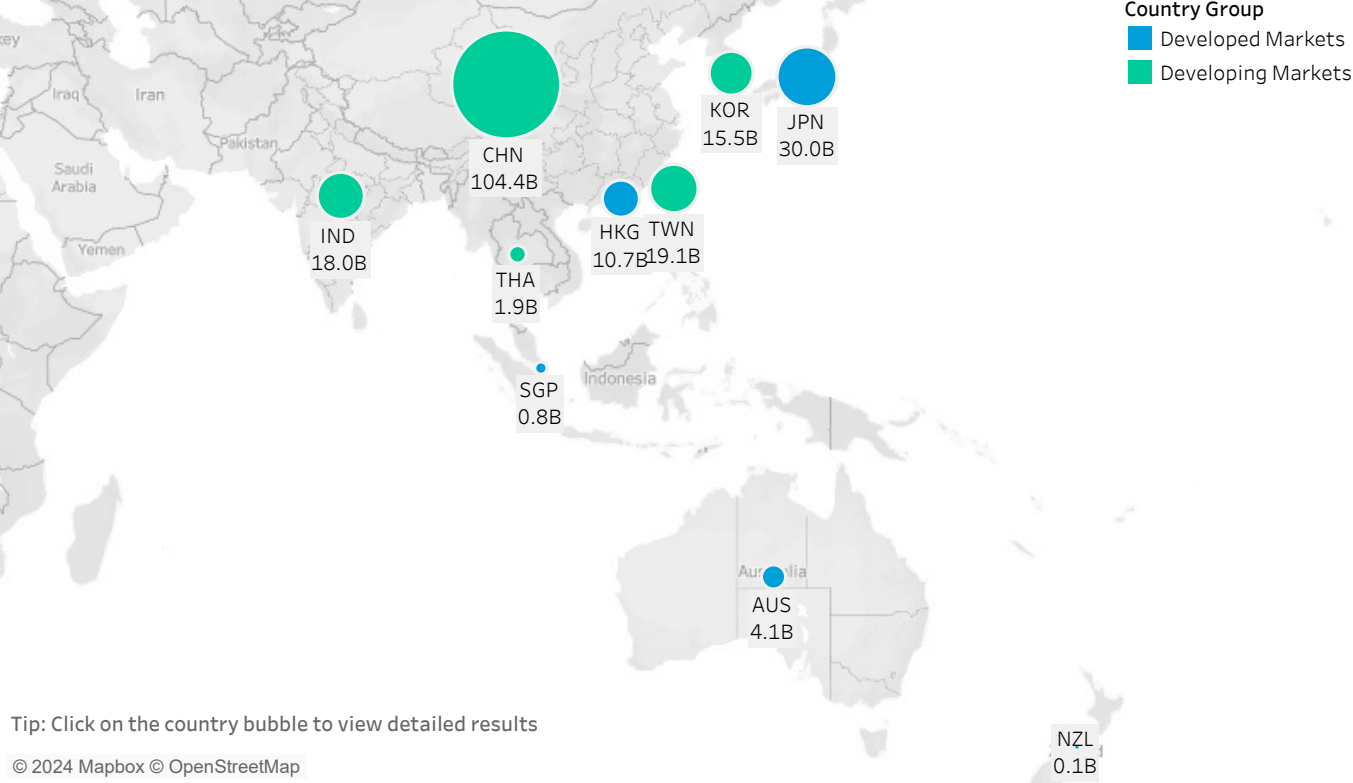


July 2024 APAC Market Structure Monthly

Average Daily Turnover (Notional USD)



Country Breakdowns

Hong Kong

China

Japan

Australia

South Korea

Taiwan

India

Thailand

New Zealand

Singapore

Jul 2024

AP Market Structure Monthly

MICROSTRUCTURE OBSERVATIONS

- Regional trading activity continued to decline in July 2024, as 7 out of the 10 countries in our universe saw lower month-over-month (MoM) average daily turnover (ADT). Hong Kong again saw the sharpest decline in ADT, down 13.5% MoM vs. June 2024 and down 33% vs. May 2024.
- ADT in Korea and Thailand fell to a year-to-date (YTD) low in July 2024 to US\$15.5B and US\$1.9B respectively. This is contrasted by Taiwan where ADT increased +3.4% MoM.
- Spreads and volatility increased for Taiwan stocks in July 2024. Namely, one minute volatility (bps) recorded at mid-day and the last half hour of day increased +8% and +6% respectively MoM to 31bps.

AP MARKET STRUCTURE NEWS

Tokyo Stock Exchange Publishes Official Guide Pricing Mechanism of ArrowHead - Second Edition (Japanese Version)

On 26 July 2024, Tokyo Stock Exchange (TSE) announced that it plans to review the trading rules of its cash equity market in the November 2024 ArrowHead upgrade, including the introduction of a Closing Auction. In advance of this review, TSE published a revised edition of the book “Tokyo Stock Exchange Official Guide Pricing Mechanism of Arrowhead” to add examples on the Closing Auction and Special Execution. According to TSE, an English version will also be published in e-book format around September 2024.

<https://www.jpx.co.jp/english/corporate/news/news-releases/0060/20240726-01.html>

New arrowhead 4.0 <https://www.jpx.co.jp/english/systems/equities-trading/01-02.html>

Hong Kong Exchange and Clearing Limited Published Consultation on the Proposed Reduction of Minimum Spreads

Hong Kong Exchange and Clearing Limited (HKEX) published a Consultation Paper on the ‘Proposed Reduction of Minimum Spreads in the Hong Kong Securities Market’, aiming to enhance market competitiveness by facilitating bid-ask spread reduction.

The Consultation Paper proposes a phased implementation of minimum spread reductions by selected price bands, covering Hong Kong equities, Real Estate Investment Trusts (REITs) and equity warrants, but excluding Exchange Traded Products (ETFs), Structured Products, Exchange Traded Options (ETOs) and debt securities. Proposed phases 1-2 are:

- Phase 1: 50% - 60% reduction of minimum spreads for price bands between \$10 and \$50
- Phase 2: 50% reduction of minimum spread for price band \$0.5 - \$10

The consultation period will be closed on 20 September 2024 (Friday) for HKEX market participants.

https://www.hkex.com.hk/News/Market-Communications/2024/240628news?sc_lang=en

<https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/SEHK/2024/CT08224E.pdf>

Further Expansion of Eligible ETFs under the Stock Connect Program Took Effect on 22 July 2024, with 85 more ETFs listed on SSE, SZSE Added

On 12 July 2024, HKEX announced that 59 ETFs listed on Shanghai Stock Exchange(SSE) and 26 ETFs listed on Shenzhen Stock Exchange (SZSE) were added to the list of China Connect Securities eligible for both buy and sell due to the Stock Connect Program ETF eligibility Expansion, which took effect on 22 July 2024.

<https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/SEHK/2024/CT10224E.pdf>

China Suspends Securities Re-Lending Business and Increases Securities-Lending Margin Requirements

On 10 July 2024, China Securities Regulatory Commission (CSRC) announced that it suspended the securities re-lending business from 11 July 2024, with existing re-lending contracts allowed to extend until a closure date no later than 30 Sep 2024. In addition, margin requirements were raised for short-positions from 22 July 2024.

<http://www.csrc.gov.cn/csrc/c100028/c7493852/content.shtml> (CHN)

<https://www.reuters.com/markets/asia/chinese-regulator-suspend-securities-relending-curb-short-selling-2024-07-10/>

Taiwan to Shorten the Matching Interval for Intraday Odd Lot Share Trading on December 2, 2024 From 1 Minute to 5 Seconds

On 30 July 2024, The Financial Supervisory Committee (FSC) of Taiwan announced that the matching interval of intraday odd-lot trading will be shortened from 1 minute to 5 seconds from December 2, 2024. According to FSC, the change is aiming for further optimizing trading opportunities and efficiency for the odd lot trading.

https://www.fsc.gov.tw/en/home.jsp?id=54&parentpath=0,2&mcustomize=multimessage_view.jsp&dataseino=202407300001&dtable=News

Taiwan to Allow Trading of Active ETFs, Multi-Asset ETFs

On 30 July 2024, the FSC of Taiwan lifted a ban on trading of active exchange-traded funds (ETFs) and multi-asset ETFs as part of the market's efforts to transform itself into a wealth management hub in Asia. According to the media, more than two decades after Taiwan launched its first ETF, the FSC announced this expansion of the scope of ETF products from passive ETFs to active ETFs and to allow trading of multi-asset ETFs.

<https://focustaiwan.tw/business/202408030004>

Australia's ASIC Consults on Rules to Promote Competitive Outcomes in Cash Equity Clearing and Settlement Services

On 30 July 2024, Australia's financial regulator Australian Securities and Investments Commission (ASIC) released a consultation paper on proposed rules to facilitate competitive outcomes in cash equity clearing and settlement services provided by the Australia Stock Exchange (ASX) Group. According to ASIC, it is the first time ASIC is exercising its new powers under the competition in clearing and settlement reforms, intended to support the long-term interests of the Australian market by delivering efficient outcomes for investors consistent with those expected in a competitive environment.

<https://asic.gov.au/about-asic/news-centre/news-items/asic-consults-on-rules-to-promote-competitive-outcomes-in-cash-equity-clearing-and-settlement-services#!page=1&search=consultation>

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

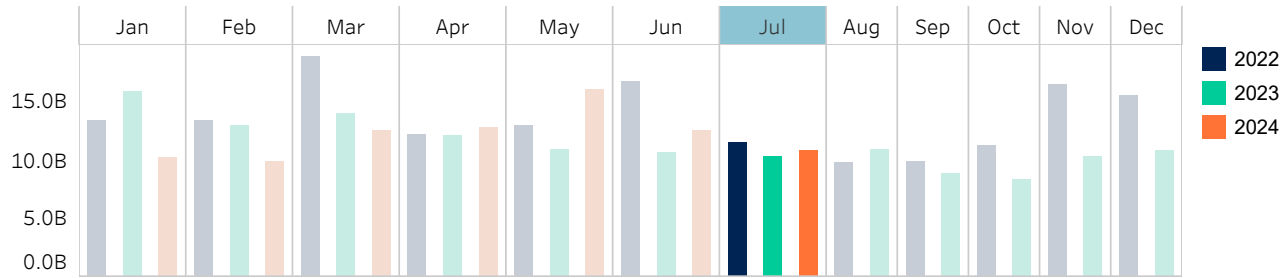
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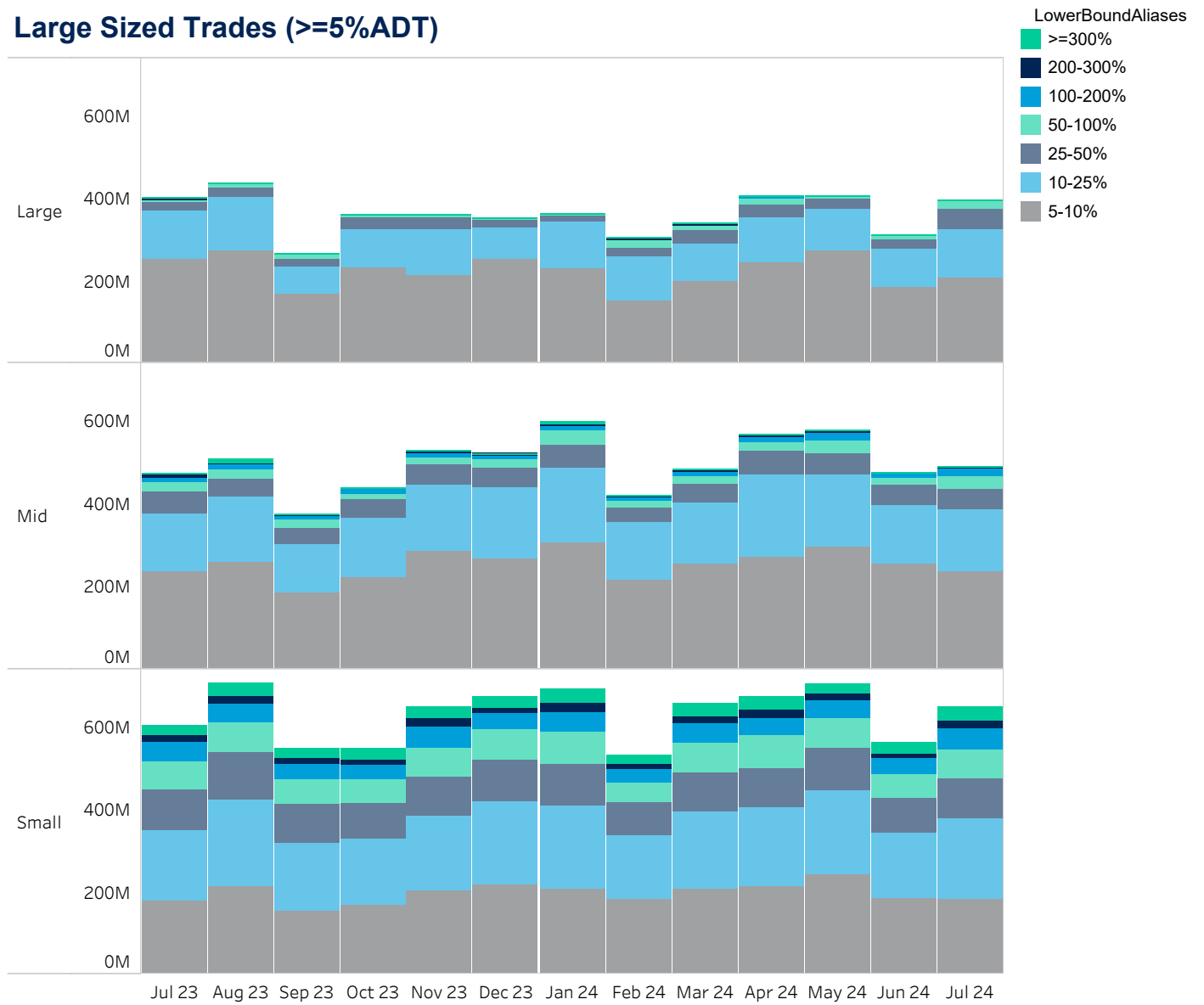
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Hong Kong

Average Daily Turnover (Notional USD)



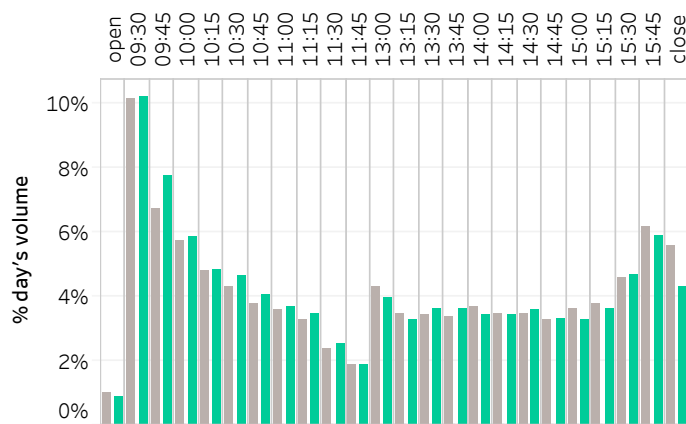
Large Sized Trades (>=5%ADT)



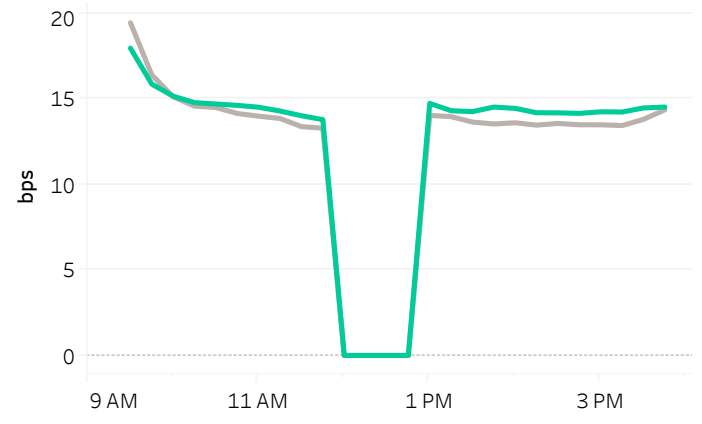
Source data: Virtu Financial

Hong Kong

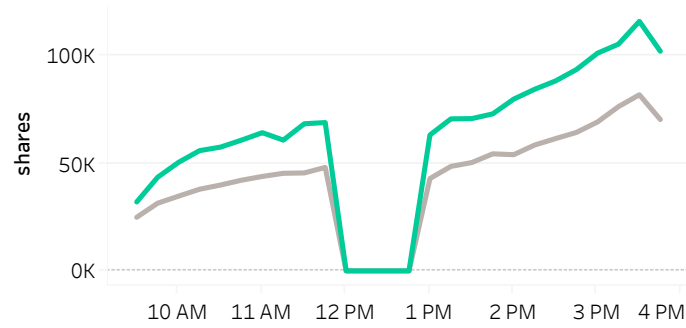
Volume Curve



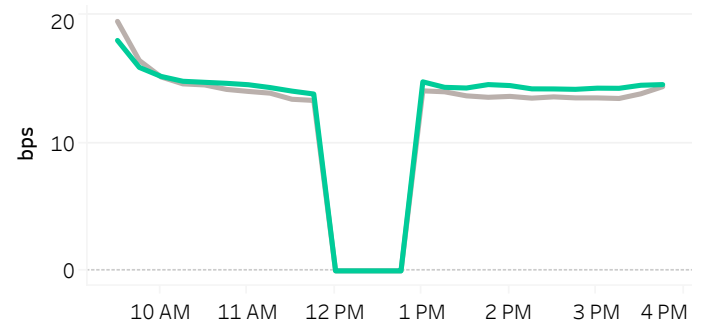
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg (Grey line) July 2024 (Green line)

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	18.3	18.7	18.1	18.4	17.1	17.0	16.7	16.8	16.2	16.3	16.0	16.6	17.0
MidDay	13.5	14.0	14.4	14.7	13.4	14.2	14.4	13.6	13.5	13.7	13.5	14.0	14.4
LastHalfHo..	13.8	13.9	14.8	15.0	14.3	15.2	15.1	14.3	13.8	13.9	13.9	14.1	14.6

One Minute Volatility Bps

FirstHalfHo..	23.6	25.8	23.8	24.3	24.3	24.1	25.7	26.8	26.1	26.5	26.0	24.9	24.7
MidDay	15.4	15.8	15.6	16.0	15.2	15.9	16.5	16.1	15.8	15.2	15.3	15.4	15.4
LastHalfHo..	15.7	16.1	16.5	16.6	16.9	17.6	17.3	16.4	15.9	15.3	15.9	15.8	15.6

Quotesize (shares)

FirstHalfHo..	25,478	27,693	28,391	27,601	23,593	24,188	25,581	23,164	28,948	34,226	31,313	32,177	36,901
MidDay	42,053	45,912	52,298	46,953	46,472	52,781	52,997	41,722	57,521	64,130	61,681	64,411	67,617
LastHalfHo..	69,285	74,613	78,499	77,442	72,387	70,619	79,360	72,944	95,535	97,872	98,721	97,430	108,596

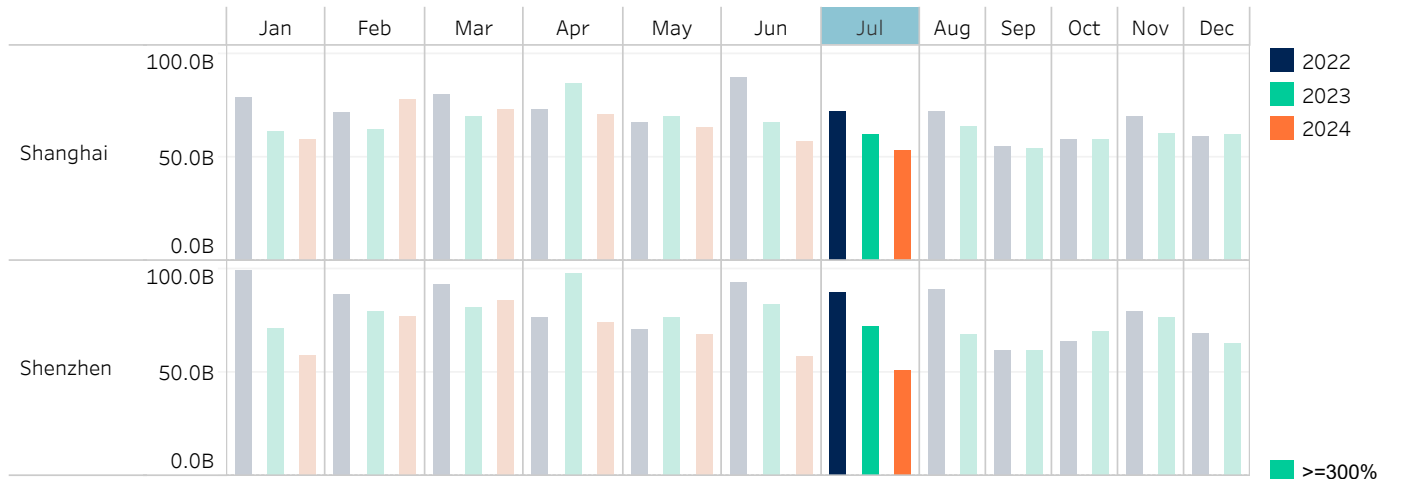
Median used for all metrics

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

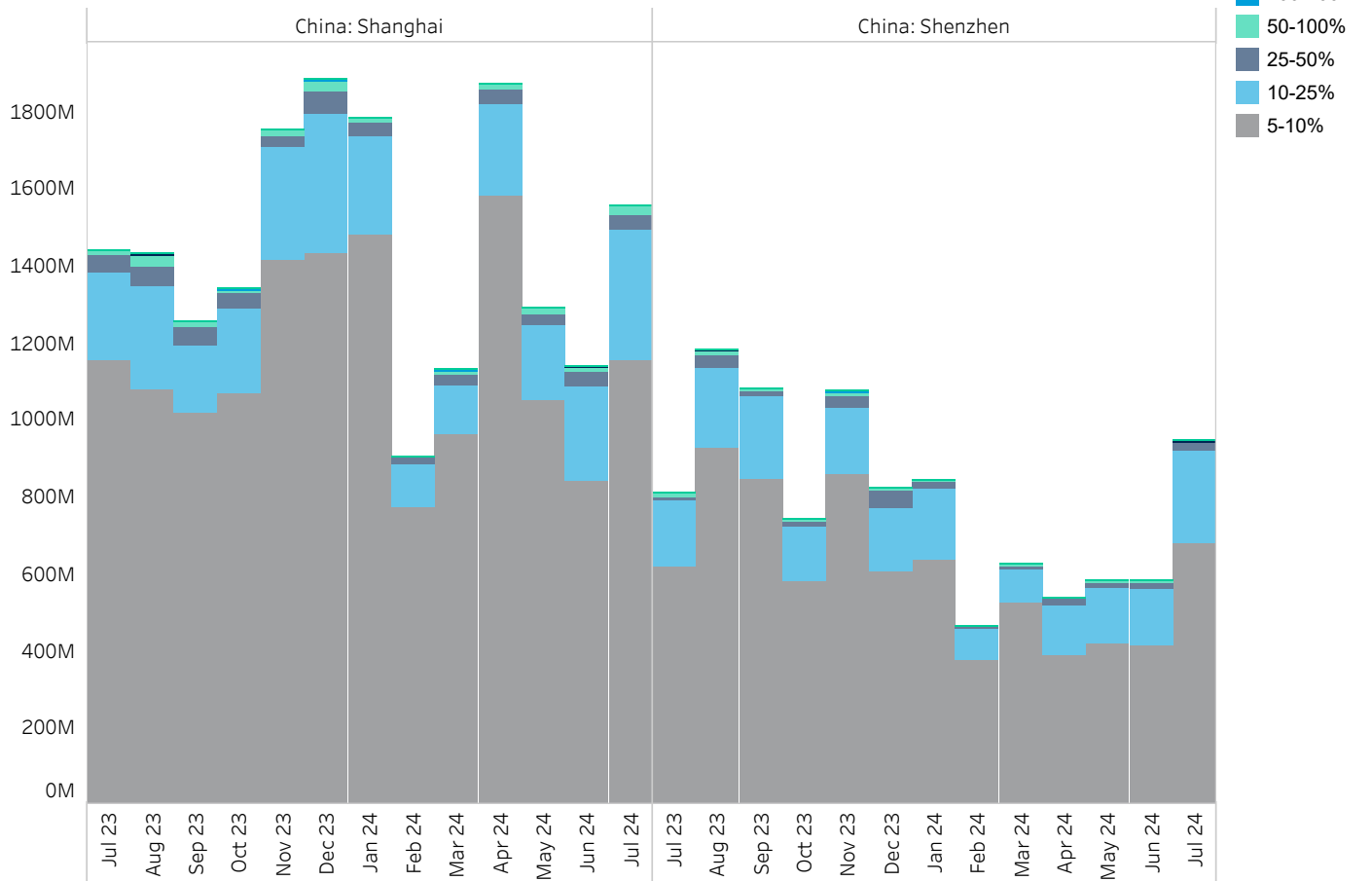
Source data: Virtu Financial

China

Average Daily Turnover (Notional USD)



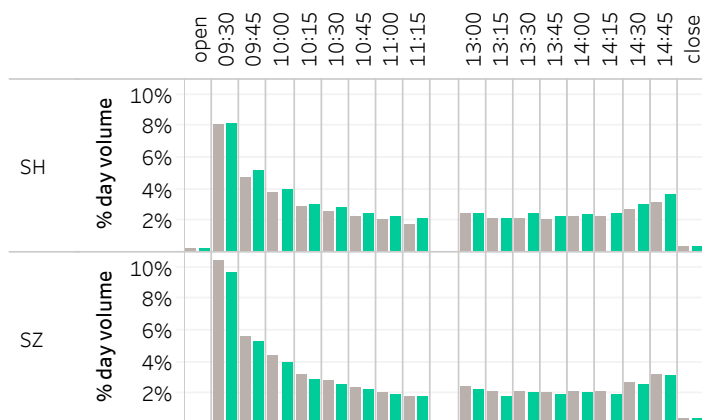
Large Sized Trades (>=5%ADT)



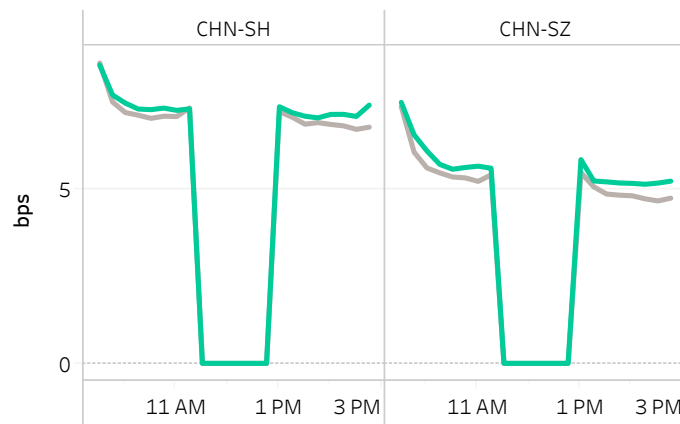
Source data: Virtu Financial

China

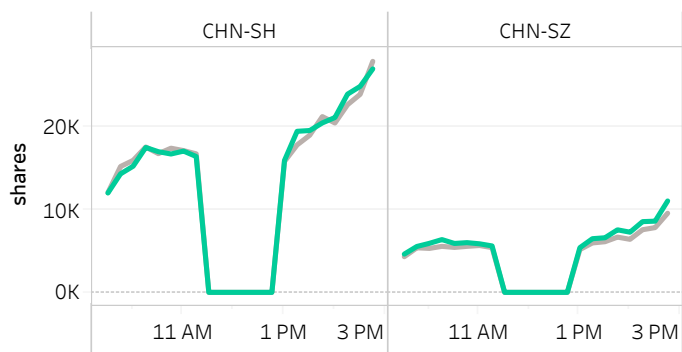
Volume Curve



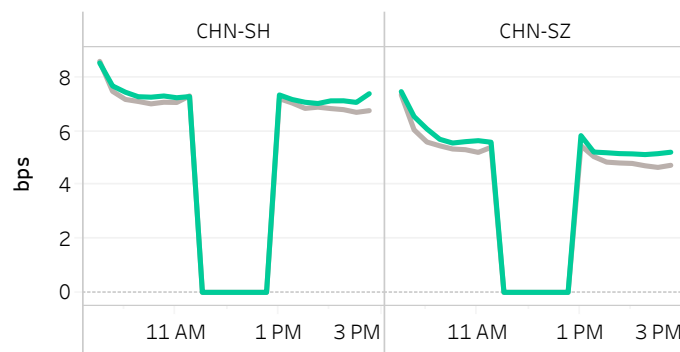
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	CHN-SH							CHN-SZ						
	Jan	Feb	Mar	Apr	May	Jun	Jul	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	8.7	8.9	8.0	8.2	7.7	7.9	8.1	7.1	7.4	6.5	6.8	6.6	6.8	7.0
MidDay	8.0	7.8	7.1	7.0	6.7	7.0	7.3	5.9	6.0	5.4	5.5	5.2	5.4	5.6
LastHalfHo..	8.2	7.8	7.0	6.7	6.4	6.8	7.3	5.8	5.6	5.1	5.0	4.8	5.1	5.3

One Minute Volatility Bps

FirstHalfHo..	27.6	32.4	25.6	29.1	25.2	25.8	27.3	30.2	34.1	28.0	30.2	26.0	27.0	28.5
MidDay	17.3	18.8	15.3	14.6	13.3	14.0	15.0	15.7	18.9	14.6	14.0	11.9	12.5	13.6
LastHalfHo..	18.1	17.8	14.5	13.9	12.7	14.1	14.7	15.7	15.8	12.6	11.7	10.5	12.0	12.3

Quotesize (shares)

FirstHalfHo..	13,651	14,145	16,705	14,795	16,130	13,737	13,345	4,495	4,979	6,105	5,677	5,977	5,165	5,144
MidDay	16,308	16,111	19,611	19,057	21,688	18,327	16,893	5,280	5,654	6,860	6,807	7,527	6,395	6,100
LastHalfHo..	20,444	24,112	29,770	29,522	33,861	26,132	25,695	7,099	8,454	10,445	11,277	12,303	9,755	9,569

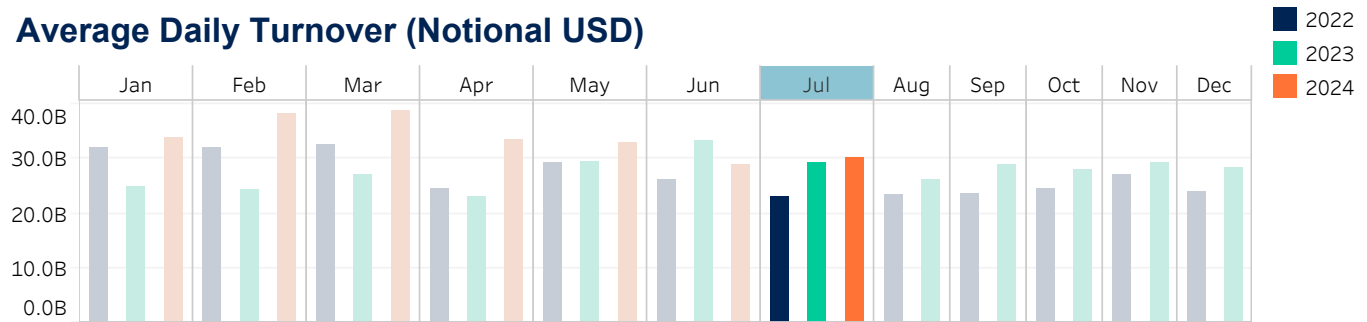
Median used for all metrics

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

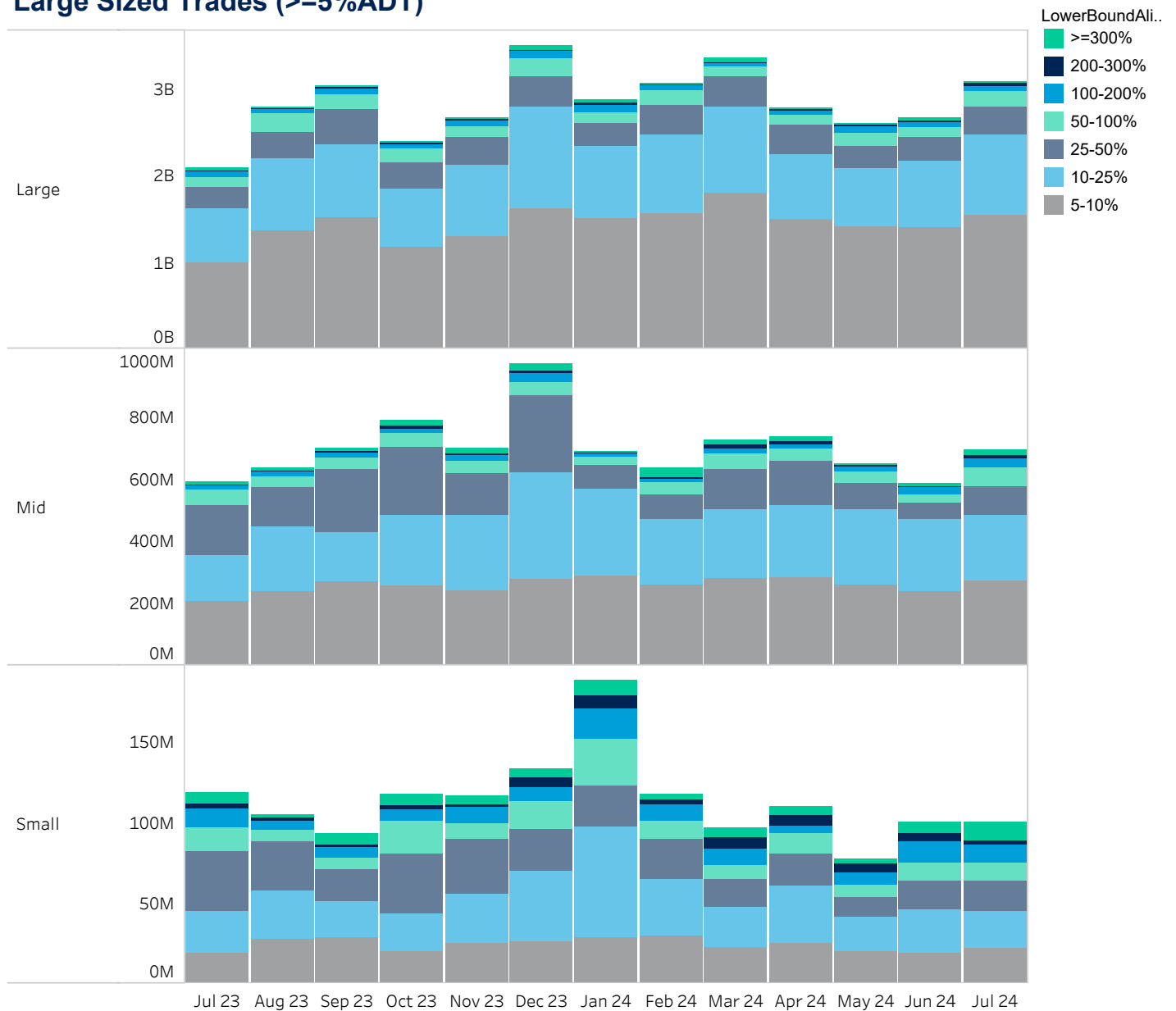
Source data: Virtu Financial

Japan

Average Daily Turnover (Notional USD)



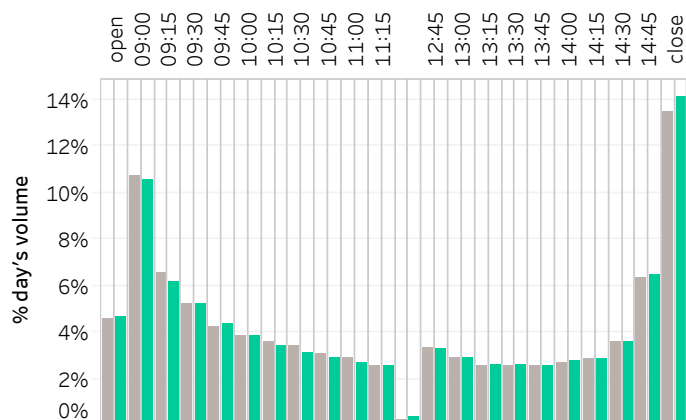
Large Sized Trades (>=5%ADT)



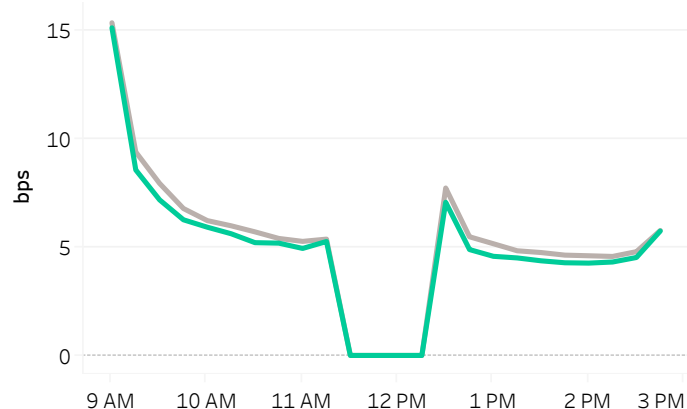
Source data: Virtu Financial

Japan

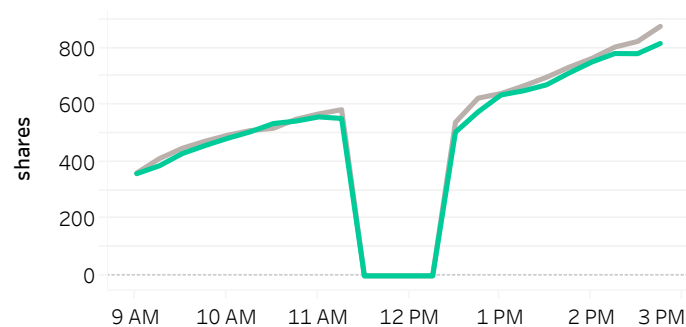
Volume Curve



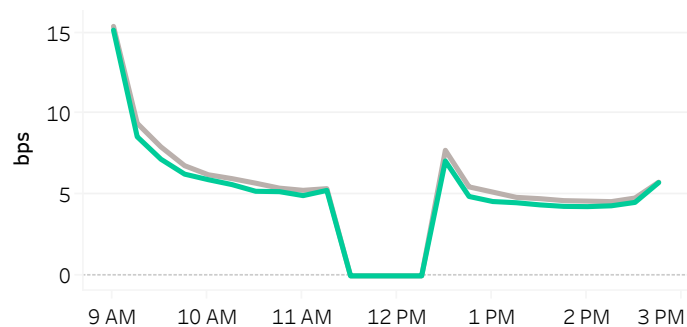
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	11.7	12.2	11.4	13.0	13.5	11.7	11.6	13.1	12.8	12.3	13.0	12.3	12.3
MidDay	5.2	5.4	5.2	5.8	6.0	5.3	5.3	6.0	5.6	5.7	5.5	5.1	5.3
LastHalfHo..	5.0	4.9	5.1	5.7	5.5	5.1	4.9	5.6	5.5	5.2	5.3	5.1	5.3

One Minute Volatility Bps

FirstHalfHo..	14.2	14.8	14.1	16.0	16.8	14.7	14.9	17.1	16.7	16.6	17.4	15.8	15.8
MidDay	5.9	6.1	6.0	7.1	7.3	6.2	6.4	7.3	7.1	7.5	7.0	6.4	6.9
LastHalfHo..	6.6	6.4	6.8	7.9	7.5	7.0	6.8	7.6	7.7	7.7	7.6	7.0	7.5

Quotesize (shares)

FirstHalfHo..	385.9	379.5	387.9	340.1	340.5	356.6	359.3	369.3	368.9	358.4	369.9	378.6	365.6
MidDay	568.6	575.3	579.5	493.7	525.7	550.6	555.1	548.6	534.4	499.1	549.5	568.5	539.3
LastHalfHo..	854.9	881.8	829.3	694.2	778.7	749.6	764.0	784.2	738.9	720.1	833.5	863.7	769.8

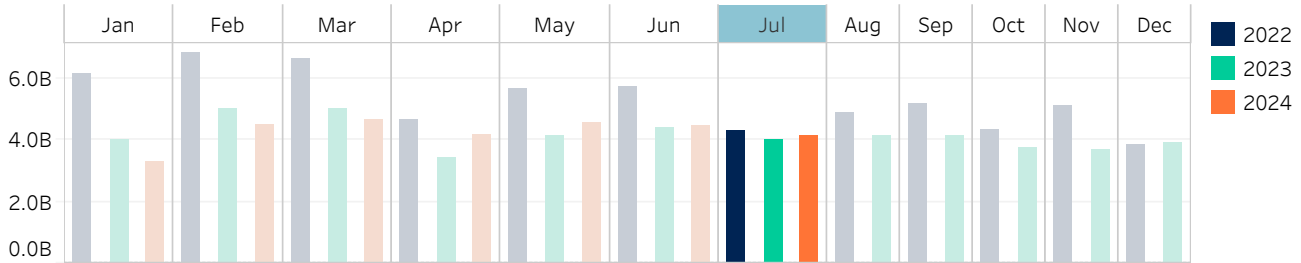
Median used for all metrics

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

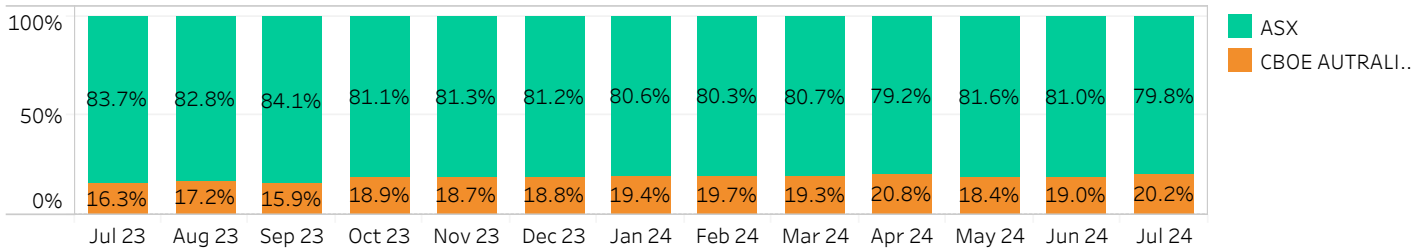
Source data: Virtu Financial

Australia

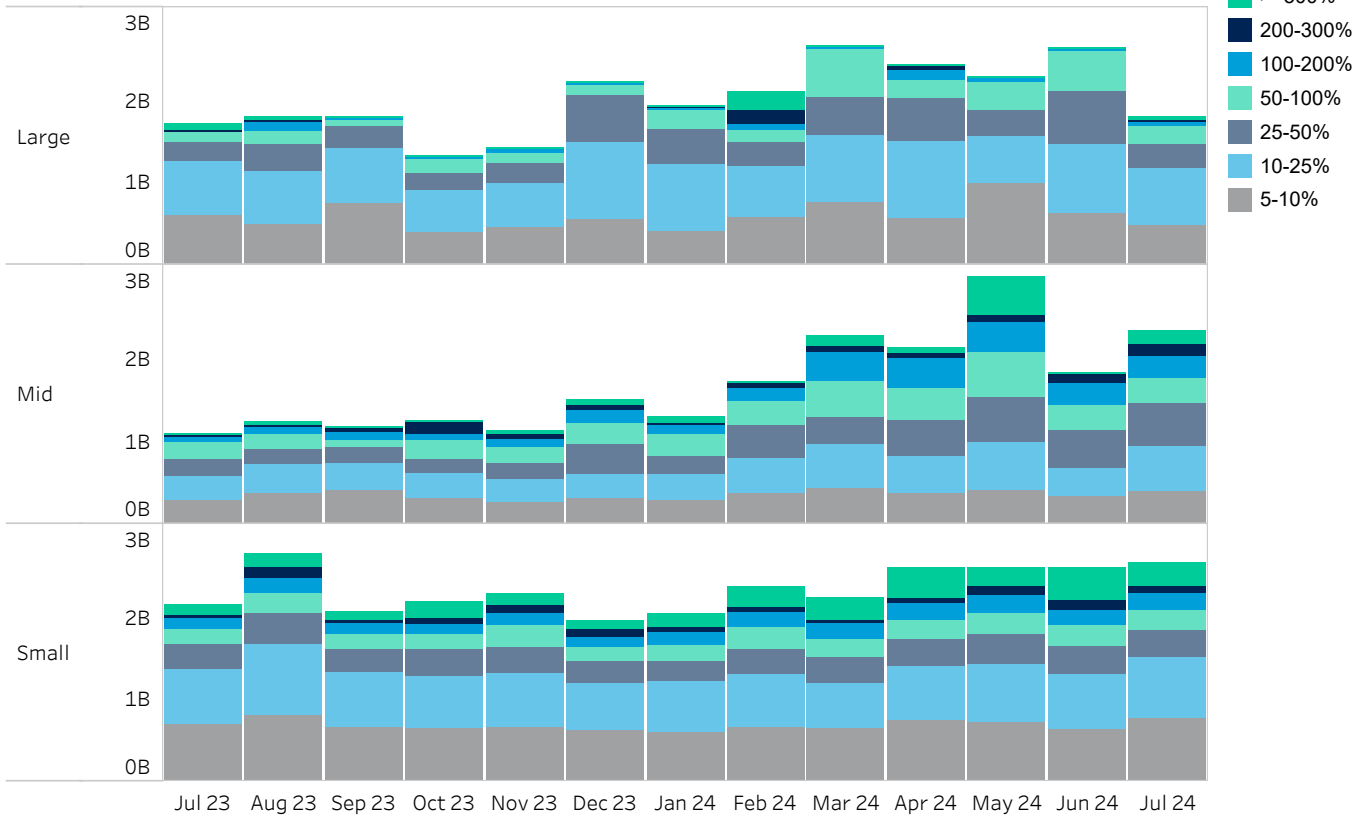
Average Daily Turnover (Notional USD)



Venue Market Share (Notional USD)



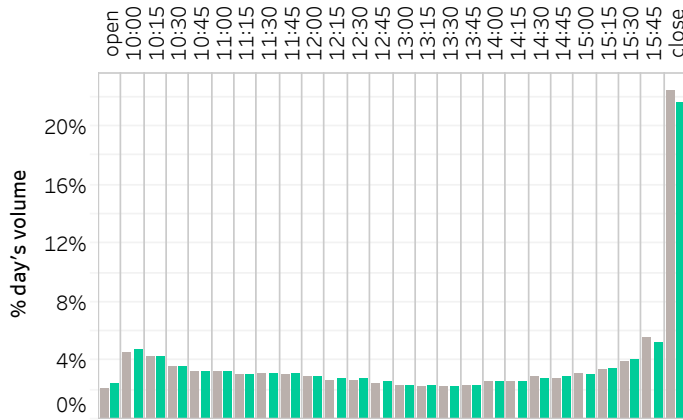
Large Sized Trades (>=5%ADT)



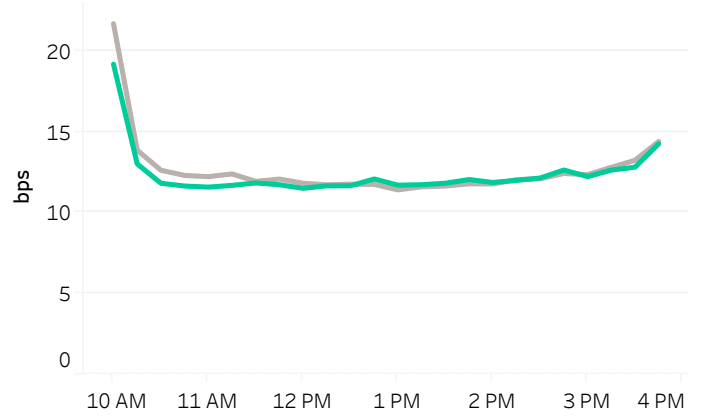
Source data: Virtu Financial

Australia

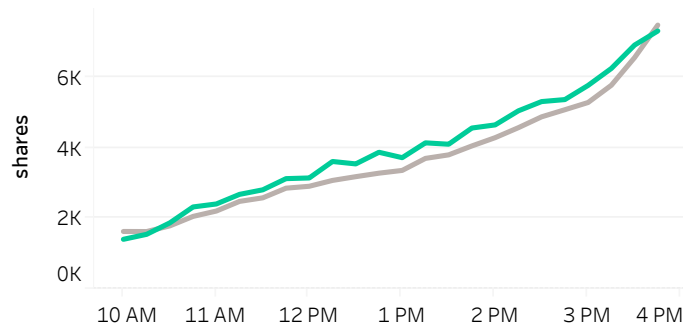
Volume Curve



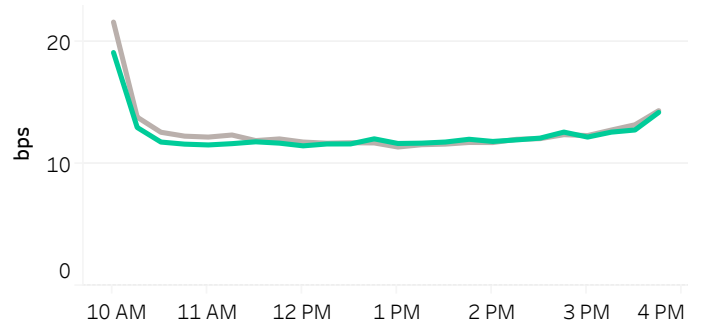
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	16.6	16.6	17.0	18.7	18.1	17.6	16.7	17.7	16.7	16.3	15.6	16.5	15.9
MidDay	11.3	11.1	12.3	13.1	13.1	12.6	12.0	12.5	11.9	11.7	11.9	12.3	11.8
LastHalfHo..	13.9	14.1	14.7	15.4	15.1	14.1	13.7	13.7	13.5	13.1	13.1	13.8	13.8

One Minute Volatility Bps

FirstHalfHo..	18.0	18.9	17.9	19.4	18.7	18.3	16.7	19.2	18.2	18.4	18.0	18.4	17.1
MidDay	9.5	9.7	9.6	10.6	10.8	10.1	9.5	10.5	10.0	9.6	10.1	10.5	10.0
LastHalfHo..	11.9	12.4	12.7	13.5	13.3	12.5	11.7	12.6	12.2	11.7	12.0	12.5	11.8

Quotesize (shares)

FirstHalfHo..	1,672	1,703	1,756	1,601	1,443	1,515	1,528	1,587	1,547	1,545	1,433	1,580	1,482
MidDay	3,520	3,310	3,720	3,289	3,147	3,258	3,388	3,303	3,261	2,984	3,555	3,928	3,774
LastHalfHo..	7,173	7,405	7,388	7,156	6,633	6,873	6,851	6,654	6,518	6,090	6,636	7,213	7,096

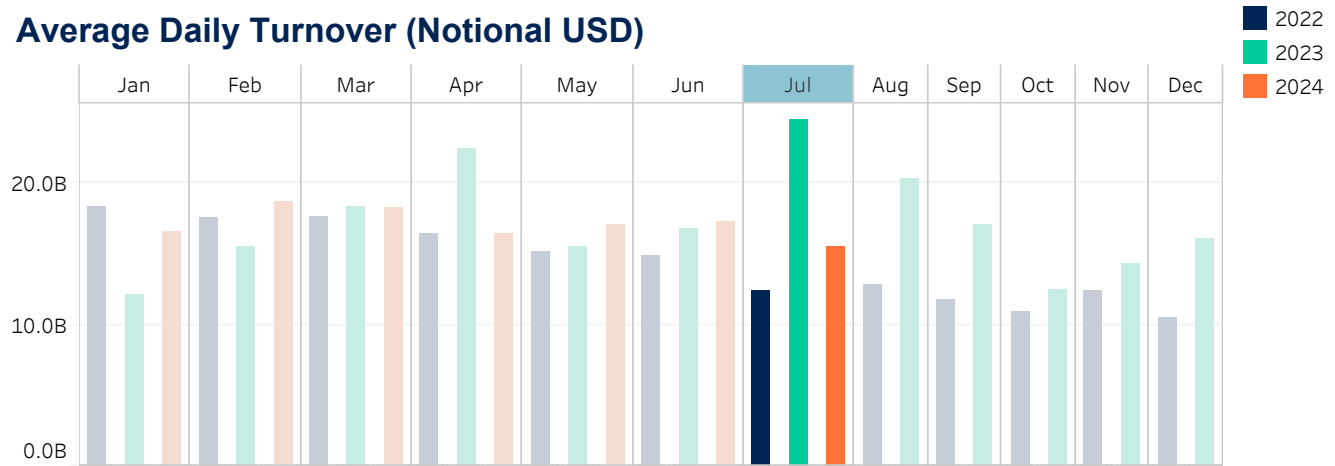
Median used for all metrics

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

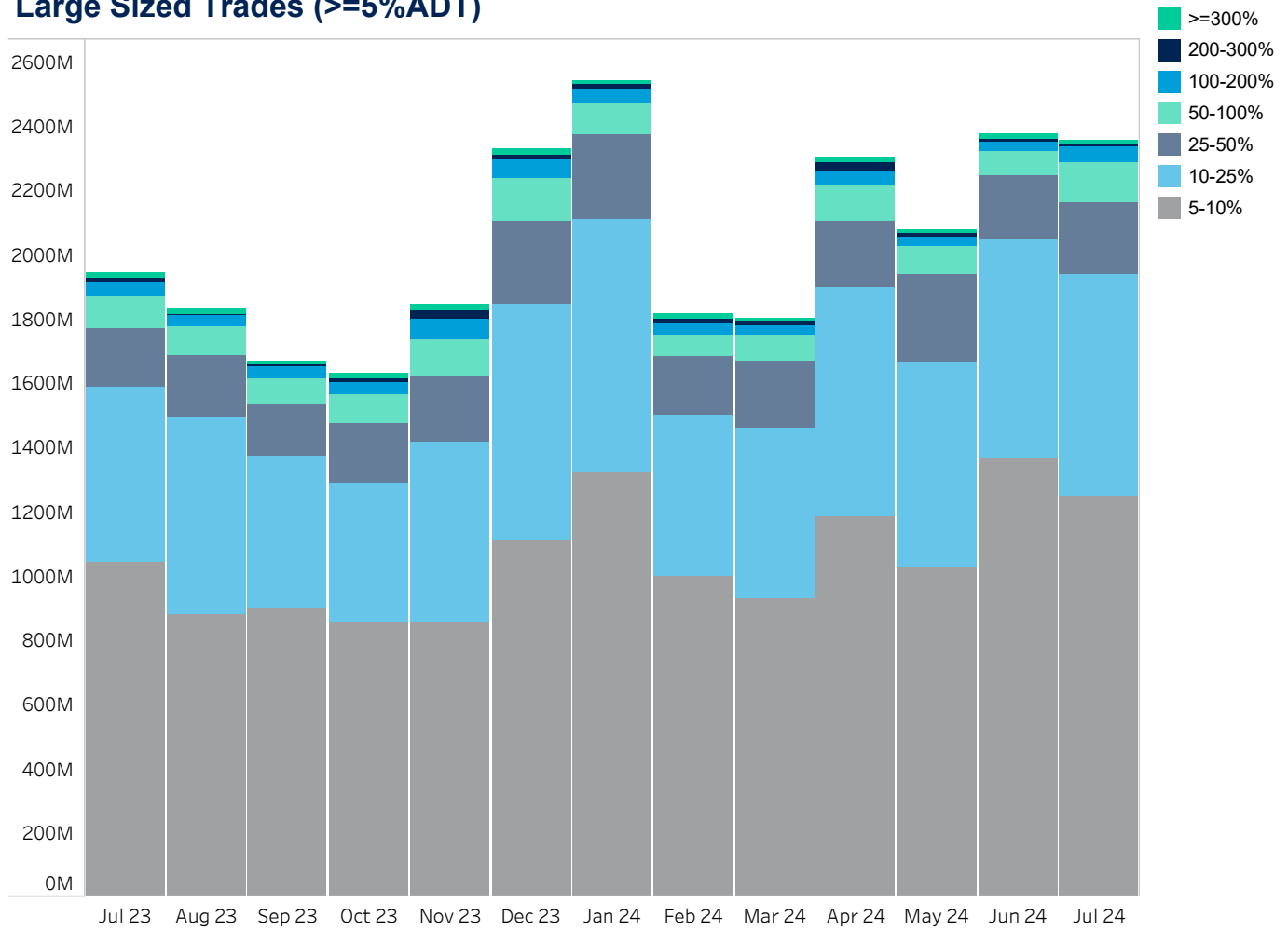
Source data: Virtu Financial

South Korea

Average Daily Turnover (Notional USD)



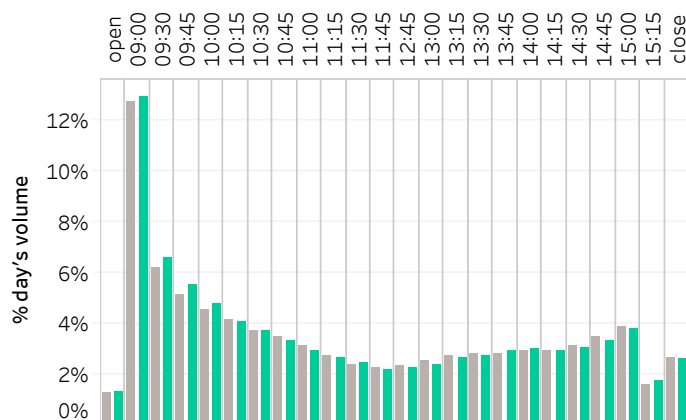
Large Sized Trades (>=5%ADT)



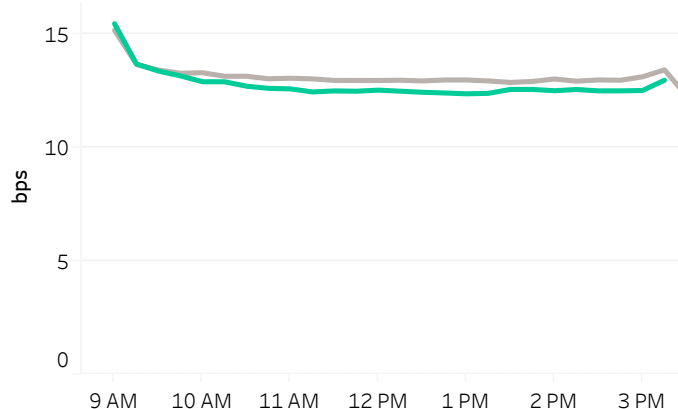
Source data: Virtu Financial

Korea

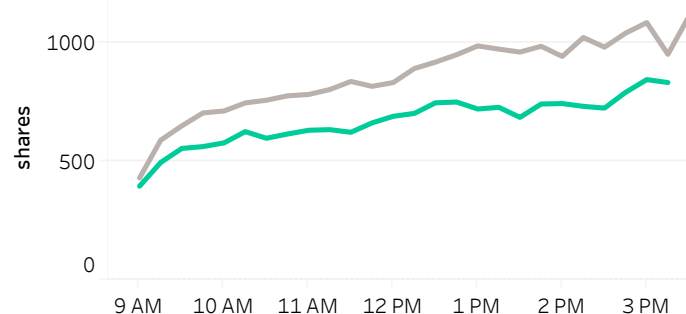
Volume Curve



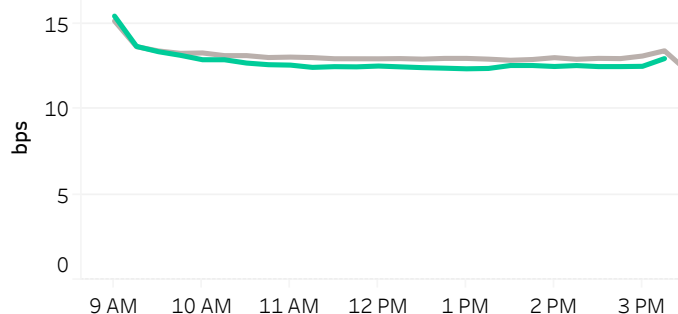
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	14.3	14.2	13.9	14.5	14.5	14.3	15.1	15.6	14.3	14.5	14.0	14.6	14.5
MidDay	13.2	12.8	12.5	12.8	13.1	12.8	13.6	13.6	12.4	12.7	12.7	13.1	12.6
LastHalfHo..	13.3	12.8	12.6	13.2	13.4	13.3	13.8	13.9	12.6	12.8	12.8	13.2	12.7

One Minute Volatility Bps

FirstHalfHo..	27.1	26.7	23.3	27.5	25.1	22.2	25.7	31.4	27.9	27.8	25.5	28.2	29.7
MidDay	14.9	14.3	14.0	14.6	15.1	14.5	15.7	16.4	15.7	15.6	14.9	15.8	16.0
LastHalfHo..	16.2	15.2	15.3	16.1	14.9	16.3	17.1	17.6	16.5	17.1	16.0	17.1	16.7

Quotesize (shares)

FirstHalfHo..	563.4	491.2	491.0	443.8	457.6	535.9	445.6	465.2	451.8	457.9	501.0	506.3	437.7
MidDay	1,023.8	875.5	922.8	808.1	760.3	895.4	806.7	749.1	773.4	713.4	826.0	731.0	690.2
LastHalfHo..	1,164.2	1,108.1	1,065.7	911.6	920.9	1,010.4	871.0	901.7	952.1	900.4	1,036.0	983.1	850.4

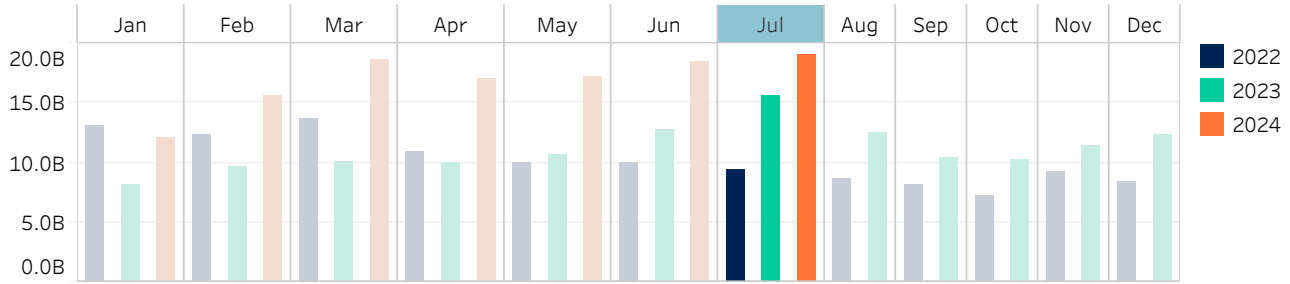
Median used for all metrics

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

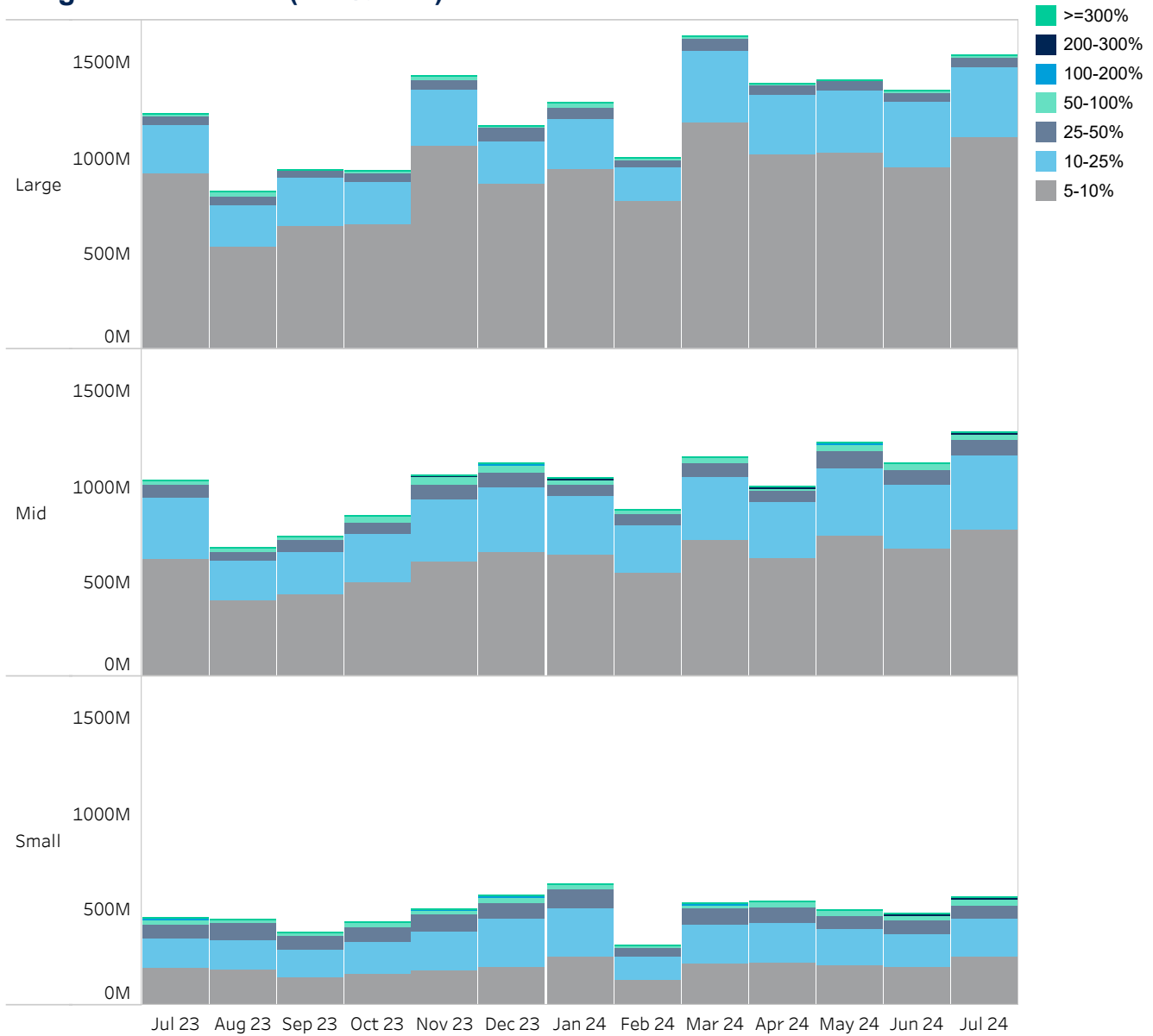
Source data: Virtu Financial

Taiwan

Average Daily Turnover (Notional USD)



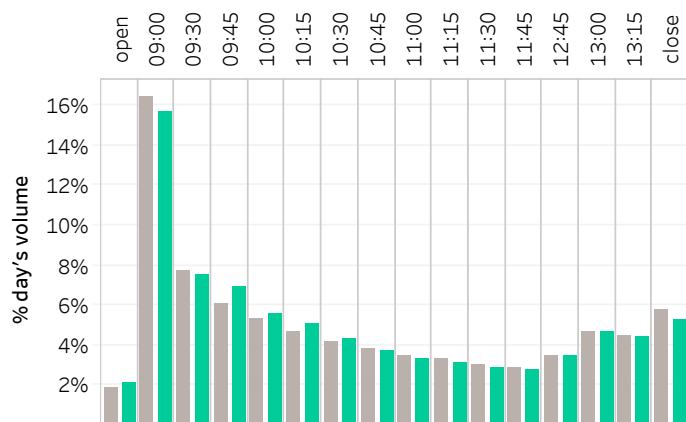
Large Sized Trades (>=5%ADT)



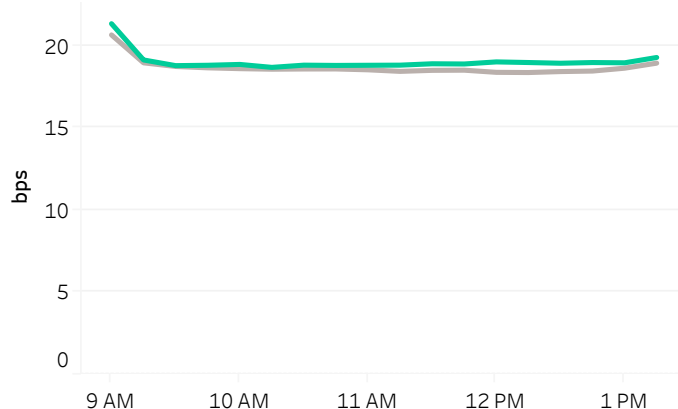
Source data: Virtu Financial

Taiwan

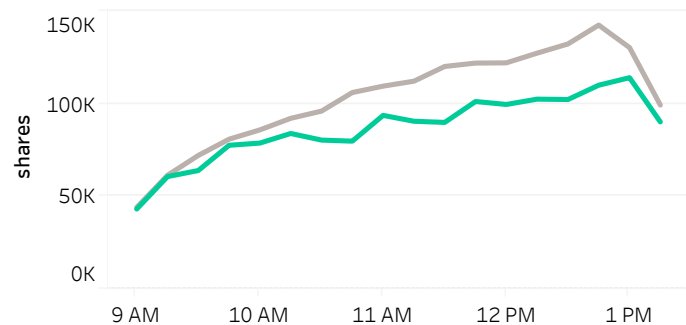
Volume Curve



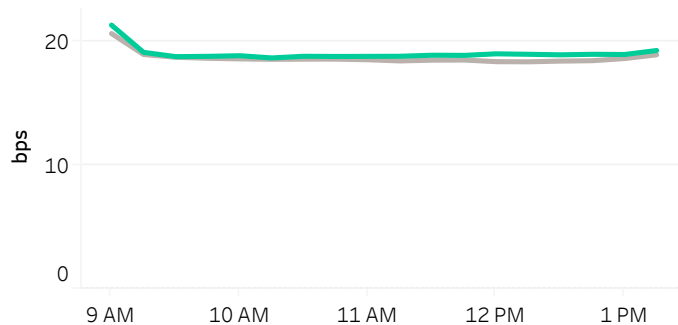
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	19.6	20.5	19.9	20.3	19.6	19.5	19.6	19.5	19.5	19.8	19.6	19.9	20.2
MidDay	18.0	18.8	18.8	19.0	18.2	18.6	18.6	18.3	18.3	18.4	18.8	19.1	18.9
LastHalfHo..	18.3	18.8	19.0	19.1	18.6	18.7	18.8	18.3	18.6	18.6	18.9	19.2	19.1

One Minute Volatility Bps

FirstHalfHo..	34.5	37.1	32.6	33.3	29.9	30.6	32.8	31.3	32.7	32.9	34.8	34.3	35.0
MidDay	31.5	36.4	29.8	31.1	26.4	27.8	29.2	28.6	28.9	28.7	28.6	28.6	31.0
LastHalfHo..	32.6	34.4	29.9	31.5	27.6	28.1	30.3	28.7	30.4	29.5	30.3	29.5	31.4

Quotesize (shares)

FirstHalfHo..	51,257	44,628	44,984	46,915	50,161	52,263	57,046	48,244	57,635	48,604	56,638	56,775	50,128
MidDay	105,466	95,368	103,352	109,280	111,917	104,185	124,365	117,027	110,699	96,467	113,228	104,741	88,207
LastHalfHo..	102,051	100,542	105,527	109,997	124,934	124,186	118,507	116,047	117,591	108,108	123,357	120,731	100,832

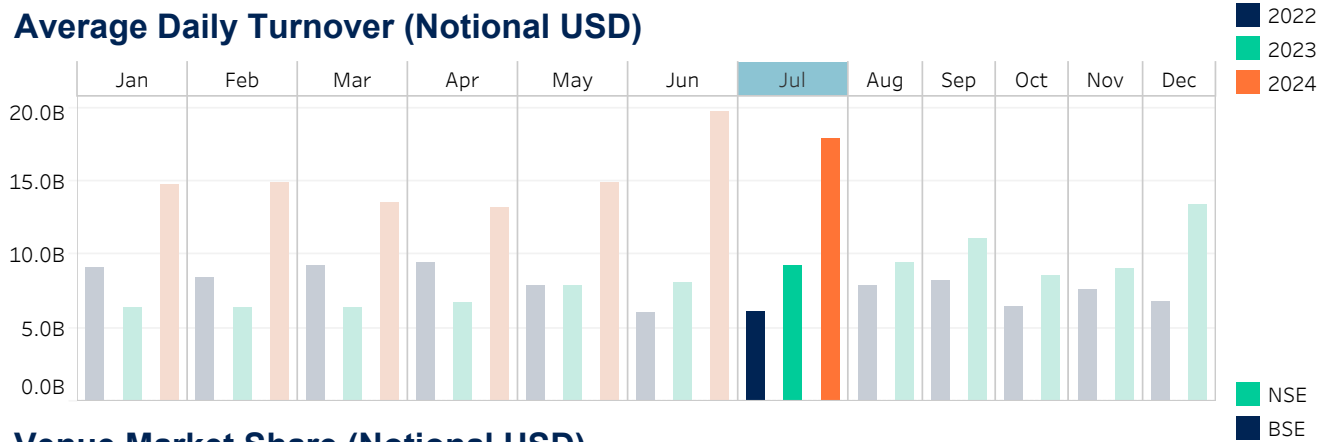
Median used for all metrics

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

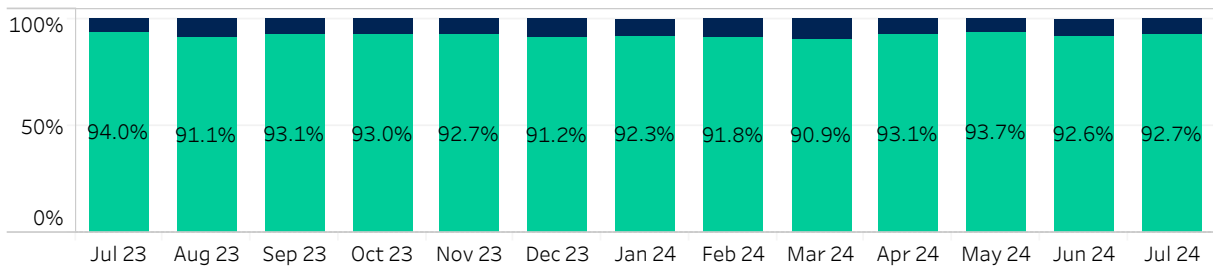
Source data: Virtu Financial

India

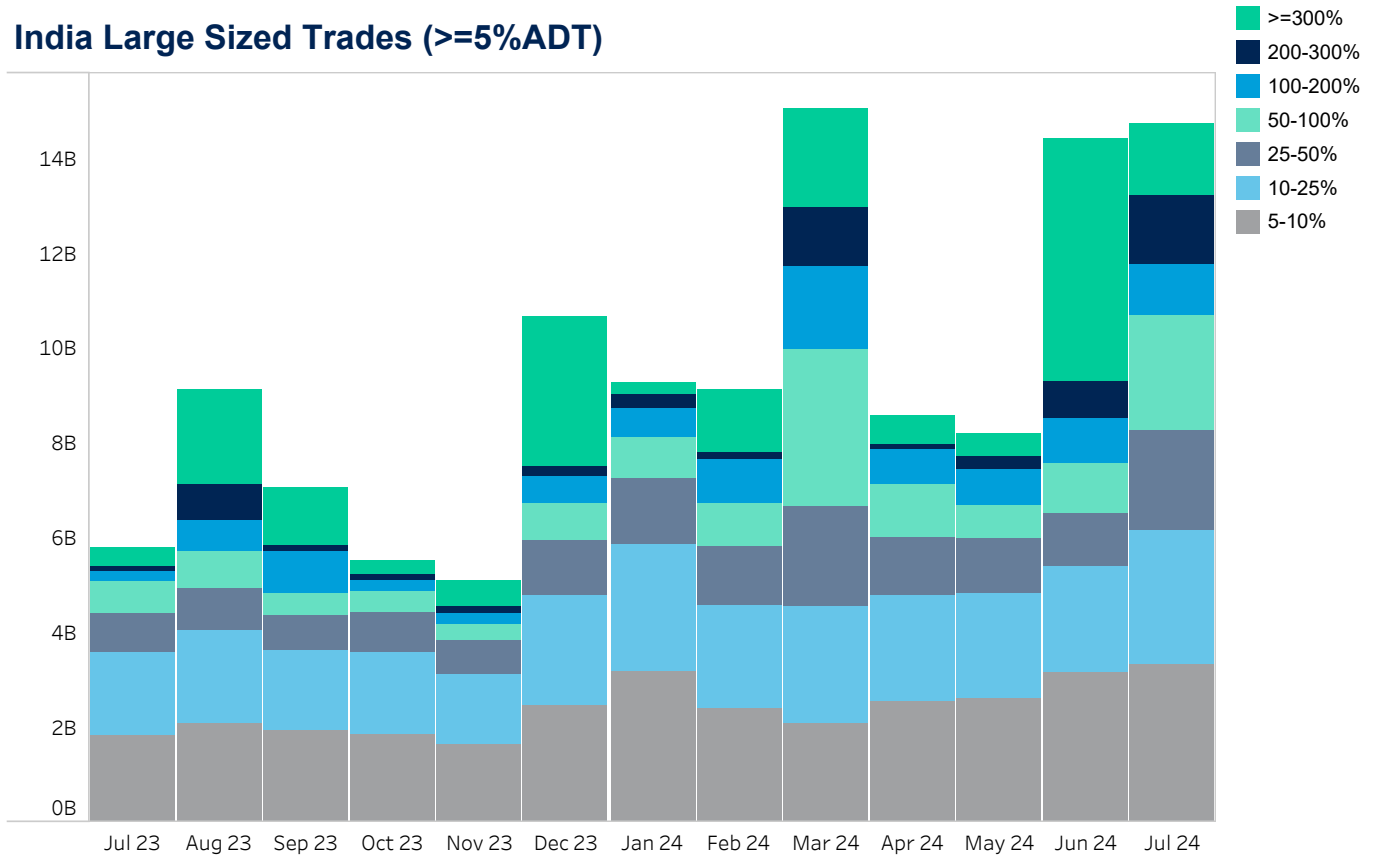
Average Daily Turnover (Notional USD)



Venue Market Share (Notional USD)



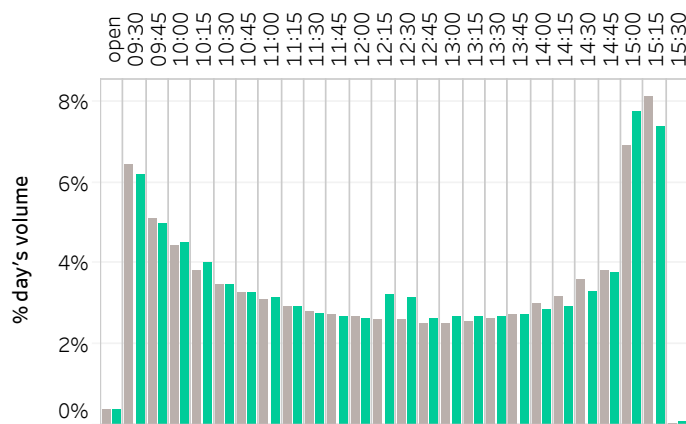
India Large Sized Trades (>=5%ADT)



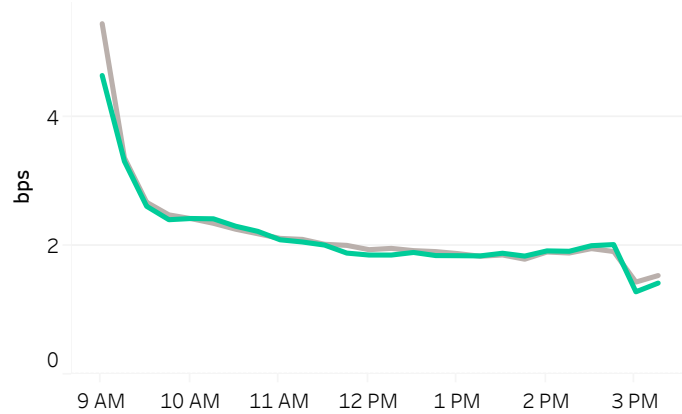
Source data: Virtu Financial

India

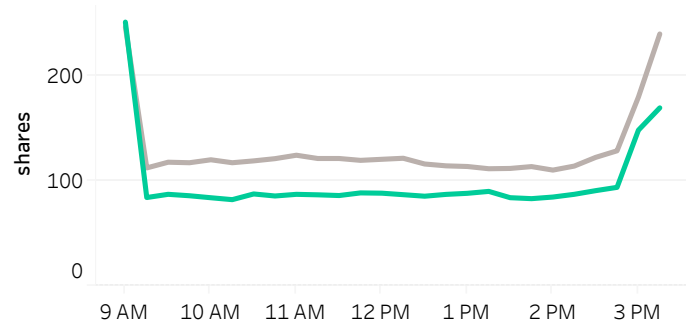
Volume Curve



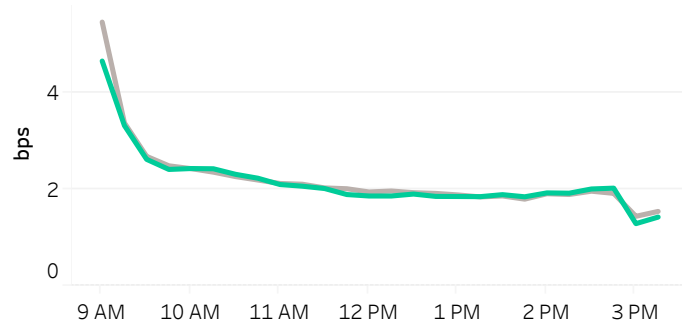
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	3.5	3.5	3.5	3.4	3.2	3.4	3.5	3.5	3.3	3.4	3.5	3.5	3.2
MidDay	1.9	1.9	2.0	1.8	2.0	1.9	1.9	2.0	1.9	2.0	2.1	2.0	2.0
LastHalfHo..	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.7	1.6	1.4

One Minute Volatility Bps

FirstHalfHo..	17.6	16.2	16.3	17.3	14.7	17.9	19.6	19.6	19.5	19.6	20.1	22.5	19.1
MidDay	7.7	7.4	7.6	7.6	7.1	8.0	8.7	9.1	8.9	8.4	8.9	9.4	8.5
LastHalfHo..	9.9	9.6	9.6	9.5	8.7	10.5	10.8	11.2	12.1	10.6	11.6	11.6	10.3

Quotesize (shares)

FirstHalfHo..	131.7	114.8	117.2	112.5	108.1	118.4	102.2	90.9	91.8	88.1	85.8	92.9	89.2
MidDay	124.1	118.6	120.7	108.5	116.7	118.3	99.1	90.4	91.0	94.1	90.6	93.3	85.5
LastHalfHo..	231.3	206.0	230.8	197.4	229.1	196.5	182.0	169.3	188.1	191.5	147.4	174.9	158.2

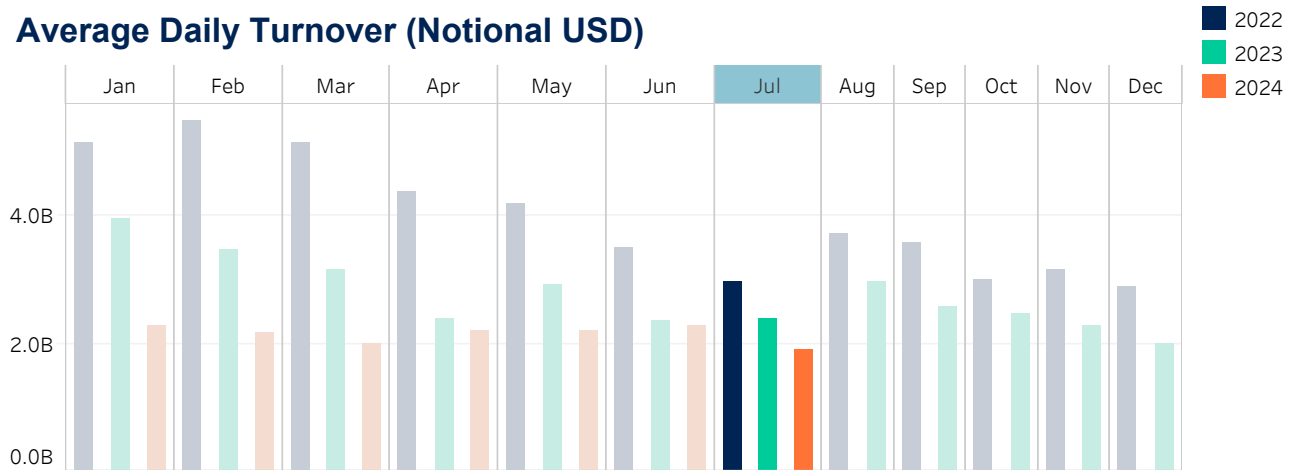
Median used for all metrics

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

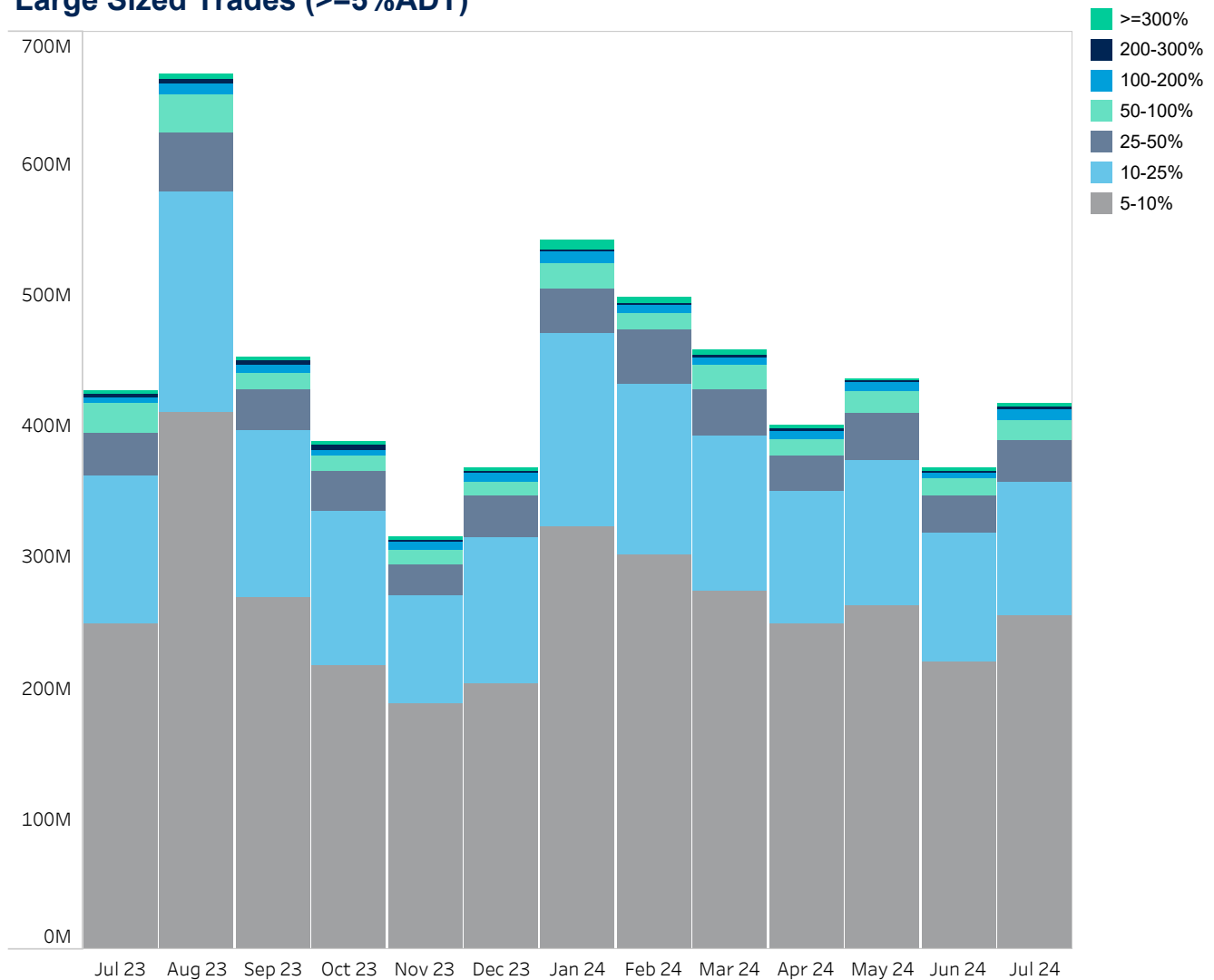
Source data: Virtu Financial

Thailand

Average Daily Turnover (Notional USD)



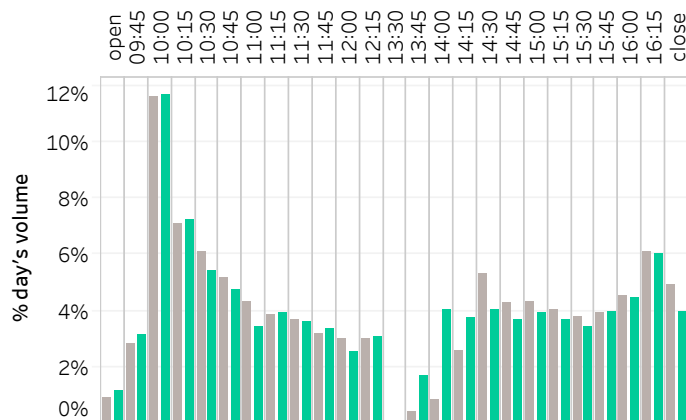
Large Sized Trades (>=5%ADT)



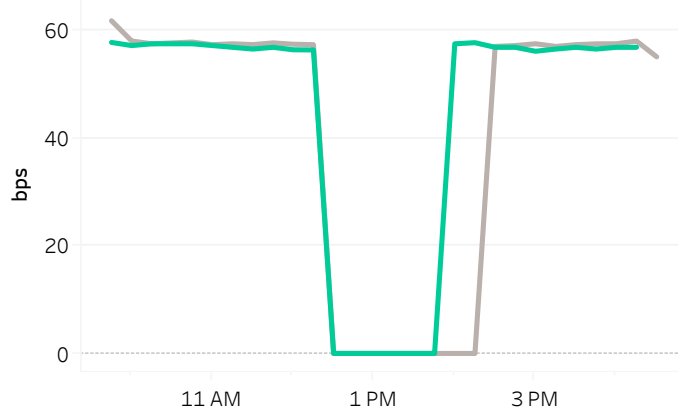
Source data: Virtu Financial

Thailand

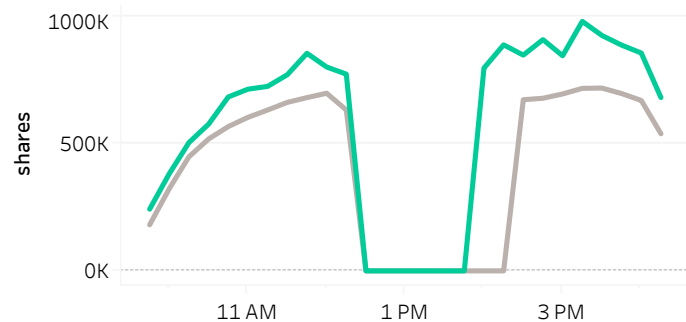
Volume Curve



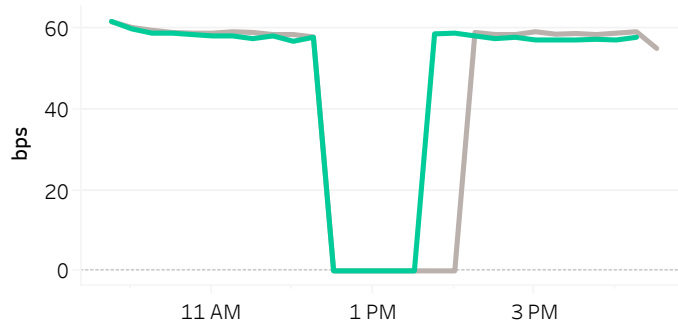
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	61.9	62.3	61.9	64.3	62.7	64.0	61.2	60.1	58.8	60.0	58.7	58.6	57.6
MidDay	56.7	56.3	58.7	59.3	58.3	59.2	57.6	57.0	56.2	58.0	57.6	57.3	56.7
LastHalfHo..	58.0	57.0	59.0	59.3	59.0	51.4	58.3	57.3	56.3	58.0	58.0	57.6	57.0

One Minute Volatility Bps

FirstHalfHo..	60.4	61.7	61.2	64.3	63.5	63.8	61.2	62.3	60.4	60.8	61.5	61.5	61.5
MidDay	58.7	58.3	60.1	60.4	60.4	60.4	59.3	58.1	57.6	58.8	58.8	58.1	57.8
LastHalfHo..	59.0	58.7	59.0	60.8	60.4	51.4	59.3	58.1	57.6	59.0	59.0	58.3	58.0

Quotesize (shares)

FirstHalfHo..	170,264	205,336	202,658	146,123	160,913	162,686	190,460	187,498	201,086	203,810	251,426	207,077	251,215
MidDay	542,854	699,283	749,767	485,941	528,048	602,762	686,060	674,355	709,700	770,373	786,167	647,182	795,456
LastHalfHo..	518,167	619,275	626,196	465,624	501,806	371,650	597,307	602,884	611,971	624,177	686,745	575,749	734,601

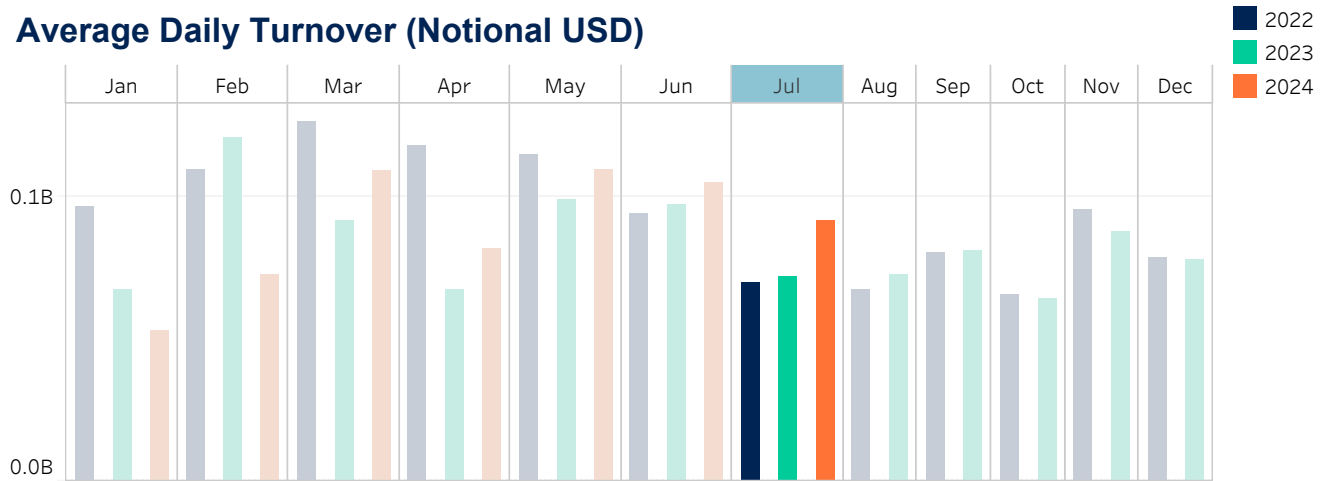
Median used for all metrics

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

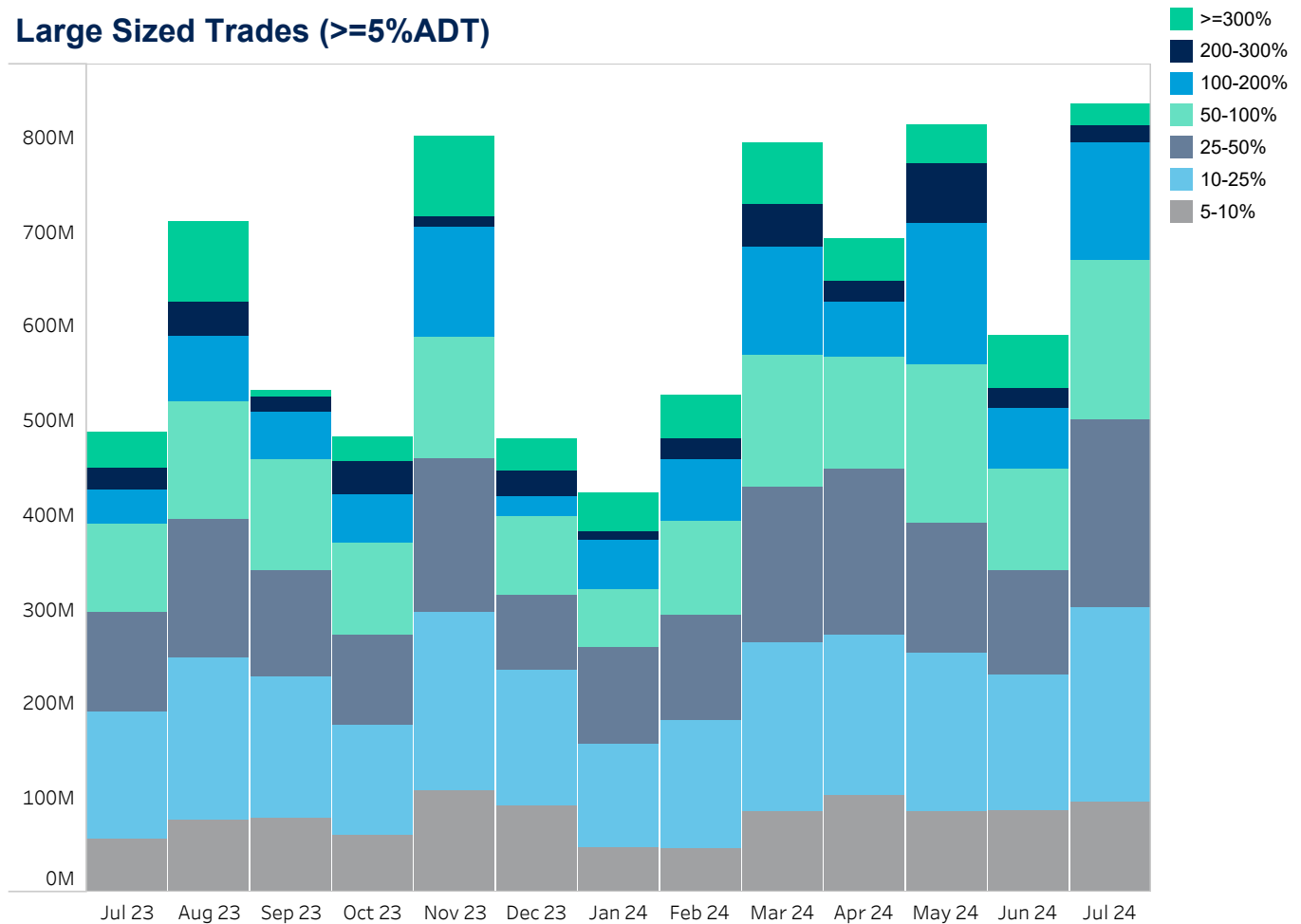
Source data: Virtu Financial

New Zealand

Average Daily Turnover (Notional USD)



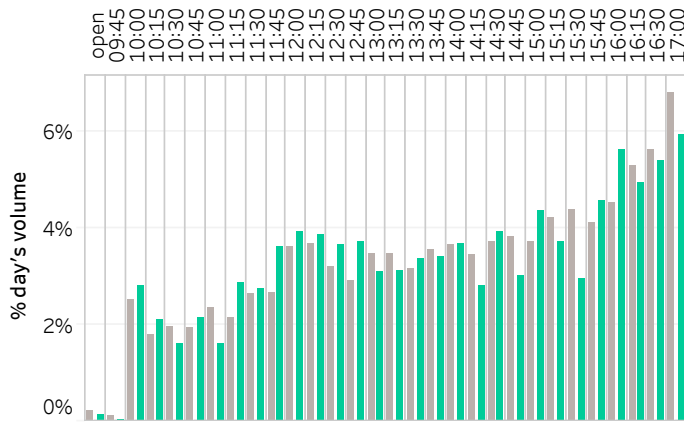
Large Sized Trades (>=5%ADT)



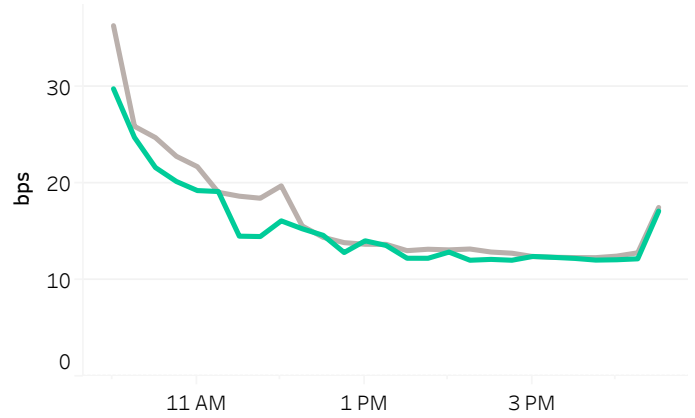
Source data: Virtu Financial

New Zealand

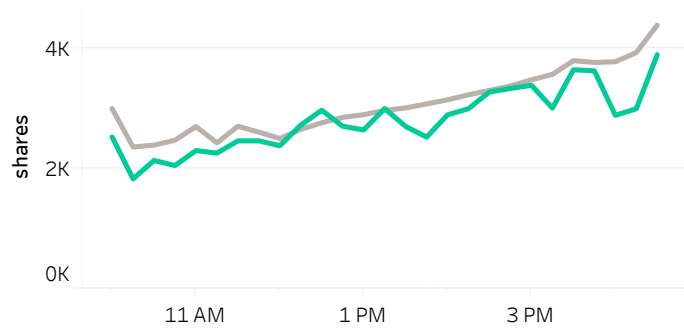
Volume Curve



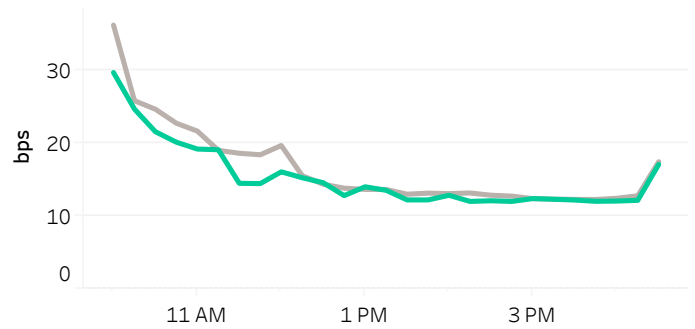
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	27.3	26.0	30.3	28.2	28.9	35.4	37.0	35.1	31.2	34.3	26.1	30.5	26.2
MidDay	13.5	14.5	12.4	14.7	14.3	16.7	17.1	19.6	12.7	12.5	11.6	12.5	13.0
LastHalfHo..	17.9	18.0	16.3	19.7	18.1	18.6	22.2	22.5	17.1	15.6	13.0	15.8	15.9

One Minute Volatility Bps

FirstHalfHo..	18.4	19.0	20.9	23.1	19.9	19.4	29.1	28.3	23.8	26.1	24.6	26.5	24.0
MidDay	12.8	13.7	12.5	15.0	14.6	16.4	17.2	19.2	12.3	12.1	11.7	13.0	13.1
LastHalfHo..	18.3	18.4	19.4	20.8	19.6	19.3	22.5	23.4	20.4	17.3	15.6	21.4	21.4

Quotesize (shares)

FirstHalfHo..	2,980	2,981	2,681	3,043	2,397	2,093	2,584	3,199	2,413	2,650	2,904	2,527	2,215
LastHalfHo..	4,326	4,567	3,988	4,171	4,335	4,150	4,284	4,516	4,518	3,911	4,530	4,644	4,072
MidDay	3,016	3,363	3,098	3,456	2,624	2,939	2,784	3,414	2,746	2,757	2,885	2,903	2,753

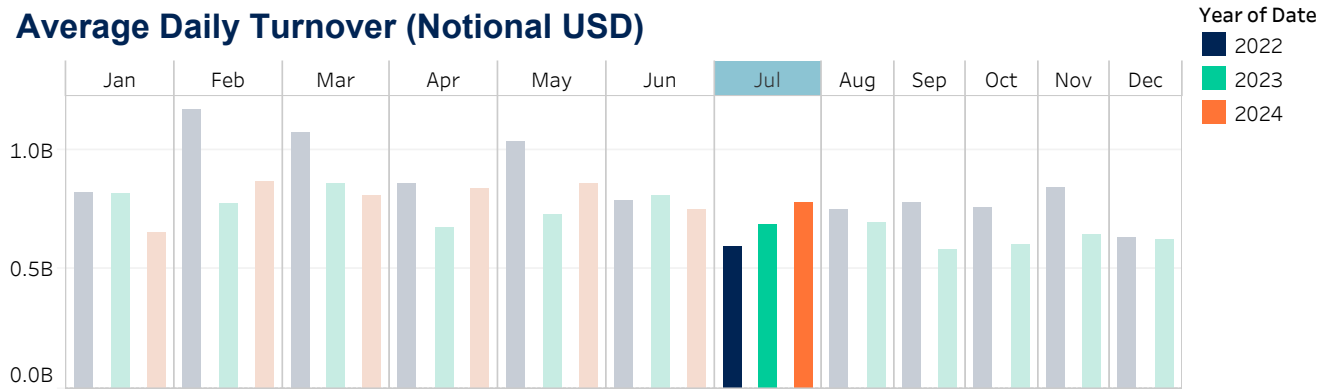
Median used for all metrics

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

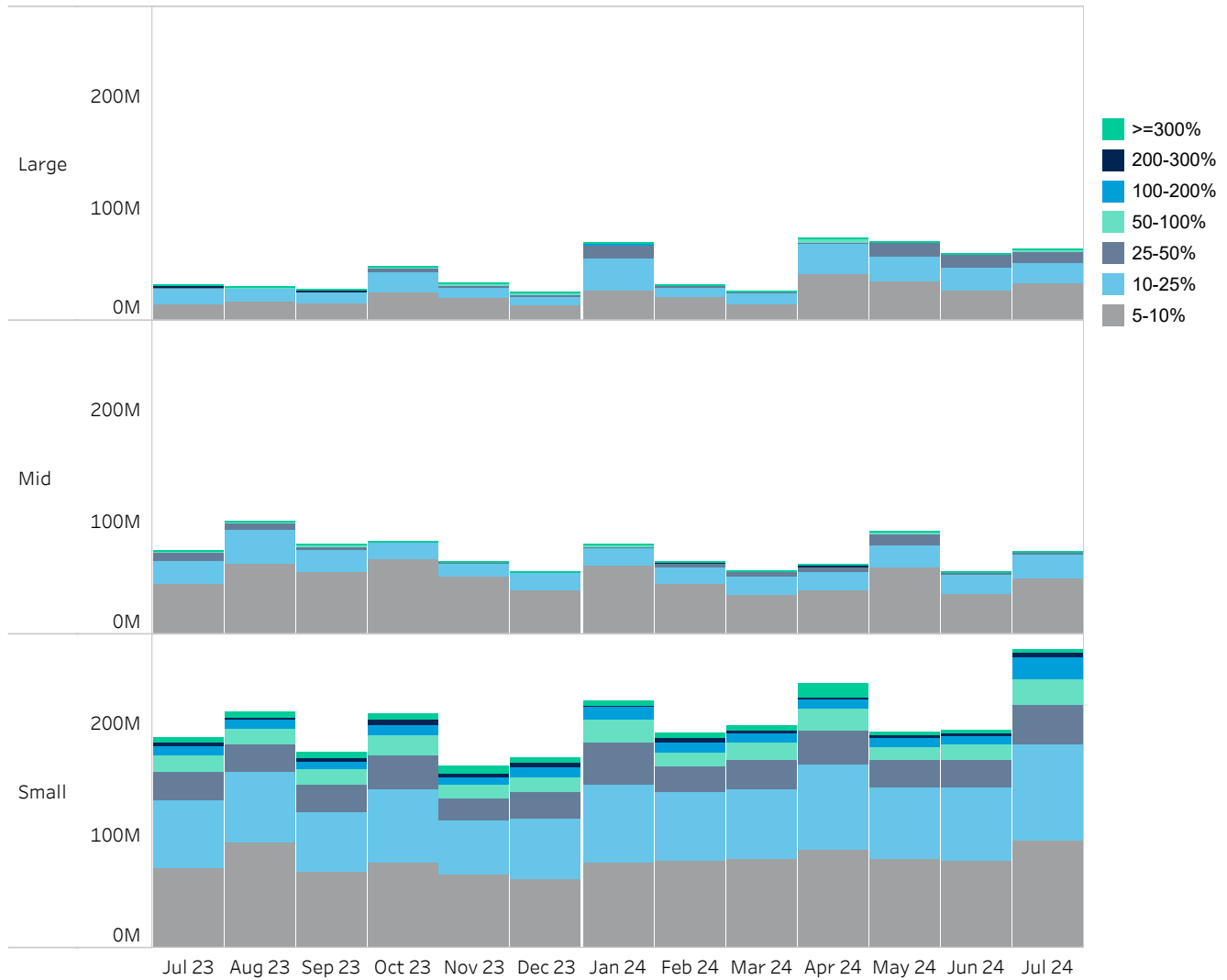
Source data: Virtu Financial

Singapore

Average Daily Turnover (Notional USD)



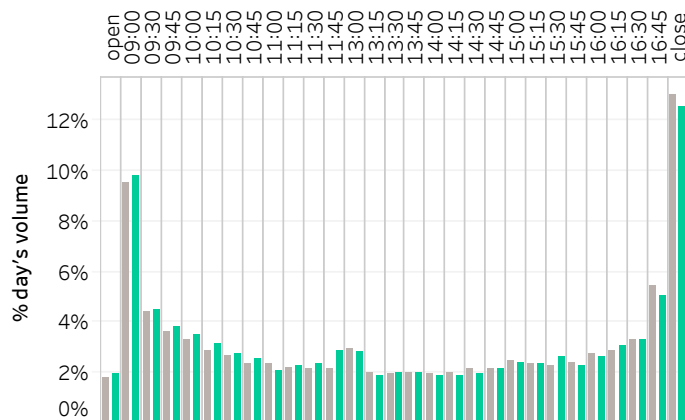
Large Sized Trades (>=5%ADT)



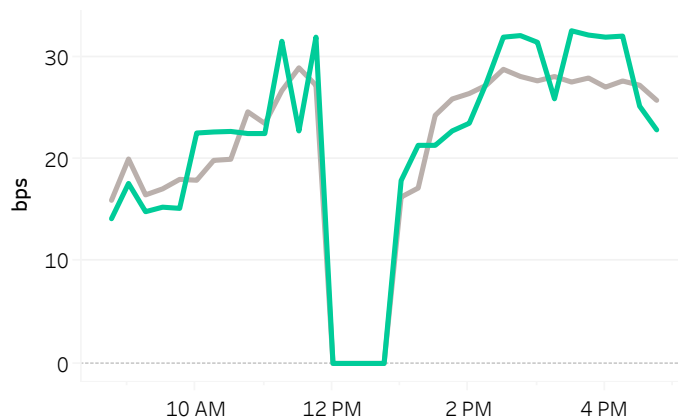
Source data: Virtu Financial

Singapore

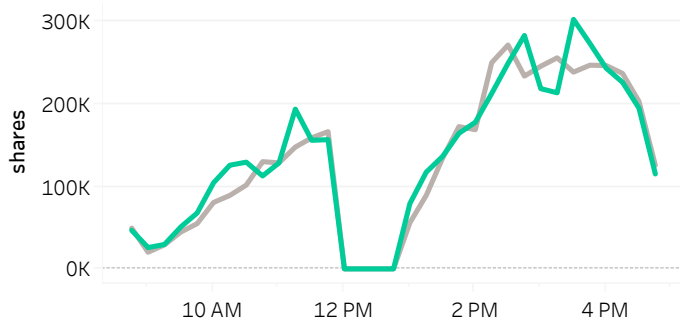
Volume Curve



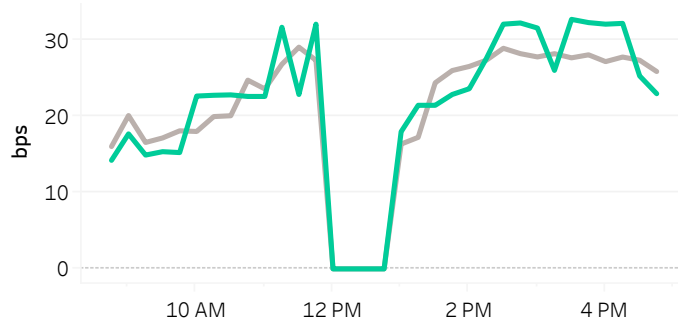
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg July 2024

Spread Bps

	2023						2024						
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
FirstHalfHo..	14.6	19.1	16.2	15.8	16.8	15.1	15.0	15.0	18.7	15.6	14.5	14.8	14.4
MidDay	17.5	27.1	26.7	28.5	26.5	28.9	26.8	18.1	30.0	36.7	19.2	24.7	22.8
LastHalfHo..	26.4	26.3	26.9	29.5	27.1	28.0	29.7	26.4	29.4	28.6	24.4	24.7	23.5

One Minute Volatility Bps

FirstHalfHo..	41.7	51.4	31.3	50.6	52.8	40.9	41.6	42.5	39.9	52.1	37.7	39.0	33.8
MidDay	26.3	27.6	27.0	31.3	27.3	29.1	28.8	26.3	34.2	36.9	24.3	24.8	27.0
LastHalfHo..	27.1	28.0	27.4	32.6	27.9	29.4	32.6	30.4	30.1	34.1	29.7	30.0	31.8

Quotesize (shares)

FirstHalfHo..	39,923	30,361	36,050	50,518	72,786	53,345	55,164	68,837	35,573	61,123	43,399	46,845	37,261
MidDay	126,638	232,427	176,852	239,708	89,777	193,459	181,018	116,322	187,792	374,365	110,102	148,668	152,415
LastHalfHo..	143,803	181,844	179,377	226,408	119,166	139,335	199,052	164,279	161,581	161,143	143,389	182,647	158,047

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

Glossary

Volume curve - average of value traded during the month, per 15-minute time bin.

Intraday volatility - Median of difference between the high and low price within a one minute time bin, divided by that bin's VWAP

Spread - median of bid-ask spread of the index.

Quotesize - Median bid and ask size of all stocks in the index.

Average daily turnover - average daily value traded in the market.

Indices used:

Australia: ASX 200

Japan: TOPIX

China: CSI 300

Hong Kong: Hang Seng Index

Taiwan: TWSE

India: NIFTY 50

Korea: MSCI Korea 25/50 Index

New Zealand: MSCI New Zealand IMI 25/50 Index

Singapore: MSCI Singapore Index

Thailand: MSCI Thailand IMI 25/50 Index

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