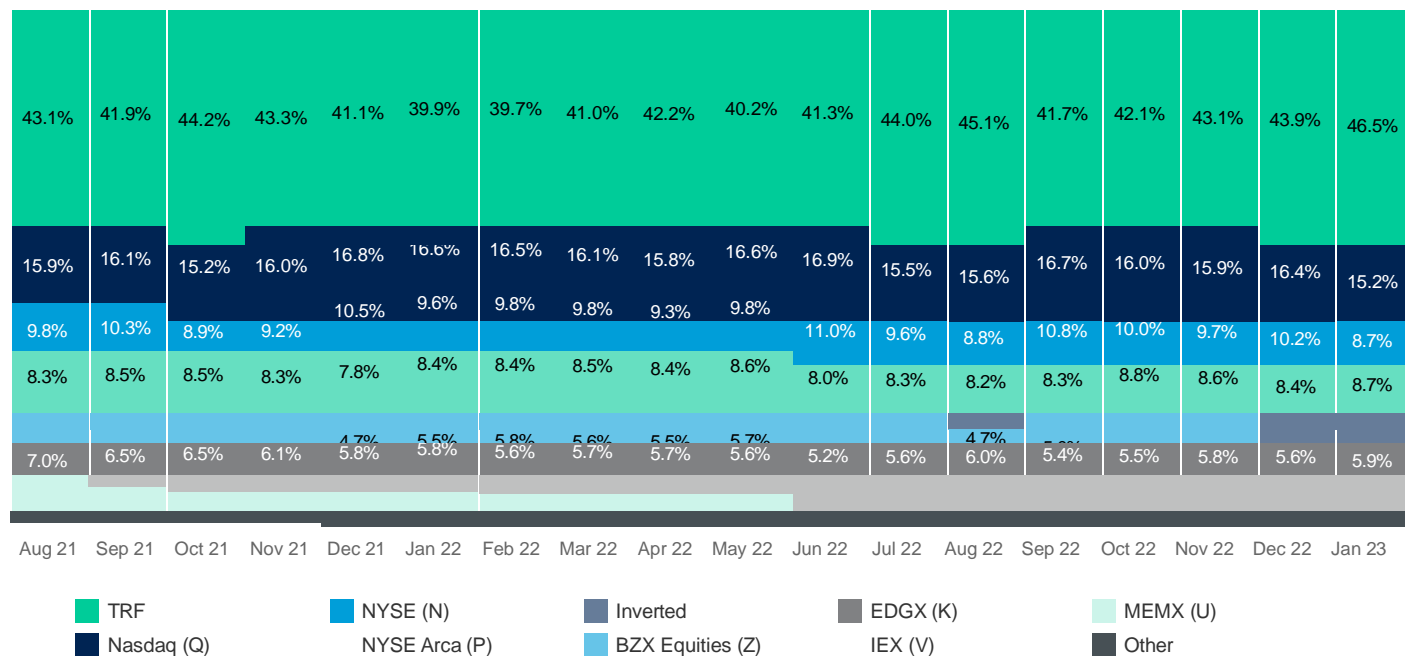


Average Daily Market Volume



Source data: Cboe Global Markets

Venue Market Share



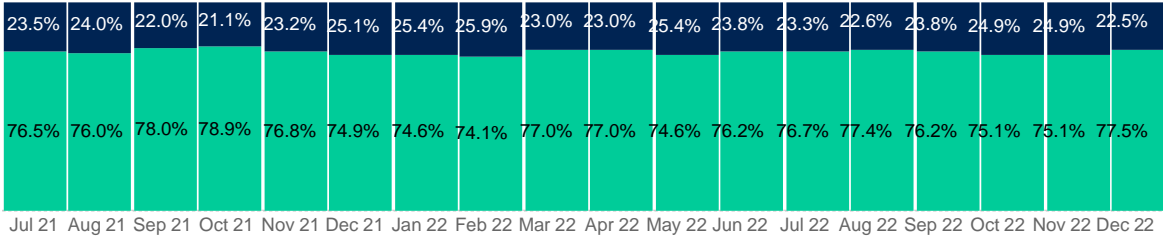


Source data: Cboe Global Markets



TRF Volume Breakdown

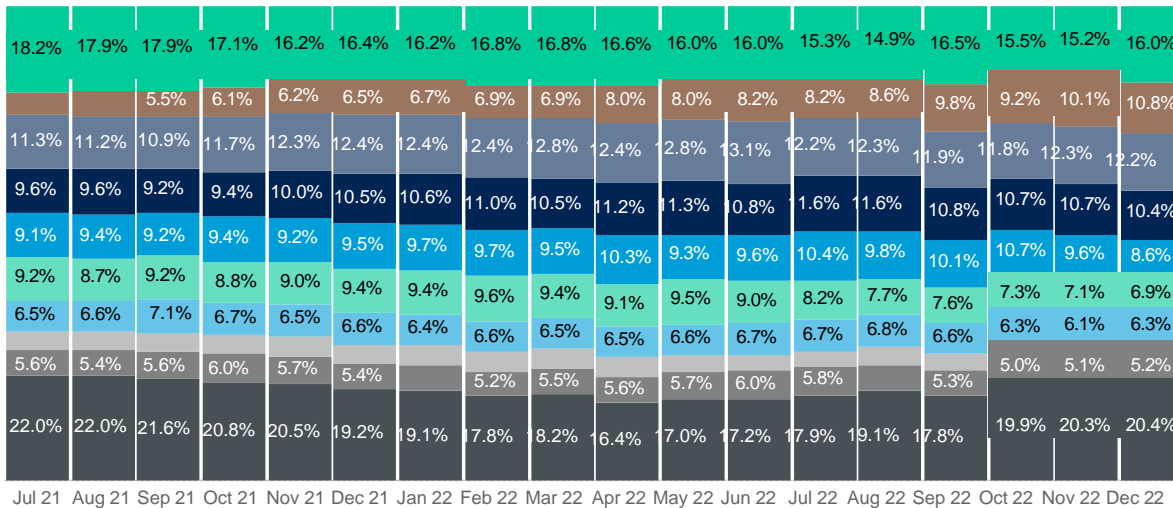
■ ATS
■ OTC Non ATS



Tier1 and Tier2 only; Excludes Dealerweb, Source data: FINRA

ATS Market Share

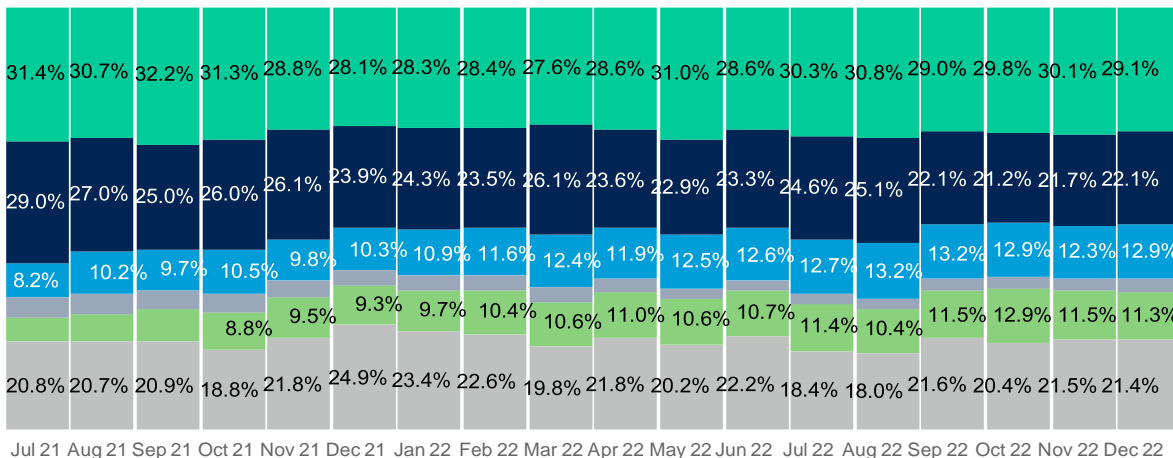
■ UBS
■ Intelligent Cross
■ Goldman Sachs
■ Morgan Stanley
■ JP Morgan
■ Credit Suisse
■ Level
■ BIDS
■ Virtu
■ Other



Excludes Dealerweb, OTC; Venues rolled up to firm level; Source data: FINRA

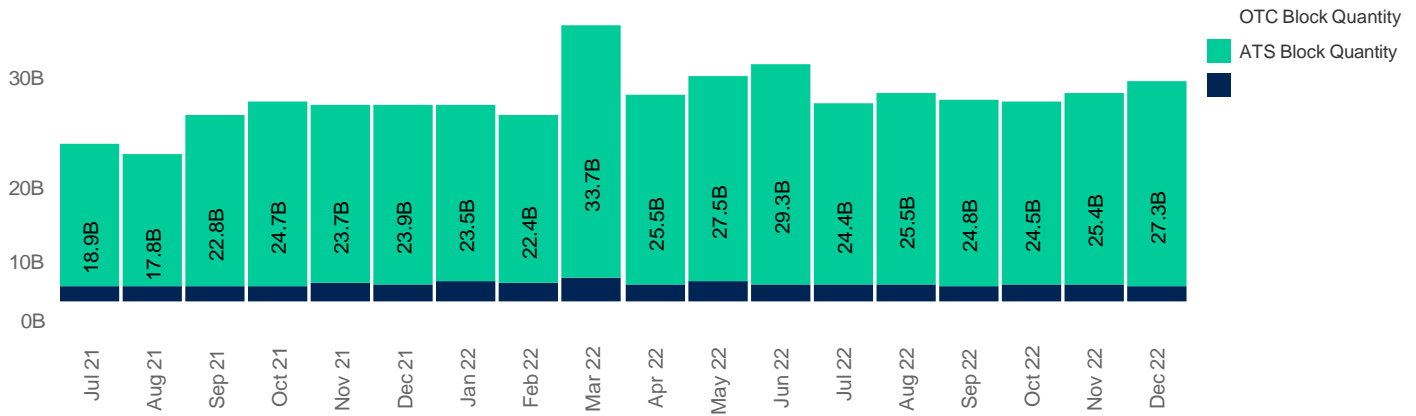
OTC Non-ATS Market Share

■ Citadel
■ Virtu
■ G1
■ Two Sigma
■ Jane Street
■ Other



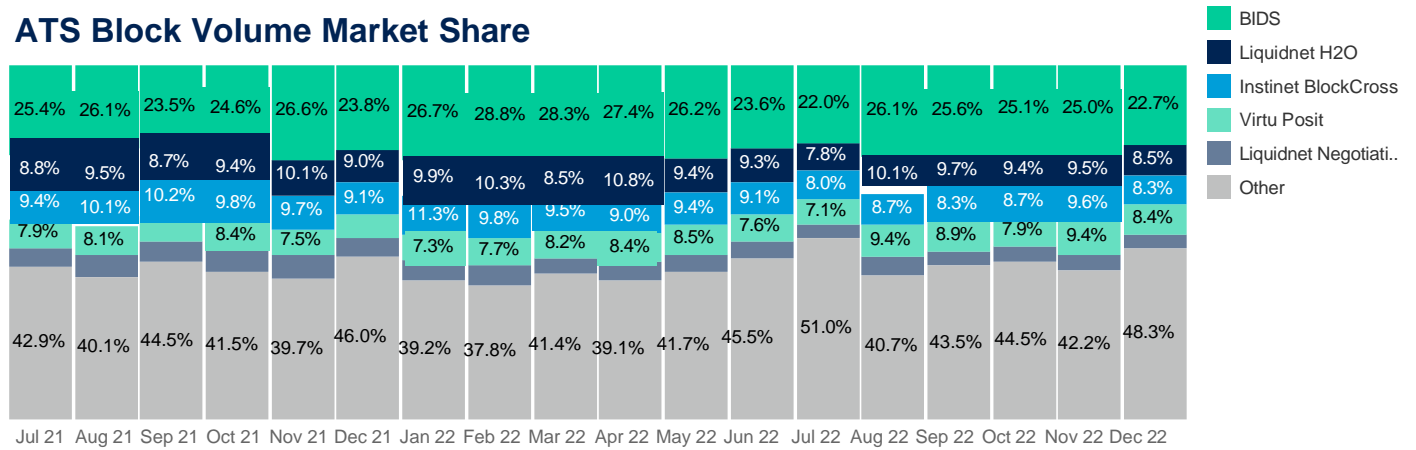


TRF Block Volume Breakdown (Shares)



Source: FINRA

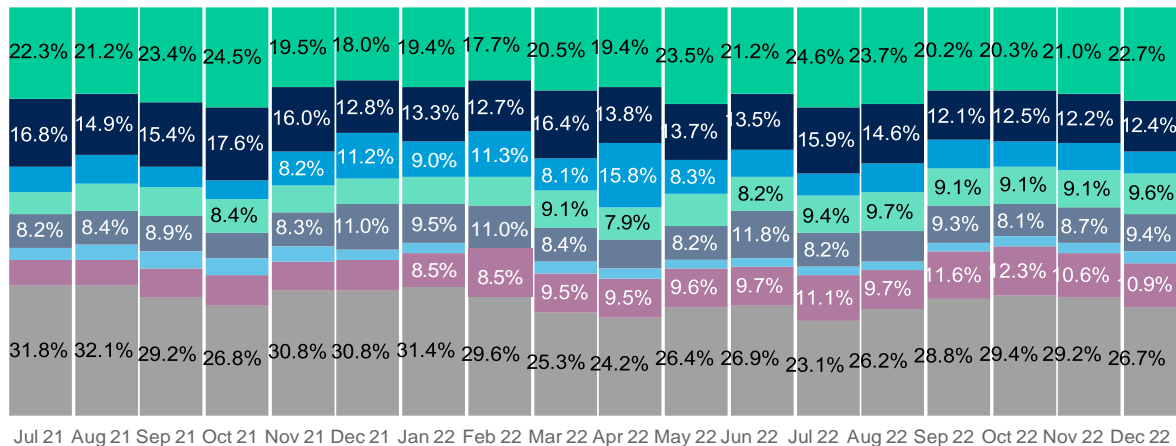
ATS Block Volume Market Share



Excludes Dealerweb; Blocks defined as >10K shares; Source data: FINRA

Blocks defined as >10K shares; Source data: FINRA

OTC (Non-ATS) Block Volume Market Share



Citadel Virtu
Morgan Stanley G1
Goldman Sachs Two Sigma Jane Street Other





Quotesize in Shares

		1Q 22			2Q 22			3Q 22			4Q 22			1Q 23
		Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23
First 30 Min	SP500	184	187	186	180	196	195	188	185	183	187	186	189	194
	RUS2000	224	225	230	236	250	243	232	228	225	232	226	231	250
Mid Day	SP500	188	193	185	176	186	190	181	179	184	189	192	194	199
	RUS2000	225	230	234	232	234	246	237	234	235	245	248	250	257
Last 30 Min	SP500	200	199	195	190	190	198	197	201	201	212	210	210	216
	RUS2000	244	246	254	255	259	276	267	265	263	274	279	291	289

Spread Bps

First 30 Min	SP500	14.2	13.6	13.9	13.4	15.1	13.5	13.2	11.8	10.7	12.5	12.9	12.3	11.7
	RUS2000	57.4	56.9	53.8	51.3	57.0	50.4	48.1	45.3	43.2	49.2	51.1	49.8	47.8
Mid Day	SP500	5.7	5.9	6.1	5.5	6.5	5.7	5.2	4.7	4.9	5.4	5.5	5.1	4.9
	RUS2000	24.9	25.0	23.2	22.5	25.0	21.6	20.4	19.1	18.7	19.9	21.2	18.6	18.1
Last 30 Min	SP500	3.8	4.1	3.9	3.6	3.9	3.5	3.2	2.9	3.2	3.4	3.2	3.2	3.1
	RUS2000	18.6	19.1	17.1	16.6	18.1	16.2	15.4	14.1	14.1	14.7	15.5	14.2	13.6

One Minute Volatility Bps

First 30 Min	SP500	20.0	19.6	20.0	20.2	24.0	21.4	20.7	15.6	17.5	20.4	17.7	14.4	14.5
	RUS2000	23.2	23.6	22.6	21.7	26.9	24.1	26.6	21.0	20.8	23.1	21.4	16.2	16.2
Mid Day	SP500	7.6	8.1	8.4	8.2	9.9	8.3	7.5	6.2	8.6	8.1	6.8	5.8	5.7
	RUS2000	7.1	7.7	7.1	6.8	9.0	6.8	6.1	5.5	7.4	6.7	5.4	4.1	3.8
Last 30 Min	SP500	9.0	10.1	9.0	9.1	10.8	9.0	7.9	6.2	9.3	8.8	7.1	6.5	6.3
	RUS2000	10.0	10.8	8.6	8.8	9.8	8.1	6.9	6.2	8.9	7.2	6.8	5.7	5.4

Percent ADV by Time of Day

Open	SP500	1.0%	1.0%	0.9%	1.1%	1.0%	1.0%	1.1%	1.0%	0.9%	0.9%	0.9%	1.1%	0.9%
	RUS2000	0.7%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%
First 30 Min	SP500	9.2%	9.3%	9.1%	9.3%	9.3%	9.4%	9.8%	9.6%	9.0%	9.0%	9.2%	8.6%	8.7%
	RUS2000	7.5%	8.1%	8.0%	7.6%	8.2%	7.6%	8.1%	8.2%	7.4%	7.6%	7.5%	7.2%	7.5%
Last 30 Min	SP500	18.7%	19.1%	19.0%	19.0%	18.6%	19.2%	18.6%	18.8%	18.7%	18.8%	18.7%	19.0%	19.3%
	RUS2000	20.3%	21.0%	20.1%	19.6%	19.7%	19.8%	20.3%	20.4%	20.1%	20.0%	21.0%	20.0%	20.3%
Close	SP500	11.5%	11.1%	12.6%	11.8%	10.9%	13.1%	12.5%	11.9%	12.3%	11.9%	11.6%	14.7%	12.9%
	RUS2000	8.9%	9.7%	10.2%	10.6%	9.1%	10.8%	11.8%	10.4%	11.4%	11.6%	10.4%	11.9%	10.7%

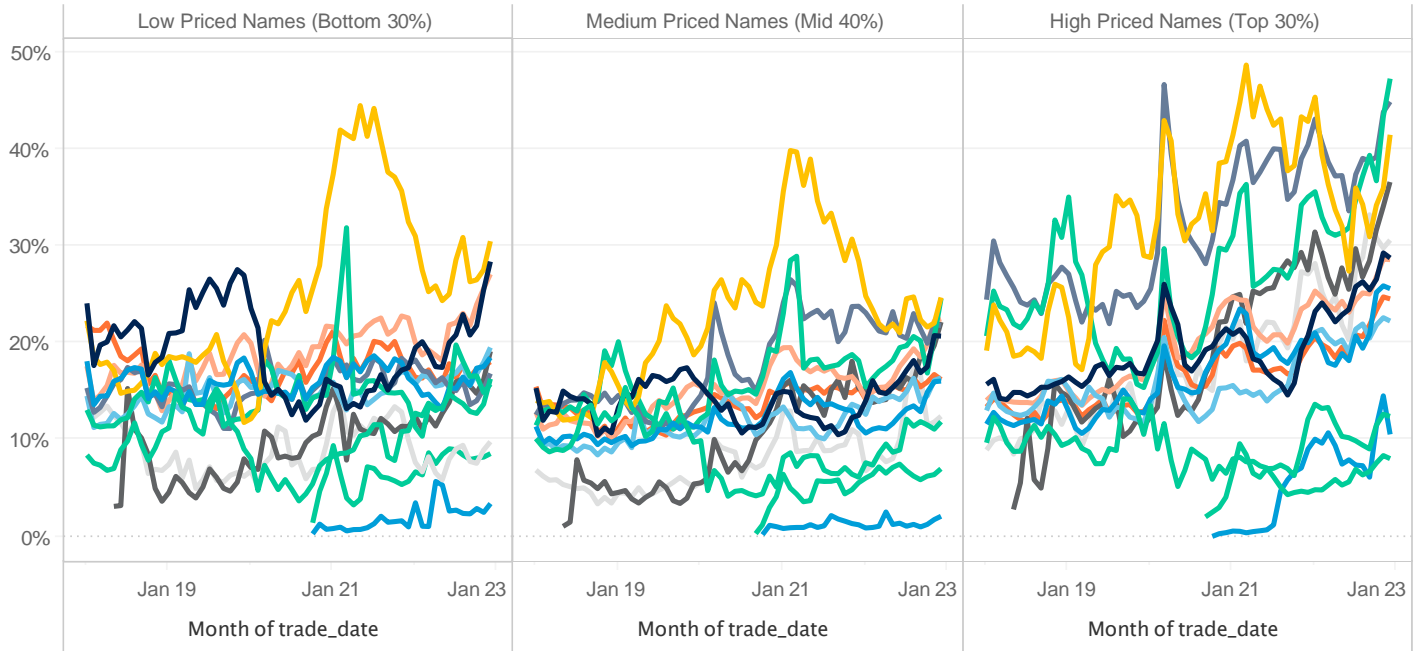
Median used for all metrics

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

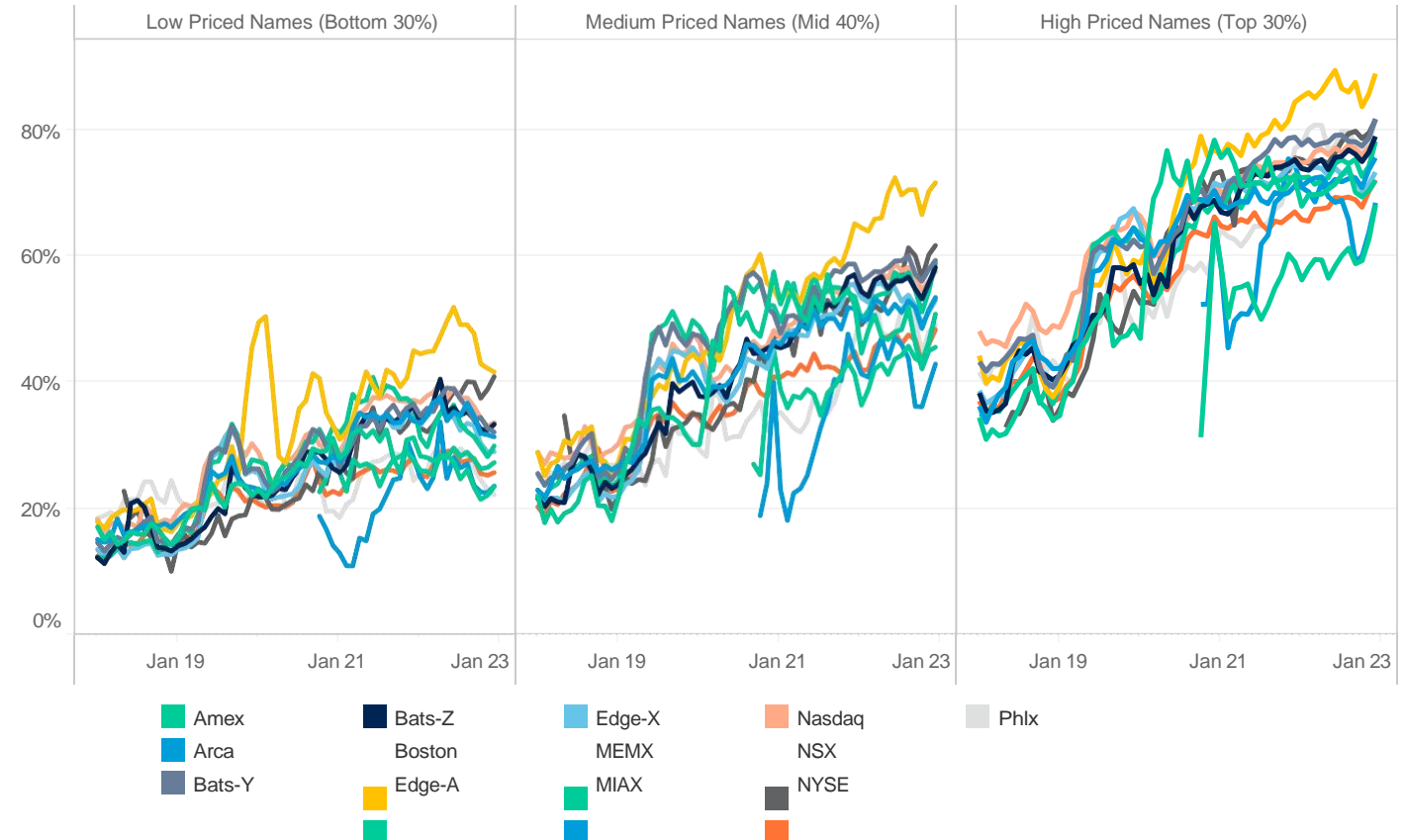
Source data: Virtu Financial



Hidden Trades Proportion by Price and Venue



Oddlot Trades Proportion by Price and Venue





ABOUT VIRTU

Virtu is a leading financial services firm that leverages cutting-edge technology to provide execution services and data, analytics and connectivity products to its clients and deliver liquidity to the global markets. Leveraging its global market making expertise and infrastructure, Virtu provides a robust product suite including offerings in execution, liquidity sourcing, analytics and broker-neutral, multi-dealer platforms in workflow technology. Virtu's product offerings allow clients to trade on hundreds of venues across 50+ countries and in multiple asset classes, including global equities, ETFs, foreign exchange, futures, fixed income and myriad other commodities. In addition, Virtu's integrated, multi-asset analytics platform provides a range of pre and post-trade services, data products and compliance tools that clients rely upon to invest, trade and manage risk across global markets.

To learn more, contact your sales representative or call our desk at:

APAC+852.2846.3592 | **CAN**+1.416.874.0800 | **EMEA**+44.20.7670.4066 | **US**+1.646.682.6199
info@virtu.com | www.virtu.com

© 2023 Virtu Financial, Inc. All rights reserved. Not to be reproduced or retransmitted without permission. These materials are for informational purposes and are not intended to be used to make trading or investment decisions, they are not intended as an offer to sell or the solicitation of an offer to buy any security or financial product, and are not intended as advice (investment, tax or legal). The information contained herein includes Virtu proprietary information and/or has been taken from sources we believe to be reliable, but we do not represent or warrant that such information is accurate or complete and it should not be relied upon as such.

Securities products and services are offered by the following subsidiaries of Virtu Financial, Inc. In the U.S., Virtu Americas LLC, member FINRA and SIPC; in Canada, Virtu Canada Corp., member Canadian Investor Protection Fund and Investment Industry Regulatory Organization of Canada; in Europe, Virtu ITG Europe Limited, registered in Ireland No. 283940 ("VIEL") (VIEL is authorized and regulated by the Central Bank of Ireland), and Virtu Financial Ireland Limited, registered in Ireland No. 471719 ("VFIL") (VFIL is authorized and regulated by the Central Bank of Ireland). The registered office of VIEL and VFIL is Whitaker Court, Whitaker Square, Sir John Rogerson's Quay, Dublin 2, Ireland; in Asia, Virtu ITG Hong Kong Limited (SFC License No. AHD810), Virtu ITG Singapore Pte Limited (CMS License No. 100138-1), and Virtu ITG Australia Limited (AFS License No. 219582).