August 2023 APAC Market Structure Monthly

Country Group Developed Markets Developing Markets Iran KOR JPN 20.2B 26.0B CHN 133.5B HKG TWN 10.88^{12.58} IND 9.5B ۲ THA 3.0B SGP 0.7B Auronlia AUS 4.1B NZL 0.1B © 2023 Mapbox © OpenStreetMap **Country Breakdowns**

Average Daily Turnover (Notional USD)

Taiwan
India
Thailand
New Zealand
Singapore



Aug 2023 AP Market Structure Monthly

MICROSTRUCTURE OBSERVATIONS

- India equity markets recorded YTD high average daily turnover (ADT) in August 2023 at US\$9.5B, up 2.5% relative to the prior month. Turnover for large sized trades over 300% MDV amounted to US\$2B, the highest level since January 2023.
- Australia close auction saw less trading activity as close auction volume was down 5% MoM to 19% of the full day volume.
- Intraday volatility and quote-size remained consistent in August 2023 relative to the prior month across all APAC markets.

AP MARKET STRUCTURE NEWS

China Exchanges Lower Stock Transaction Stamp Duty and Handling Fees

On 18 August 2023, Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) announced that it would lower the handling fee for A shares on SSE and SZSE from 0.00487% to 0.00341% of the notional value traded for each transaction per side, effective from 28 August 2023.

On 27 August 2023, Ministry of Finance of the People's Republic of China and State Taxation Administration announced the stamp duty reduction for A shares on SSE and SZSE from 0.1% to 0.05% of the notional value traded for each transaction on the seller, also effective from 28 August 2023.

In accordance with the announcements from mainland China exchanges, Hong Kong Exchanges and Clearing Limited (HKEX) noted that the revision of handling fee and stamp duty applies to Northbound Trading under Stock Connect.

http://english.sse.com.cn/news/newsrelease/c/5725439.shtml

http://english.sse.com.cn/news/newsrelease/c/5725967.shtml

https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/SEHK/2023/CT13423B.pdf

https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/HKSCC/2023/ce_HKSCC_SET_039_2023.pdf

Hong Kong Exchanges and Clearing Limited Announces Future Introduction of Block Trading under Stock Connect

On 11 August 2023, following the joint announcement made by Hong Kong's Securities and Futures Commission and the China Securities Regulatory Commission on the proposed introduction of block trading under Stock Connect, HKEX announced that it will develop an implementation proposal for the introduction of Stock Connect block trading and manual trades, including the relevant business, technical and regulatory arrangements.

https://www.hkex.com.hk/News/News-Release/2023/230811news?sc_lang=en



https://www.sfc.hk/en/News-and-announcements/Policy-statements-and-announcements/Joint-Announcement-of-the-CSRC-and-the-SFC-Aug-2023

Tokyo Stock Exchange Approves Listing Its First Actively Managed ETFs

On 21 August 2023, Tokyo Stock Exchange, Inc. (TSE) approved the listing of new Actively Managed ETFs. The ETFs were listed on Thursday, September 7, 2023. TSE began taking applications for initial listings of actively managed ETFs from June 30, 2023, which is the effective date of the listing rules. https://www.jpx.co.jp/english/news/1070/20230821-02.html https://www.jpx.co.jp/english/corporate/news/news-releases/0060/p6b22i0000001cii-att/p6b22i0000001cl4.pdf

Singapore Exchange To List Structured Certificates on Its Securities Market

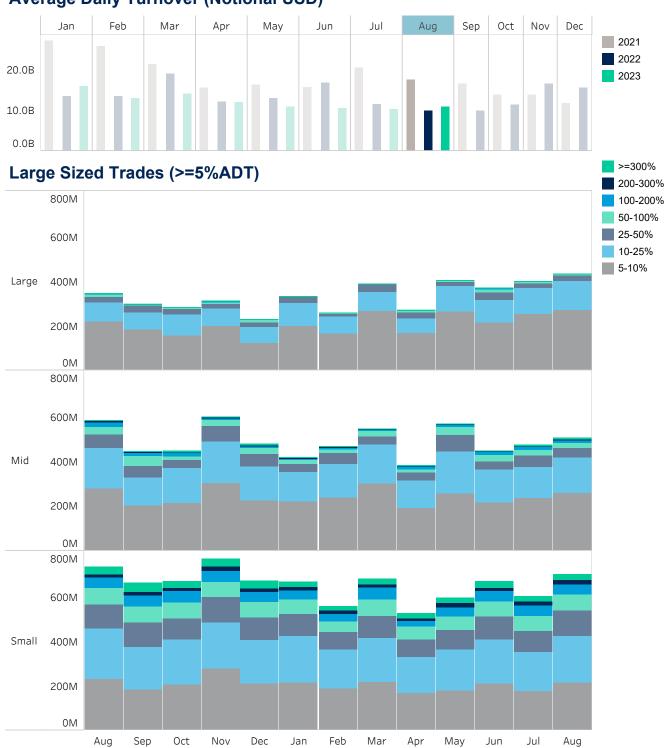
On 15 August 2023, Singapore Exchange (SGX) Securities announced the launch of Structured Certificates, which were listed and are available for trading from 30 August 2023. https://www.sgxgroup.com/media-centre/20230815-sgx-securities-list-structured-certificates-first-asia

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

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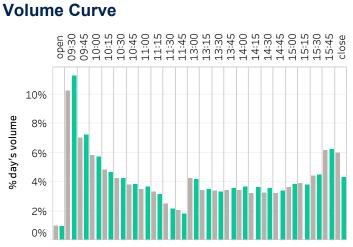
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Hong Kong



Average Daily Turnover (Notional USD)

Hong Kong

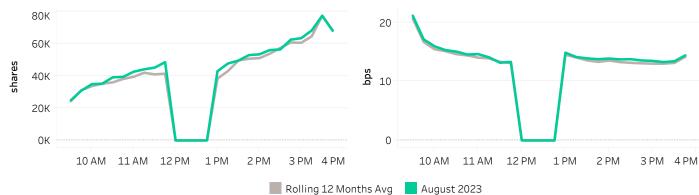


Intraday Spread (bps)

Intraday Volatility (bps)



Intraday Quotesize (Shares)



Spread Bps

		2022					2023	;			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug
FirstHalfHour	19.2	20.4	19.7	18.3	18.0	19.3	19.5	19.5	19.6	18.3	18.7
MidDay	14.0	14.6	14.0	13.1	12.8	13.7	14.5	14.0	14.6	13.5	
LastHalfHour	13.7	14.0	14.0	13.0	13.2	14.0	14.1	14.1	14.9	13.8	13.9

One Minute Volatility Bps

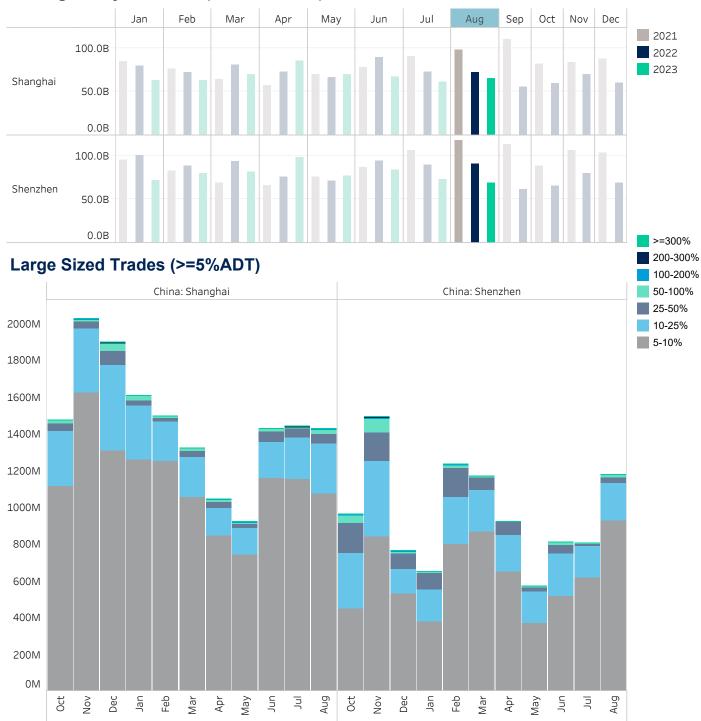
		2022					2023				
FirstHalfHour	30.5	33.8	29.1	26.4	25.3	28.1	25.8	25.2	24.1	23.6	25.8
MidDay	18.5	20.1	18.3	17.0	15.9		16.1	15.7	16.2	15.4	15.8
LastHalfHour	18.0	19.1	18.6	16.5	16.7	17.3	16.4	16.3	17.2	15.7	16.1

Quotesize (shares)

FirstHalfHour	27,135	28,857	29,077	29,622	27,296	30,646	31,145	29,974	26,818	25,478	27,693
MidDay	39,201	38,664	40,980	46,105	44,622		50,780	47,975	41,143	42,053	45,912
LastHalfHour	71,053	67,304	66,542	78,406	74,936	77,473	76,329	74,417	64,333	69,285	74,613

Median used for all metrics

China



Average Daily Turnover (Notional USD)

China



Spread Bps

				CHN	I-SH							CHN	-SZ			
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHo	8.9	8.1	8.2	8.1	8.2	8.3	8.0	8.1	7.4	6.6	6.7	7.0	7.0	7.1	6.8	6.9
MidDay	7.4	7.2	7.2	7.1	7.2	7.3	7.0	7.1	5.2	4.9	5.2	5.3	5.3	5.5	5.1	5.5
LastHalfHo	6.7	6.6	6.6	6.5	6.7	6.7	6.6	6.9	4.4	4.3	4.4	4.3	4.4	4.3	4.3	4.8
One Min	ute V	/olati	lity B	ps												
FirstHalfHo	26.9	22.9	26.2	29.2	29.5	27.0	24.0	26.8	27.9	24.9	25.5	30.3	27.5	28.3	24.8	26.4
MidDay	15.1	14.3	15.1	15.8	15.5	14.7	13.8	15.3	14.0	12.2	13.0	14.5	13.2	13.6	11.7	13.3
LastHalfHo	13.9	13.7	14.0	14.2	14.1	13.8	13.1	14.9	11.1	11.1	11.1	11.8	11.3	11.3	10.4	12.3
Quotesi	ze (sł	nares	5)													
FirstHalfHo	11,776	13,865	13,413	13,565	11,717	11,880	13,213	12,047	4,051	4,423	4,390	4,663	4,290	4,454	4,893	4,432
MidDay	15,847	17,474	15,741	15,771	13,954	14,210	17,111	14,014	5,045	5,182	4,883	5,174	4,869	5,189	5,637	4,897
LastHalfHo	26,563	26,960	25,234	26,364	22,269	25,362	27,475	21,342	7,804	7,344	7,267	7,784	7,398	8,597	9,319	7,434

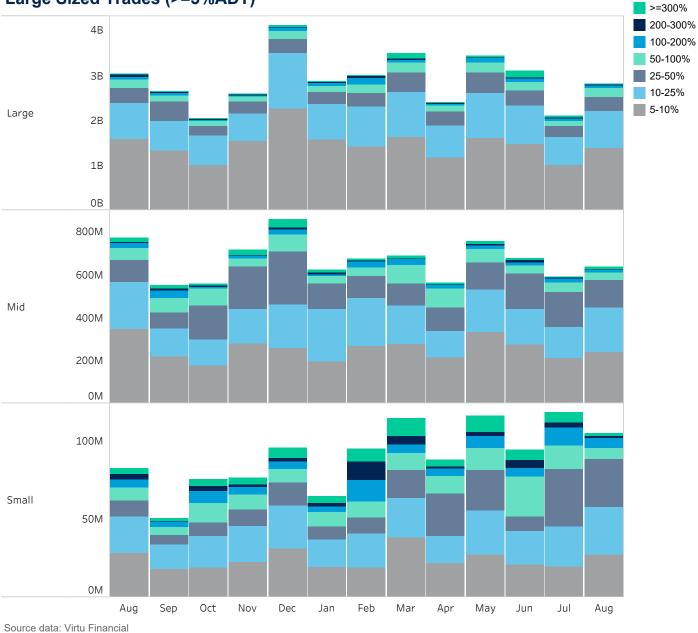
Median used for all metrics

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...

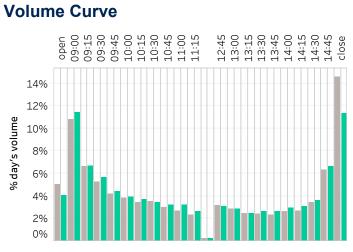
Japan



Large Sized Trades (>=5%ADT)

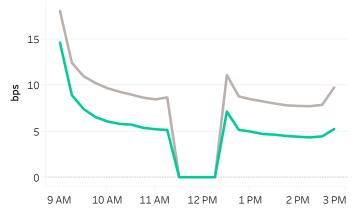


Japan



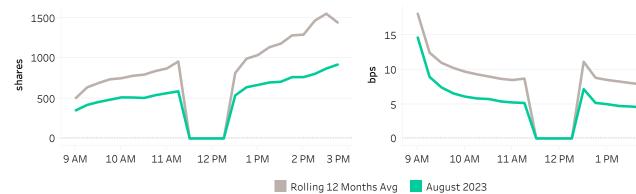
Intraday Spread (bps)

Intraday Volatility (bps)



2 PM 3 PM

Intraday Quotesize (Shares)



Spread Bps

		2022					2023	3			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHour	16.4	16.2	15.9	15.6	15.3	16.0	15.3	15.5	12.4	11.7	12.2
MidDay	9.3	9.3	9.0	8.6		9.1	8.5	8.9	5.7	5.2	5.4
LastHalfHour	9.6	9.4	9.4	9.1	9.1	9.5	9.2	9.2	5.4	5.0	4.9
One Minut	e Volatil	ity Bps									
FirstHalfHour	17.6	17.7	16.1	16.2	16.1	16.3	15.4	16.4	14.8	14.2	14.8
MidDay	8.5	8.7	8.4	8.0		8.4	7.7	8.5	6.7	5.9	6.1
LastHalfHour	9.7	9.7	9.5	9.3	9.3	9.4	8.9		7.1	6.6	6.4
Quotesize	(shares)									
FirstHalfHour	531	563	561	550	593	556	564	569	427	386	379
MidDay	809	927	902		1,012	891	951	968	582	569	575
LastHalfHour	1,375	1,572	1,441	1,414	1,620	1,387	1,495	1,578	860	855	882

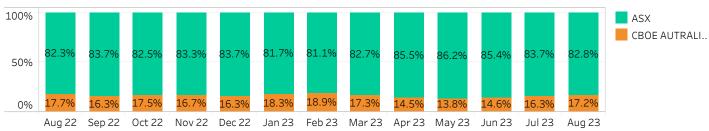
Median used for all metrics

Australia

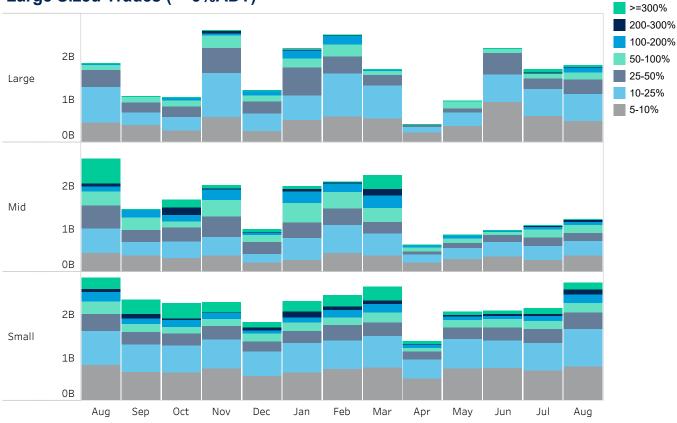


Average Daily Turnover (Notional USD)

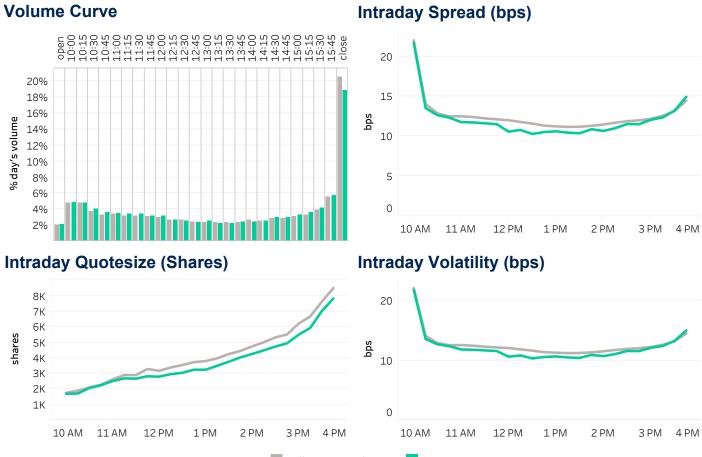








Australia



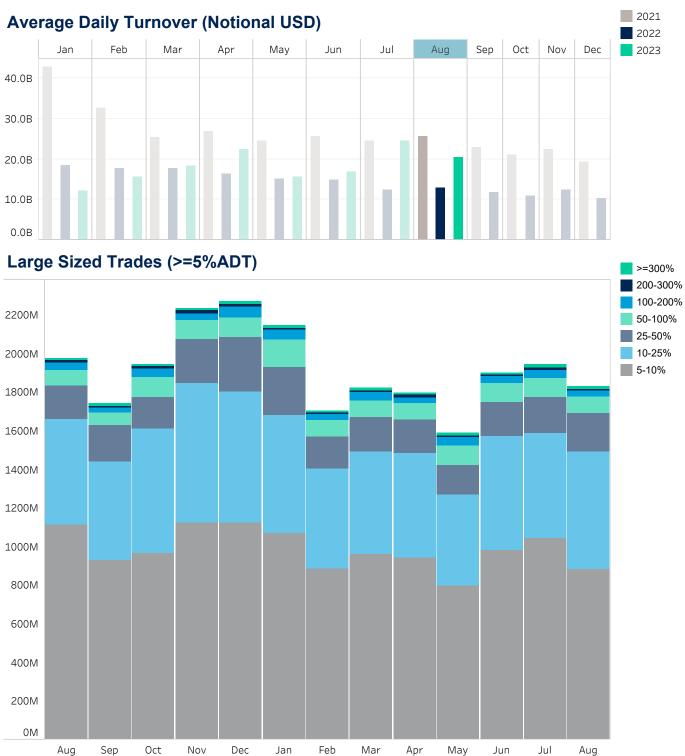
Rolling 12 Months Avg August 2023

Spread Bps

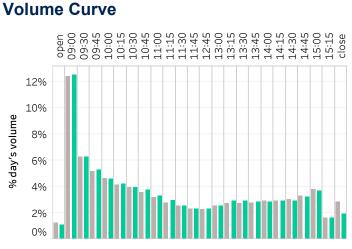
		2022					2023	3			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHour	18.9	17.5	16.6	15.9	16.8	17.4	17.4	17.0	16.6	16.6	16.6
MidDay	13.0	12.5	12.1	11.1	11.6	12.4	12.1	11.6	11.8	11.3	11.1
LastHalfHour	14.9	13.9	13.7	13.1	13.8	14.3	14.3	13.7	14.0	13.9	14.1
One Minut	e Volatil	ity Bps									
FirstHalfHour	22.9	21.5	20.4	19.1	21.3	21.7	20.6	19.1	18.7	18.0	18.9
MidDay	12.3	11.4	10.5		10.3	10.7	9.5	9.2	9.8	9.5	9.7
LastHalfHour	13.8	12.9	12.6	12.2	12.5	13.2	12.4	11.9	12.5	11.9	12.4
Quotesize	(shares))									
FirstHalfHour	1,938	2,000	1,772	1,629	1,640	1,864	2,108	1,897	1,901	1,672	1,703
MidDay	4,056	4,453	3,558	3,279	3,260	3,759	3,968	3,313	3,860	3,520	3,310
LastHalfHour	9,008	9,111	7,705	6,643	7,185	8,215	8,141	7,163	8,042	7,173	7,405

Median used for all metrics

South Korea

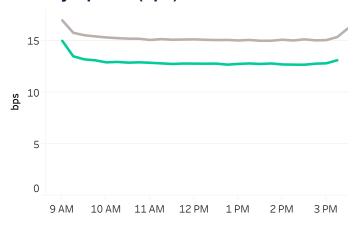


Korea

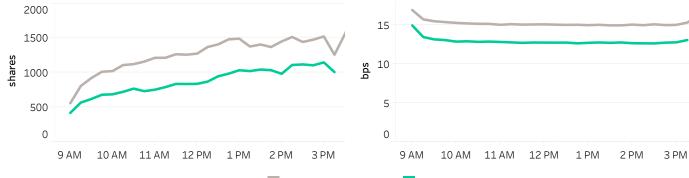


Intraday Spread (bps)

Intraday Volatility (bps)



Intraday Quotesize (Shares)



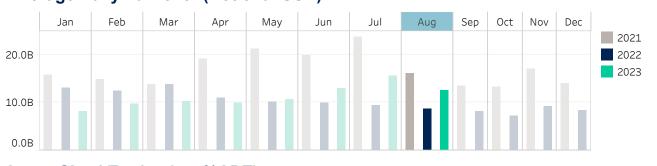
Rolling 12 Months Avg August 2023

Spread Bps

		2022					2023	3			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHour	19.1	18.1	18.1	17.4	14.7	14.7	14.3	14.0	13.7	14.3	14.2
MidDay	17.5	16.7	17.1	16.5	13.5	13.4	12.9	12.9	12.9	13.2	12.8
LastHalfHour	17.5	16.2	17.1	16.5	13.7	13.5	13.1	13.0	13.0	13.3	12.8
One Minut	e Volatil	ity Bps									
FirstHalfHour	32.7	31.4	29.5	29.4	23.6	24.9	25.6	22.7	21.5	27.1	26.7
MidDay	19.6	18.7	18.7	18.1		15.0	14.8	14.2	14.0		14.3
LastHalfHour	20.8	19.7	20.6	18.9	15.6	16.0	15.9	14.9	14.8	16.2	15.2
Quotesize	(shares)									
FirstHalfHour	704	716	803	727	655	595	579	580	634	563	491
MidDay	1,415	1,541	1,721	1,396		1,025	1,014	1,166	1,249	1,024	875
LastHalfHour	1,529	1,360	1,628	1,506	1,447	1,390	1,189	1,277	1,444	1,164	1,108

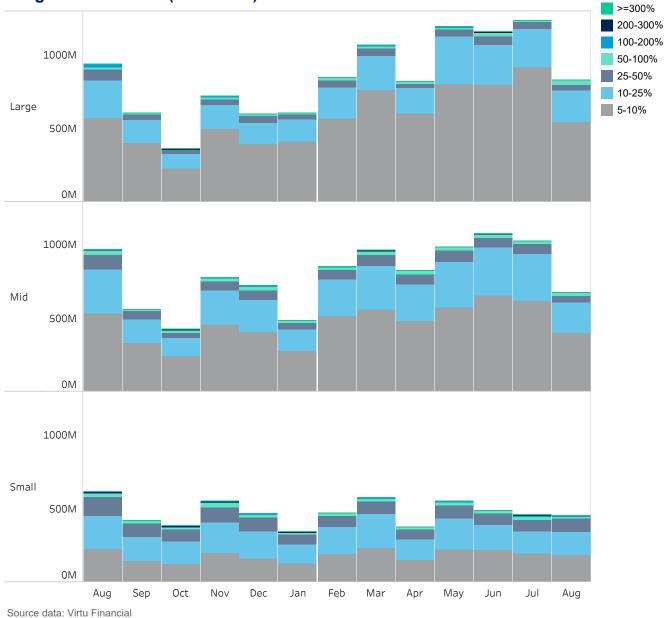
Median used for all metrics

Taiwan

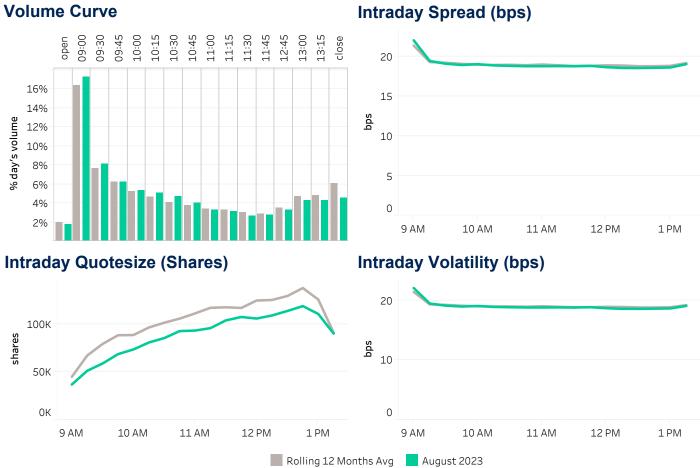


Average Daily Turnover (Notional USD)





Taiwan



Spread Bps

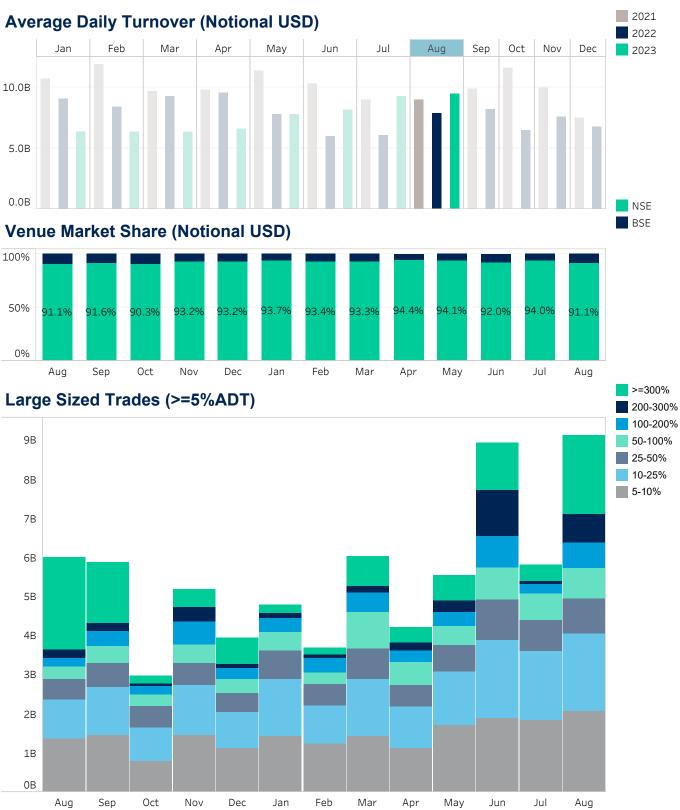
		2022					202	23			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHour	24.0	21.5	20.9	20.2	20.6	20.1	19.9	19.8	19.3	19.6	20.5
MidDay	20.9	19.1	19.2	18.5	18.9	19.0		18.2	17.8	18.0	18.8
LastHalfHour	21.2	19.2	19.2	18.7	18.9	19.1	19.0	18.3	18.1	18.3	18.8
One Minut	e Volati	lity Bp	8								
FirstHalfHour	34.5	30.8	31.0	31.1	31.3	31.6	30.3	31.3	31.2	34.5	37.1
MidDay	25.8	23.4	28.6	28.9	28.9	29.1		28.1	28.4	31.5	36.4
LastHalfHour	26.7	23.6	28.9	29.0	28.9	29.6	29.2	28.3	28.9	32.6	34.4
Quotesize	(shares	s)									
FirstHalfHour	42,999	52,487	55,849	59,008	57,971	61,802	53,240	60,150	57,819	51,257	44,628
MidDay	77,390	113,736	109,432	118,834		138,448	125,681	133,760	139,513	105,466	95,368
LastHalfHour	81,045	112,549	102,743	113,870	116,979	124,571	121,314	127,420	122,742	102,051	100,542

Median used for all metrics

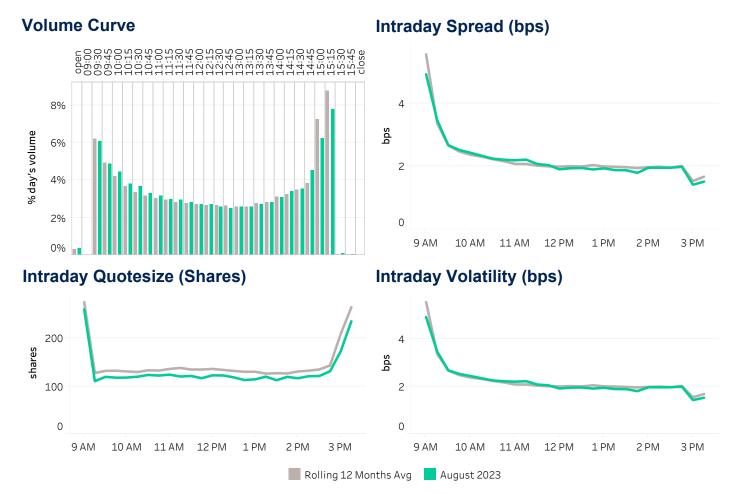
One minute volatility is calculated using the difference between the high and low price within a one minute time bin, divided by that bin's VWAP Source data: Virtu Financial

Intraday Spread (bps)

India



India

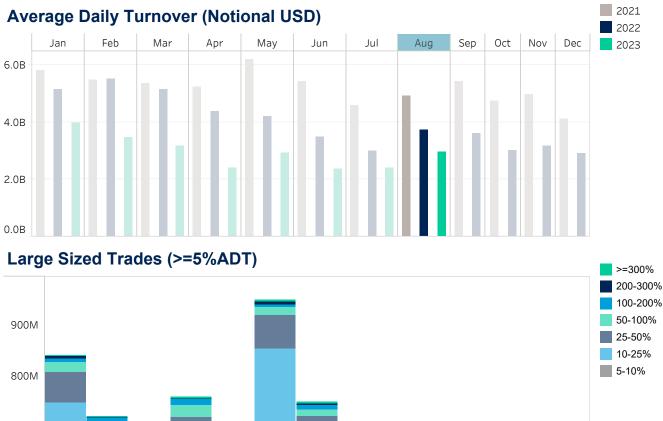


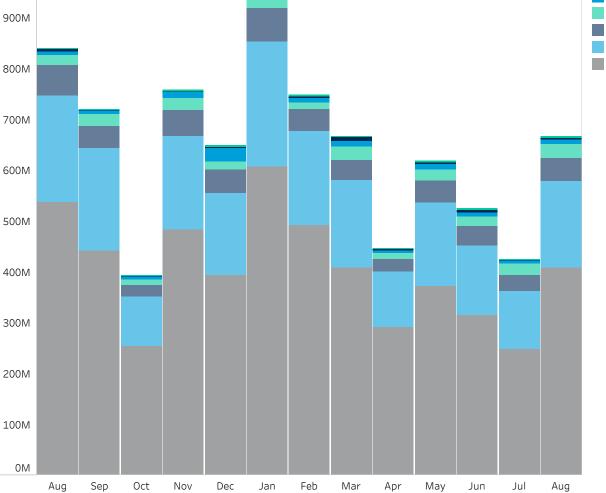
Spread Bps

		2022					2023	3			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHour	3.5	3.3	3.4	3.5	3.7	3.4	3.4	3.3	3.1	3.5	3.5
MidDay	2.1	1.9	2.0	2.1	2.2	2.1	2.1	2.0	1.9	1.9	1.9
LastHalfHour	1.6	1.6	1.6	1.7	1.8	1.7	1.7	1.6	1.5	1.5	1.5
One Minut	e Volatil	ity Bps									
FirstHalfHour	20.3	18.4	18.0	18.8	19.7	19.1	17.2	16.6	15.2	17.6	16.2
MidDay	8.2	7.4		8.2	8.4	8.2	7.1	7.0	6.8	7.7	7.4
LastHalfHour	10.2	9.7	10.2	10.1	10.3	10.5	9.1	9.2	9.1		9.6
Quotesize	(shares))									
FirstHalfHour	125.4	138.7	120.1	121.8	119.8	123.5	133.9	142.2	143.1	131.7	114.8
MidDay	131.3	143.8	122.4		124.1	124.2	143.1	151.0	151.7	124.1	118.6
LastHalfHour	243.8	257.7	257.9	228.8	249.5	253.0	256.4	262.0	268.0	231.3	206.0

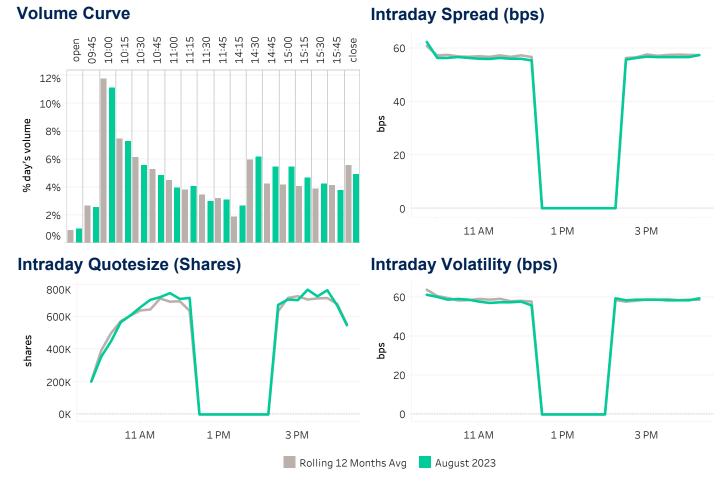
Median used for all metrics

Thailand





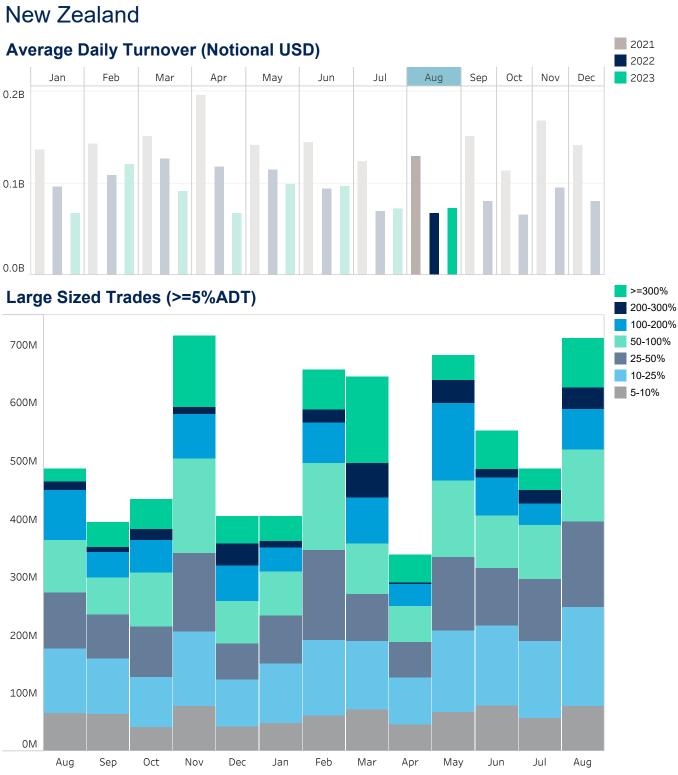
Thailand



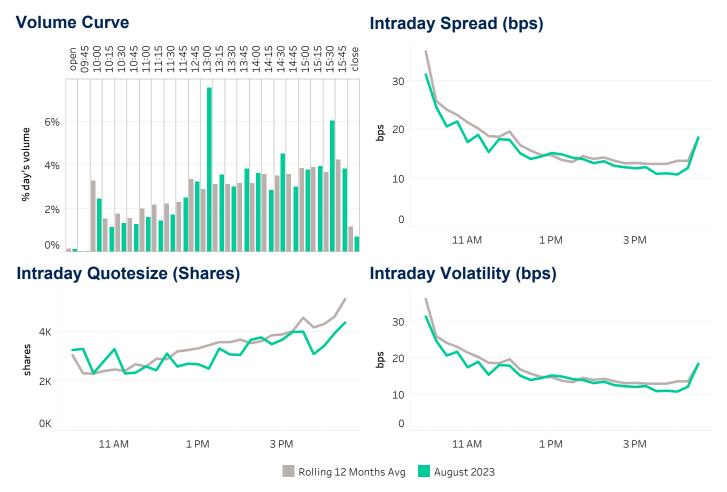
Spread Bps

		2022					202	23			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHour	61.2	61.0	58.1	58.0	56.4	59.5	59.2	65.1	65.6	61.9	62.3
MidDay	59.2	57.6	55.9	54.1	54.1	56.0	55.8	58.4	59.3	56.7	
LastHalfHour	59.7	57.3	55.7	54.2	54.8	56.7	56.0	58.7	59.3	58.0	57.0
One Minut	e Volati	ility Bp	6								
FirstHalfHour	74.9	71.7	74.1	64.3	61.9	67.8	60.8		63.5	60.4	61.7
MidDay	60.8	58.3	56.7	55.4	55.4	57.6	57.0	60.4	60.8	58.7	58.3
LastHalfHour	60.4	58.0	56.7	56.0	56.0		57.6	60.1	60.8	59.0	58.7
Quotesize	(shares	5)									
FirstHalfHour	217,331	227,211	245,311	284,548	236,082	219,491	200,957	156,753	157,282	170,264	205,336
MidDay		760,712	805,102	865,107	737,967	634,271	624,930	536,008	510,989	542,854	699,283
LastHalfHour	620,002	675,335	738,049	812,231	679,491	552,716	570,432	472,021	490,710	518,167	619,275

Median used for all metrics



New Zealand



Spread Bps

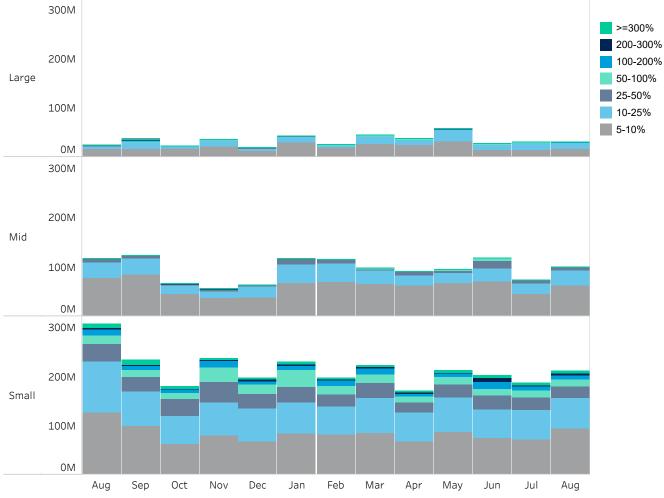
		2022					2023	3			
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHour	34.5	38.8	33.0	28.6	36.2	32.4	23.3	33.5	23.1	27.3	26.0
MidDay	17.2	17.4	14.4	13.0	14.2	13.5		13.7	13.3	13.5	14.5
LastHalfHour	20.3	19.7	19.9	17.6	19.1	17.5	18.4	17.4	17.7	17.9	18.0
One Minut	e Volatil	ity Bps									
FirstHalfHour	25.5	25.6	20.2	19.2	20.9	23.1	19.0	18.6	15.9	18.4	19.0
MidDay	17.7	17.3	14.7	12.9	15.1		15.2	13.3	13.3	12.8	13.7
LastHalfHour	21.5	22.0	21.1	18.7	23.1	19.7	19.0	18.2	18.5	18.3	18.4
Quotesize	(shares)									
FirstHalfHour	2,695	2,859	2,800	2,352	2,572	2,470	2,669	2,496	2,658	2,980	2,981
LastHalfHour	5,615		6,890	5,554	6,137	4,537	5,071	4,691	5,091	4,326	4,567
MidDay	3,955	3,593	3,663	2,964	3,634	3,092	3,102	3,512	3,372	3,016	3,363

Median used for all metrics

Singapore

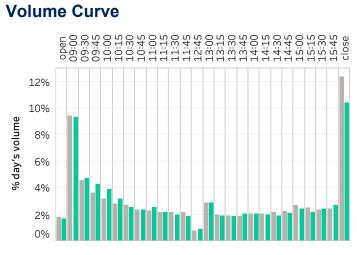






Source data: Virtu Financial

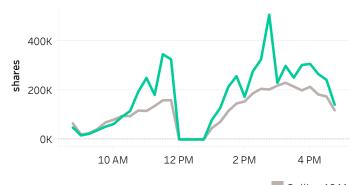
Singapore



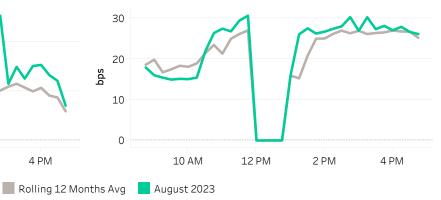
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Spread Bps

	2022			2023							
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
FirstHalfHour	19.2	16.5	18.0	19.8	14.5	16.6	14.2	16.4	16.6	14.6	19.1
MidDay	22.8	22.3	24.2	24.3	25.0	27.2	27.0	27.0		17.5	27.1
LastHalfHour	27.8	20.3	24.4	24.2	25.1	25.3	26.8	26.3	25.8	26.4	26.3
One Minute Volatility Bps											
FirstHalfHour	66.4	44.0	34.5	37.7	43.5	34.5	34.4	35.7	41.7	41.7	51.4
MidDay		25.3	24.6	25.2	25.4	28.4	27.6	27.5	26.9	26.3	27.6
LastHalfHour	28.5	24.7	27.1	24.8	25.5	27.6	27.1	26.8	27.4	27.1	28.0
Quotesize (shares)											
FirstHalfHour	41,303	59,495	65,760	55,481	49,035	126,098	48,869	57,725	86,605	39,923	30,361
MidDay	89,492	106,664	123,584		159,315	169,961	327,685	231,700	112,054	126,638	232,427
LastHalfHour	121,825	94,969	128,454	109,921	138,744	141,752	256,196	170,897	139,765	143,803	181,844

Median used for all metrics

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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