Aug 2023

CA Market Structure Monthly

MICROSTRUCTURE OBSERVATIONS

- In August 2023, the average daily volume for TSX listed securities was 530 million shares, down 2% compared to July 2023 and down 16% compared to August 2022. While liquidity conditions remained flat, spread and volatility conditions deteriorated as compared to July 2023.

- In non-TSX listed securities, the average daily volume was 256 million shares in August 2023, up 4% compared to July 2023 and down 9% compared to August 2022. While liquidity and spread conditions were flat, volatility conditions deteriorated as compared to July 2023.

- TSX-listed block volumes were flat in August 2023 compared to July 2023. Dark market volumes decreased compared to July 2023, yet continue to remain near the 12-month high.

CA MARKET STRUCTURE NEWS

Notice of Approval – Alpha Exchange Inc. Introduction of New Order Books and Order Types

On August 3rd 2023, the OSC approved Alpha's request to implement two new order books, Alpha-X and Alpha-DRK, along with two new order types; Smart Limit and Smart Peg. Alongside these primary changes, some additional adjustments were made to the original proposal. In response to the original request for comment, the OSC imposed certain conditions on Alpha:

- Alpha must provide a functionality guide on its website, including details about the TMX QDS.
- Regular disclosure of specific TMX QDS information, like monthly statistics and advance notice of changes.
- Periodic analysis of the TMX QDS submitted to the OSC.
- Ensuring that data is not given to the Signal Generator before it's available to the Information Processor.

The Amendments will be implemented on October 23, 2023

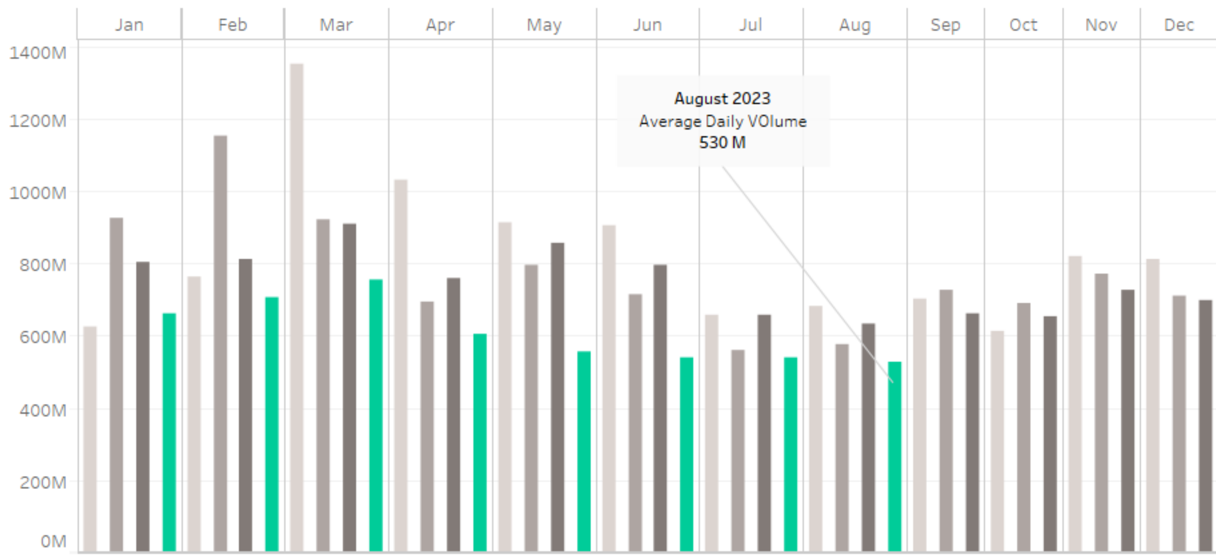
Consult the link below for further details on the approval and implementation:
https://www.osc.ca/sites/default/files/2023-08/alpha-exchange_20230803_notice-approval.pdf

Request for Comment – Neo Exchange Proposes New On-Stop Order Type

On August 31st, 2023 the Neo Exchange proposed to add a new On-Stop order type which will trigger when the Last Sale Price trades down to (for a sell order) or up to (for a buy order) or through the specified stop price. Once triggered, the order will trade on NEO-L.

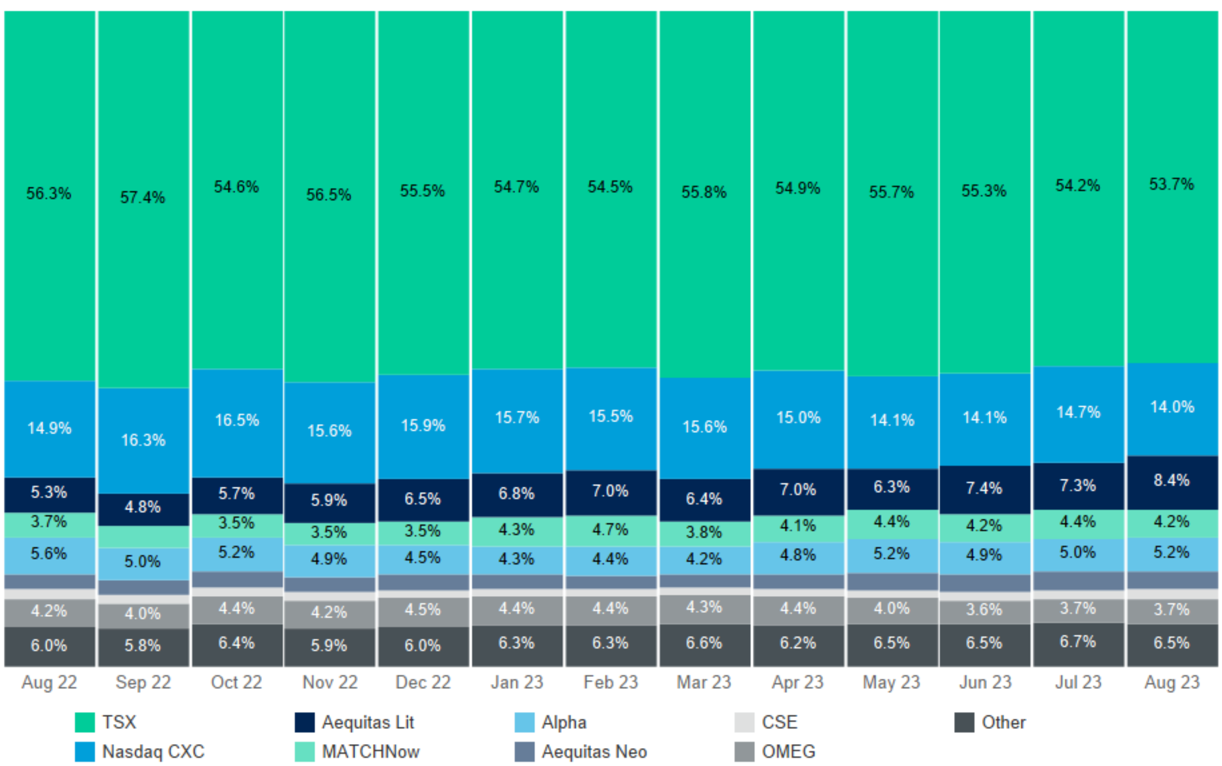
Consult the link below for further details:
https://www.osc.ca/sites/default/files/2023-08/neo_20230831_interest-rule-amendment.pdf

Average Daily Market Volume (Shares, TSX Listed)



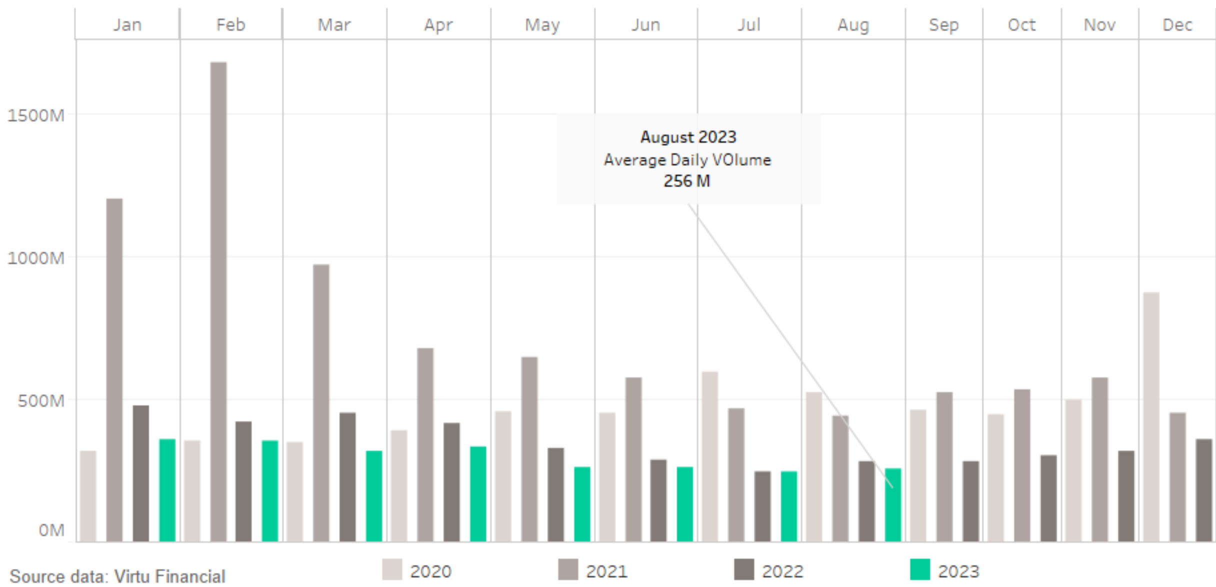
Source data: Virtu Financial

Venue Market Share (TSX Listed)



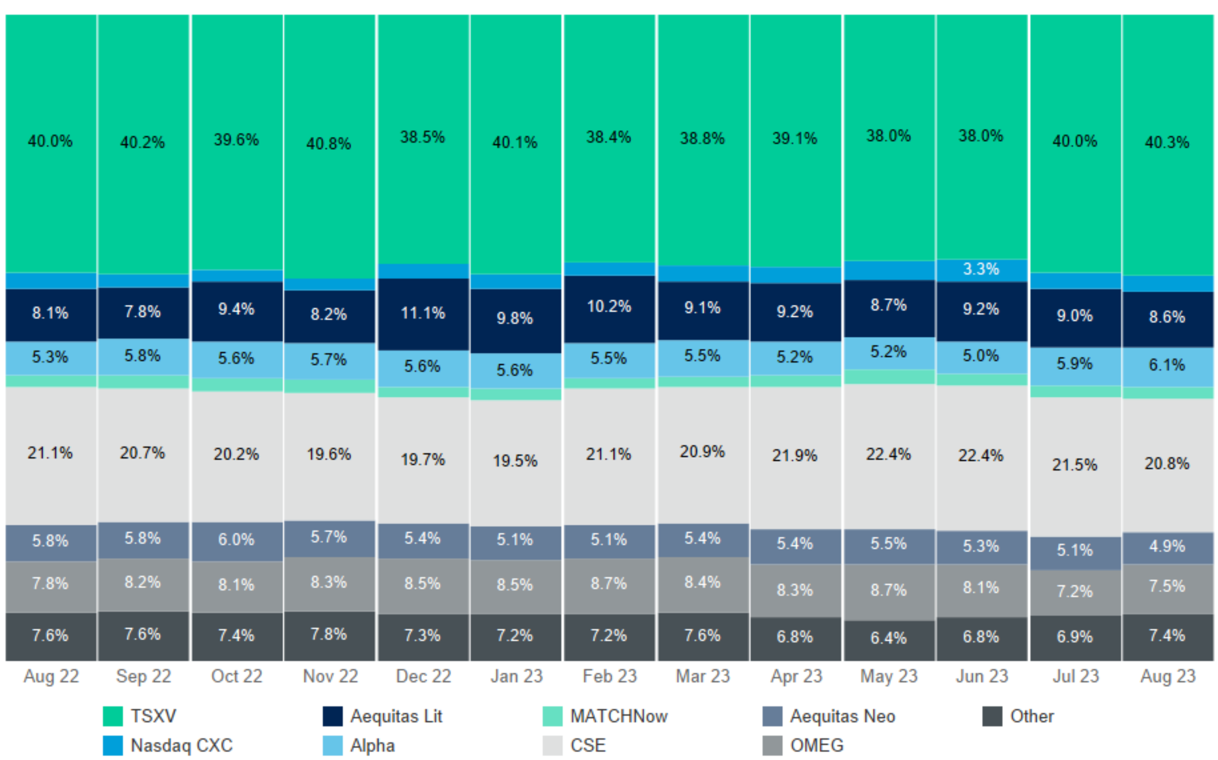
Source data: Virtu Financial

Average Daily Market Volume (Shares, Non-TSX Listed)



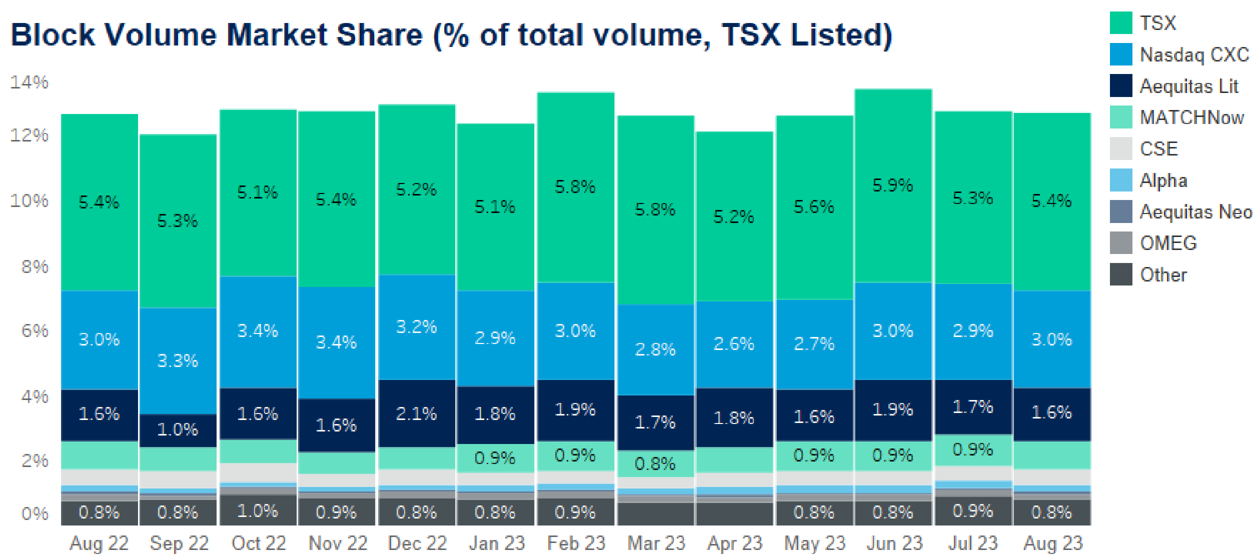
Source data: Virtu Financial

Venue Market Share (Non-TSX Listed)

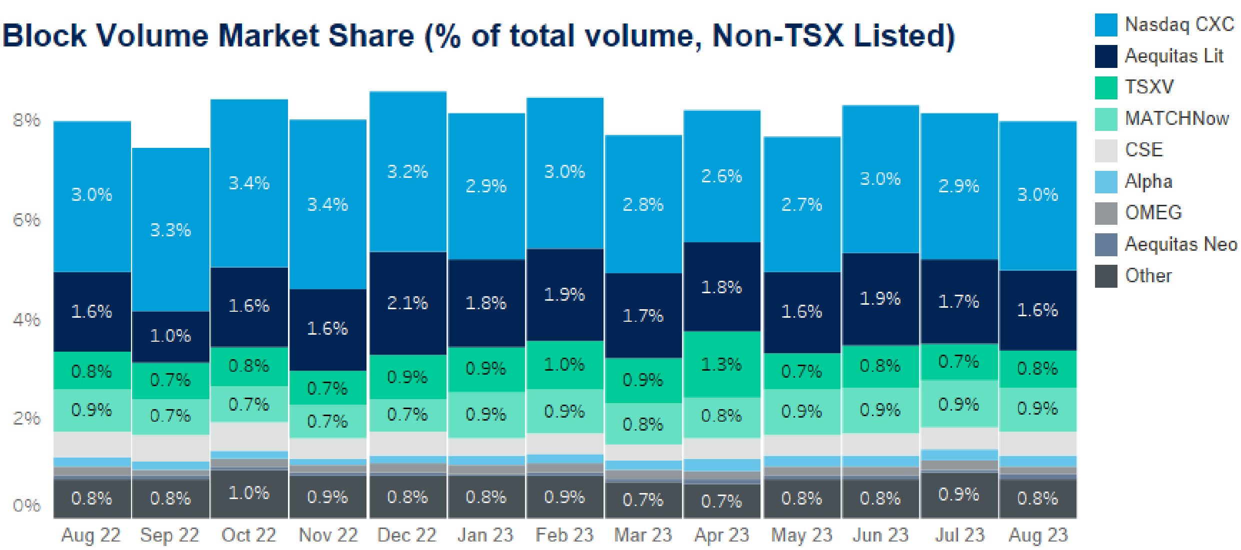


Source data: Virtu Financial

Block Volume Market Share (% of total volume, TSX Listed)

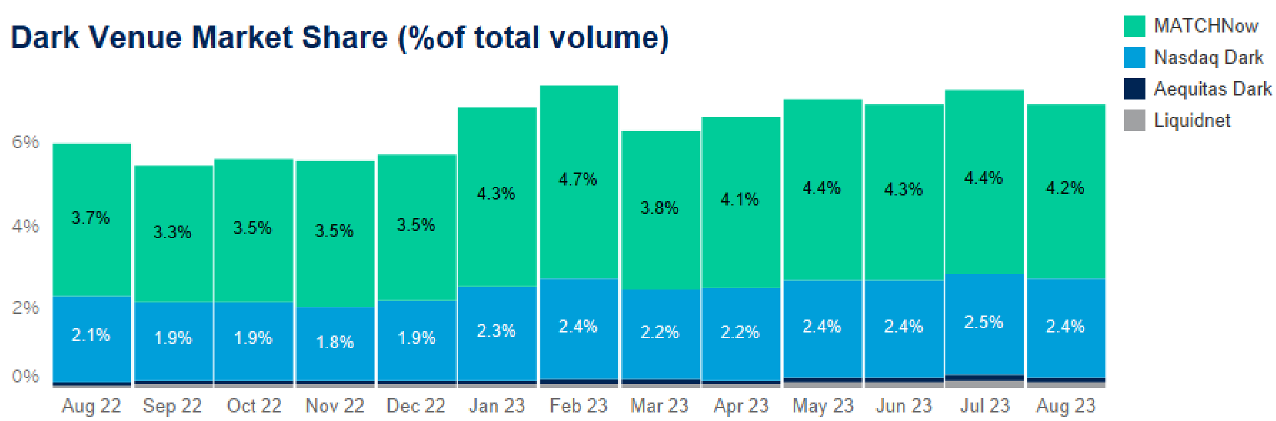


Block Volume Market Share (% of total volume, Non-TSX Listed)



Blocks defined as >5100 shares and > $30,000 CAD or >=$100K CAD; Source data: Virtu Financial

Dark Venue Market Share (%of total volume)



TSX listed securities only; Source data: Virtu Financial

VIRTU FINANCIAL

Quotesize in Shares

		3Q 22		4Q 22			1Q 23			2Q 23			3Q 23	
		Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23
First 30 Min	S&P/TSX 60	795	780	823	855	916	854	798	840	892	877	889	897	895
	S&P/TSX Composite	970	948	1,023	1,049	1,098	1,120	999	1,050	1,114	1,077	1,089	1,040	1,012
	Non-TSX-Listed	4,388	4,500	4,599	4,778	4,969	4,945	4,969	4,763	6,191	5,930	5,259	5,021	5,261
Mid Day	S&P/TSX 60	981	955	965	1,008	1,057	1,025	953	1,017	1,104	1,106	1,112	1,114	1,100
	S&P/TSX Composite	1,188	1,168	1,213	1,272	1,319	1,346	1,215	1,288	1,417	1,353	1,360	1,325	1,252
	Non-TSX-Listed	4,773	4,610	4,421	4,421	4,650	4,650	4,477	4,464	5,650	5,631	5,000	4,583	4,875
Last 30 Min	S&P/TSX 60	1,192	1,143	1,165	1,174	1,165	1,192	1,084	1,150	1,222	1,191	1,209	1,280	1,245
	S&P/TSX Composite	1,400	1,383	1,466	1,486	1,475	1,554	1,407	1,487	1,585	1,523	1,534	1,576	1,504
	Non-TSX-Listed	4,453	4,365	4,127	4,394	4,586	4,582	4,634	4,803	5,988	5,747	5,000	4,456	4,781

Spread Bps

First 30 Min	S&P/TSX 60	6.1	6.1	6.5	6.6	6.2	6.2	6.1	6.1	5.3	6.2	6.3	5.8	6.3
	S&P/TSX Composite	13.7	14.3	14.7	13.9	13.4	13.4	13.1	13.4	11.7	12.7	12.4	11.9	12.3
	Non-TSX-Listed	201.2	220.6	219.5	218.1	215.1	210.5	203.5	212.6	198.5	184.3	192.3	182.5	180.4
Mid Day	S&P/TSX 60	3.9	4.0	3.9	3.8	3.7	3.6	3.7	3.7	3.3	3.8	3.8	3.5	3.9
	S&P/TSX Composite	8.1	8.7	8.6	8.3	8.3	8.4	8.4	8.2	7.6	8.2	8.0	7.6	8.1
	Non-TSX-Listed	143.1	148.5	151.8	156.6	157.1	149.3	137.1	149.3	138.9	126.0	130.7	124.2	124.9
Last 30 Min	S&P/TSX 60	2.9	3.0	2.9	2.9	2.8	2.8	2.9	2.8	2.5	2.8	2.8	2.6	2.7
	S&P/TSX Composite	7.1	7.8	7.4	7.1	7.2	7.4	7.4	7.2	6.8	7.2	7.4	7.0	7.2
	Non-TSX-Listed	140.3	139.9	149.3	146.4	144.6	137.8	135.0	140.4	133.3	122.8	127.5	123.6	121.2

One Minute Volatility Bps

First 30 Min	S&P/TSX 60	13.9	14.2	16.9	14.2	13.5	11.9	12.1	13.6	11.0	11.8	10.6	9.9	10.9
	S&P/TSX Composite	18.0	18.7	20.8	18.2	16.5	15.0	15.4	17.4	13.4	14.1	12.4	11.9	13.0
	Non-TSX-Listed	20.9	22.1	23.2	20.7	22.8	17.7	17.9	21.4	15.7	15.1	13.6	13.0	14.6
Mid Day	S&P/TSX 60	4.6	5.9	6.1	5.2	4.7	4.0	4.4	5.5	3.7	4.2	3.5	3.2	4.0
	S&P/TSX Composite	5.1	6.4	6.5	5.6	4.8	4.1	4.4	5.7	3.5	3.9	2.9	2.7	3.5
	Non-TSX-Listed	6.2	6.9	7.3	6.3	5.7	4.5	5.3	7.3	5.0	4.8	4.4	4.4	5.0
Last 30 Min	S&P/TSX 60	4.3	5.8	5.5	5.0	4.9	4.0	4.7	5.1	3.8	4.2	3.7	3.4	3.7
	S&P/TSX Composite	3.9	5.3	5.2	4.9	4.5	3.8	4.3	4.8	3.1	3.6	3.0	2.6	3.1
	Non-TSX-Listed	5.4	6.7	6.7	5.4	5.4	3.8	4.7	6.2	4.0	4.0	3.5	2.9	3.8

Percent MDV by Time of Day

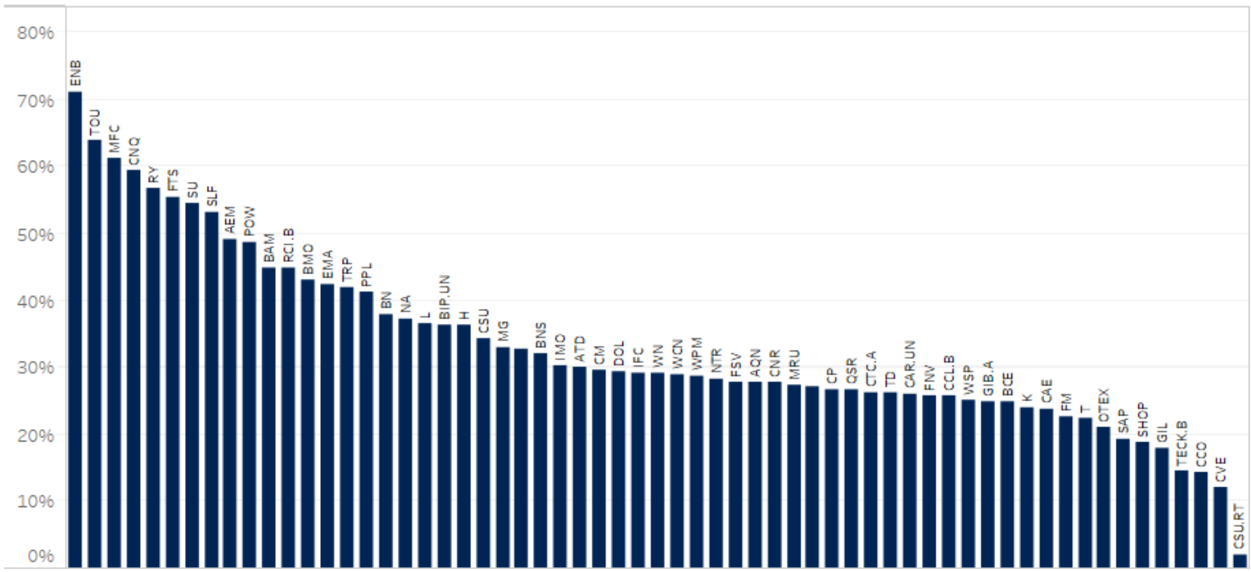
Open	S&P/TSX 60	0.6%	0.5%	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.8%	0.7%
	S&P/TSX Composite	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.5%	0.4%	0.4%	0.4%	0.5%	0.7%	0.7%
	Non-TSX-Listed	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

First 30 Min	S&P/TSX 60	13.1%	9.6%	10.4%	10.1%	10.1%	8.9%	9.7%	9.5%	9.4%	9.9%	8.9%	8.9%	8.9%
	S&P/TSX Composite	13.5%	11.3%	11.4%	11.3%	10.5%	10.0%	10.8%	10.2%	10.0%	10.6%	10.1%	9.9%	9.9%
	Non-TSX-Listed	20.2%	18.5%	18.0%	19.4%	17.5%	17.6%	17.0%	18.0%	18.0%	16.4%	17.4%	18.8%	19.2%
Last 30 Min	S&P/TSX 60	15.9%	14.7%	13.5%	13.3%	13.6%	13.3%	13.1%	13.5%	13.1%	15.0%	14.5%	14.1%	14.3%
	S&P/TSX Composite	14.9%	14.4%	14.1%	13.8%	13.7%	13.8%	13.9%	13.8%	13.5%	14.6%	14.7%	14.3%	14.8%
	Non-TSX-Listed	11.2%	11.9%	11.5%	10.9%	10.8%	10.3%	11.3%	10.8%	10.0%	10.7%	11.3%	12.1%	12.4%

Close	S&P/TSX 60	7.4%	16.0%	12.3%	12.8%	18.2%	15.2%	18.5%	18.1%	19.3%	13.8%	21.9%	30.9%	27.6%
	S&P/TSX Composite	4.5%	6.5%	5.7%	6.3%	7.1%	6.6%	8.1%	7.9%	9.1%	6.9%	9.6%	13.8%	11.6%
	Non-TSX-Listed	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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

August 2023 Median MOC % of Daily Volume - S&P/TSX 60



Source data: Virtu Financial

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.

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