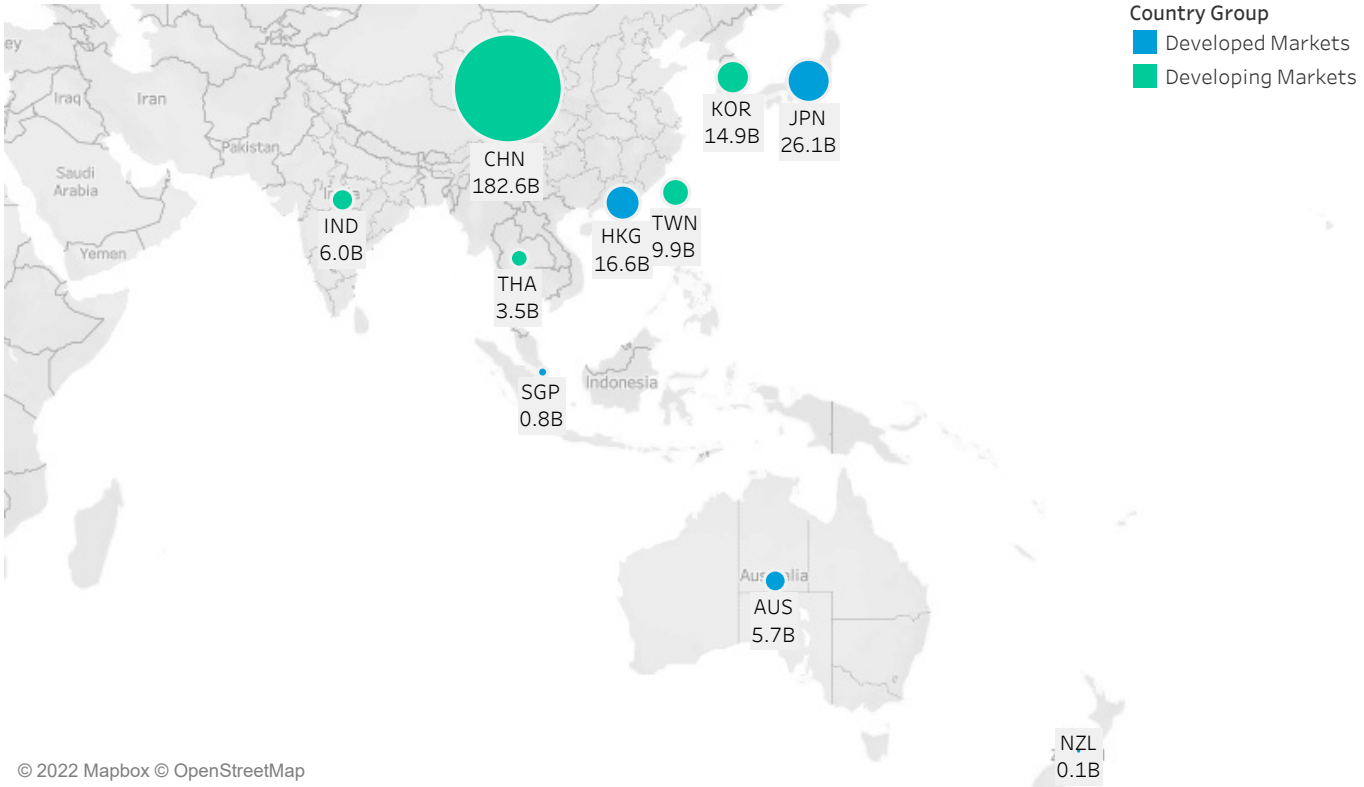


# June 2022 APAC Market Structure Monthly

## Average Daily Turnover (Notional USD)



© 2022 Mapbox © OpenStreetMap

## Country Breakdowns

Hong Kong

China

Japan

Australia

South Korea

Taiwan

India

Thailand

New Zealand

Singapore

# June 2022

## AP Market Structure Monthly

### MICROSTRUCTURE OBSERVATIONS

- Notional average daily trading (ADT) in India, New Zealand, Singapore and Thailand continued to fall 15-20% to the lowest YTD level. Meanwhile, China and Hong Kong experienced significant ADT increases at +49% and +29% respectively month-over-month (MoM).
- Intraday spread and volatility increased 10-15% MoM for Australia and Taiwan. Specifically, spread during mid-day and last half hour in Australia increased to >16bps, the highest level observed since 3Q 2020.
- Liquidity demand for large-sized trades (>= 5% ADT) in South Korea and Thailand fell consecutively since March and is now down ~50% since January.

### AP MARKET STRUCTURE NEWS

#### **HKEX Launches Exchange Traded Funds in China Stock Connect**

Hong Kong Exchanges and Clearing Limited (HKEX) announced the go-live date for ETFs in Hong Kong China Stock Connect (Northbound and Southbound) as 4 July 2022. According to HKEX circulars, the initial list includes eighty-three eligible ETFs for Northbound trading and four ETFs for Southbound trading (2800 HK Tracker Fund of Hong Kong, 2828 HK Hang Seng China Enterprises Index ETFs, etc). The current list of ETFs eligible for Stock Connect can be found on HKEX's website.

<https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/SEHK/2022/CT09122E.pdf>

[https://www.hkex.com.hk/Mutual-Market/Stock-Connect/Reference-Materials/Inclusion-of-ETFs-in-Stock-Connect?sc\\_lang=en](https://www.hkex.com.hk/Mutual-Market/Stock-Connect/Reference-Materials/Inclusion-of-ETFs-in-Stock-Connect?sc_lang=en)

#### **Hong Kong Investor Identification Regime Reminder of End-To-End Testing and Reply**

HKEX published a reminder on 17 June urging exchange participants (EPs) to complete end-to-end (E2E) testing and submit positive confirmations for the Hong Kong Investor Identification Regime (HKIDR) by 15 July 2022. The technical and information documents for HKIDR have been updated. According to exchange information papers, the launch is expected in 2H 2022, although no date has been formally announced.

<https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/SEHK/2022/CT07822E.pdf>

[https://www.hkex.com.hk/-/media/HKEX-Market/Services/Trading/Securities/Overview/Trading-Mechanism/HKIDR/HKIDR-Information-Paper\\_e.pdf?la=en](https://www.hkex.com.hk/-/media/HKEX-Market/Services/Trading/Securities/Overview/Trading-Mechanism/HKIDR/HKIDR-Information-Paper_e.pdf?la=en)

### **Japan Exchange Group Launched Real-time Calculation of Prime, Standard and Growth Market Indices**

As of 27 June 2022, Japan Exchange Group's (JPX) Market Innovation & Research, Inc. began real-time calculation of the Tokyo Stock Exchange Prime Market Index, Tokyo Stock Exchange Standard Market Index and Tokyo Stock Exchange Growth Market Index.

<https://www.jpjx.co.jp/english/corporate/news/news-releases/0060/20220627-01.html>

<https://www.jpjx.co.jp/english/markets/indices/realvalues/index.html>

### **JPX Launches Application Programming Interface Distribution Service "J-Quants API" (Beta) for Retail Investors**

JPX announced that as of 4 July 2022, user access to J-Quants API (beta) service would be expanded to include general users following the distribution of the service by lottery to early adopters starting in April.

<https://www.jpjx.co.jp/english/corporate/news/news-releases/6020/20220704-01.html>

### **Australia Securities & Investments Commission Calls on Industry to Continue to Improve Resilience During Market Outages**

In a notice published on 28 June 2022, market participants and market operators were asked to continue implementing Australia Securities & Investments Commission expectations to improve the equity market's resilience during outages by facilitating trading in alternative markets.

<https://asic.gov.au/about-asic/news-centre/find-a-media-release/2022-releases/22-159mr-asic-calls-on-industry-to-continue-to-improve-resilience-during-market-outages/>

<https://asic.gov.au/regulatory-resources/find-a-document/reports/rep-708-asic-s-expectations-for-industry-in-responding-to-a-market-outage/>

### **Korea Exchange Announced that Socially Responsible Investment Bonds Exceeded KRW200T (US\$154B) in Value**

On 30 June 2022, Korea Exchange (KRX) announced that the cumulative amount of the newly-listed Socially Responsible Investment (SRI) bonds surpassed KRW200T (US\$154B). According to KRX, SRI bonds refer to bonds whose proceeds are used to fund environmentally-friendly projects or projects that can create social benefits. They include green, social, and sustainability bonds.

<https://global.krx.co.kr/contents/GLB/02/0203/0203000000/GLB0203000000.jsp#ab8758eced0475769e200e7e309baf77=1&view=20670>

### **MSCI Maintains Emerging-Market Rating for South Korea, Despite Push for Upgrade**

MSCI Inc. has opted to maintain its long-standing assessment of South Korea as an emerging market despite the country's renewed efforts to become a developed market.

<https://www.wsj.com/articles/msci-keeps-emerging-market-rating-on-south-korea-despite-push-for-upgrade-11656034873> (\$)



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

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[info@virtu.com](mailto:info@virtu.com) | [www.virtu.com](http://www.virtu.com)

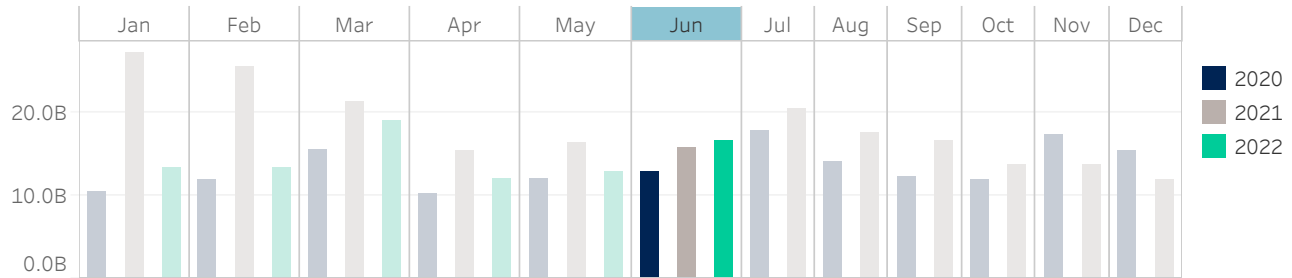
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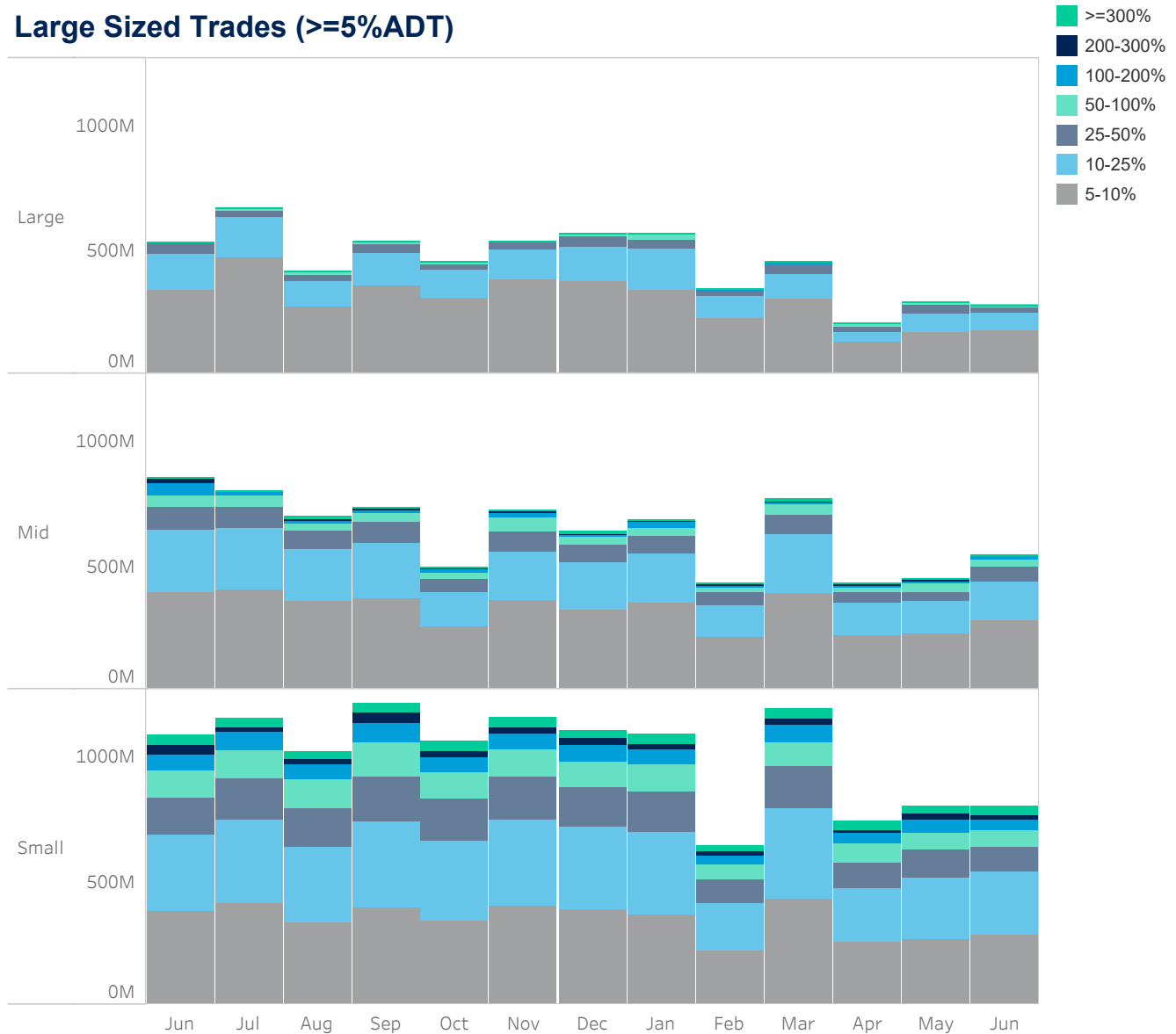
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# Hong Kong

## Average Daily Turnover (Notional USD)



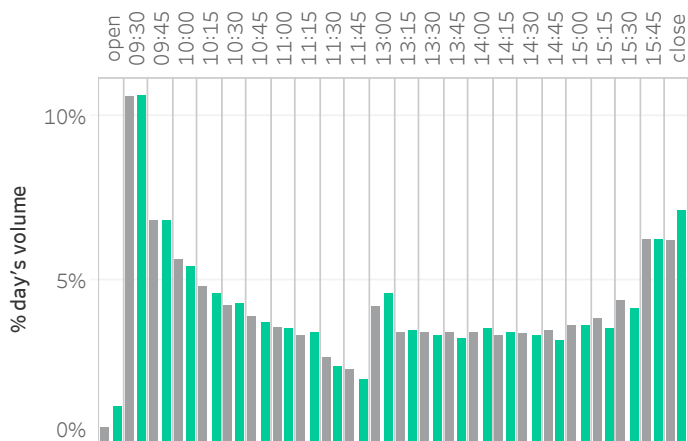
## Large Sized Trades (>=5%ADT)



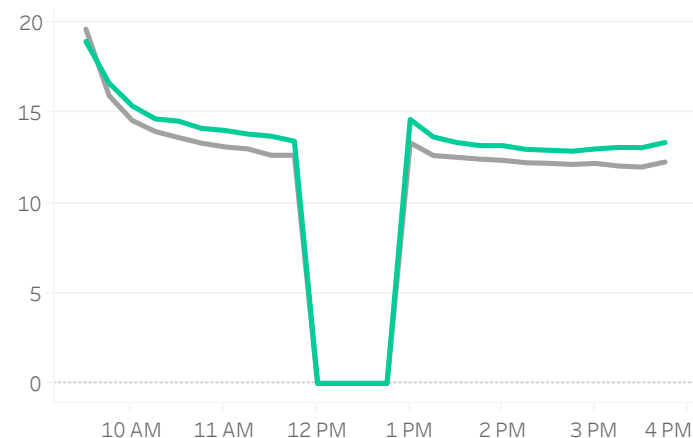
Source data: Virtu Financial

# Hong Kong

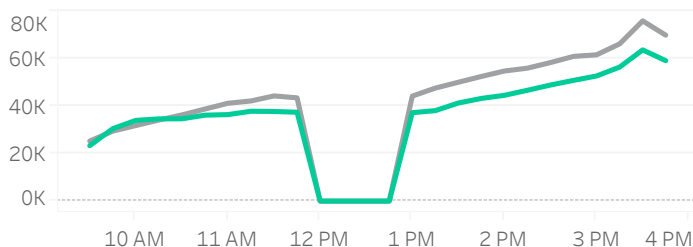
## Volume Curve



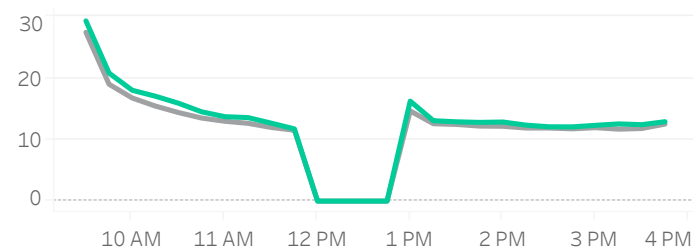
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	18.5	17.3	17.3	16.2	15.8	17.8	17.6	17.3	17.2
midday	12.7	12.8	12.5	11.9	12.0	13.4	13.3	13.5	13.6
lastHalfHour	12.3	12.5	12.4	11.6	11.7	12.6	12.3	13.1	13.2

## One Minute Volatility Bps

firstHalfHour	18.2	13.8	14.7	15.5	15.1	21.2	17.7	18.0	19.0
midday	6.7	6.1	6.3	6.4	6.5	9.7	8.4	7.3	7.7
lastHalfHour	6.5	6.0	5.8	6.1	6.9	7.8	6.5	6.2	6.5

## Quotesize in Shares

firstHalfHour	26,921	27,455	23,936	28,480	27,737	29,034	28,977	27,325	28,776
midday	47,554	47,292	35,935	47,428	46,616	40,716	40,059	40,646	42,935
lastHalfHour	75,001	72,389	54,283	70,843	71,318	65,291	62,184	60,328	71,107

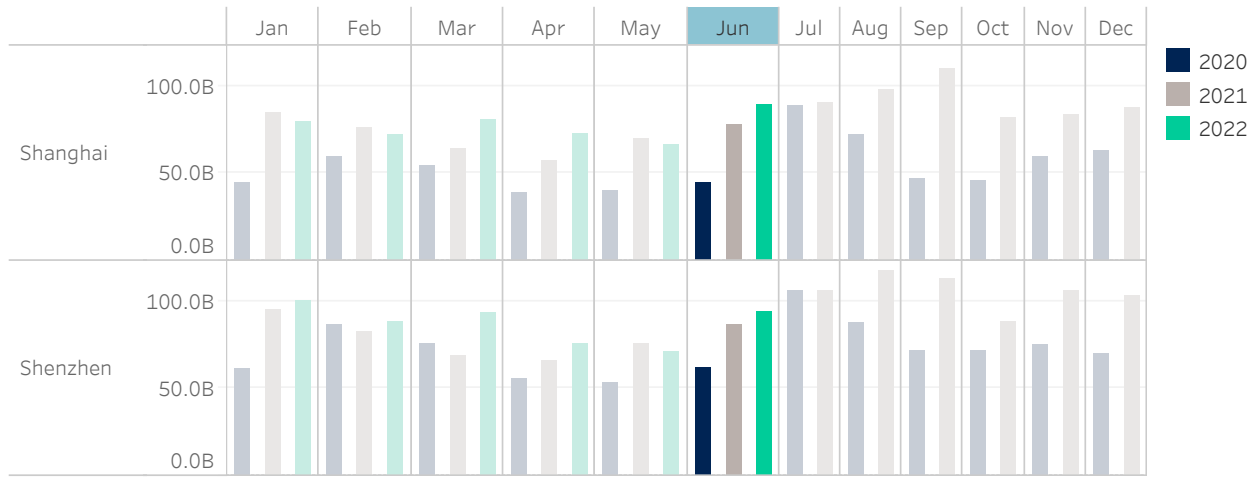
Median used for all metrics

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

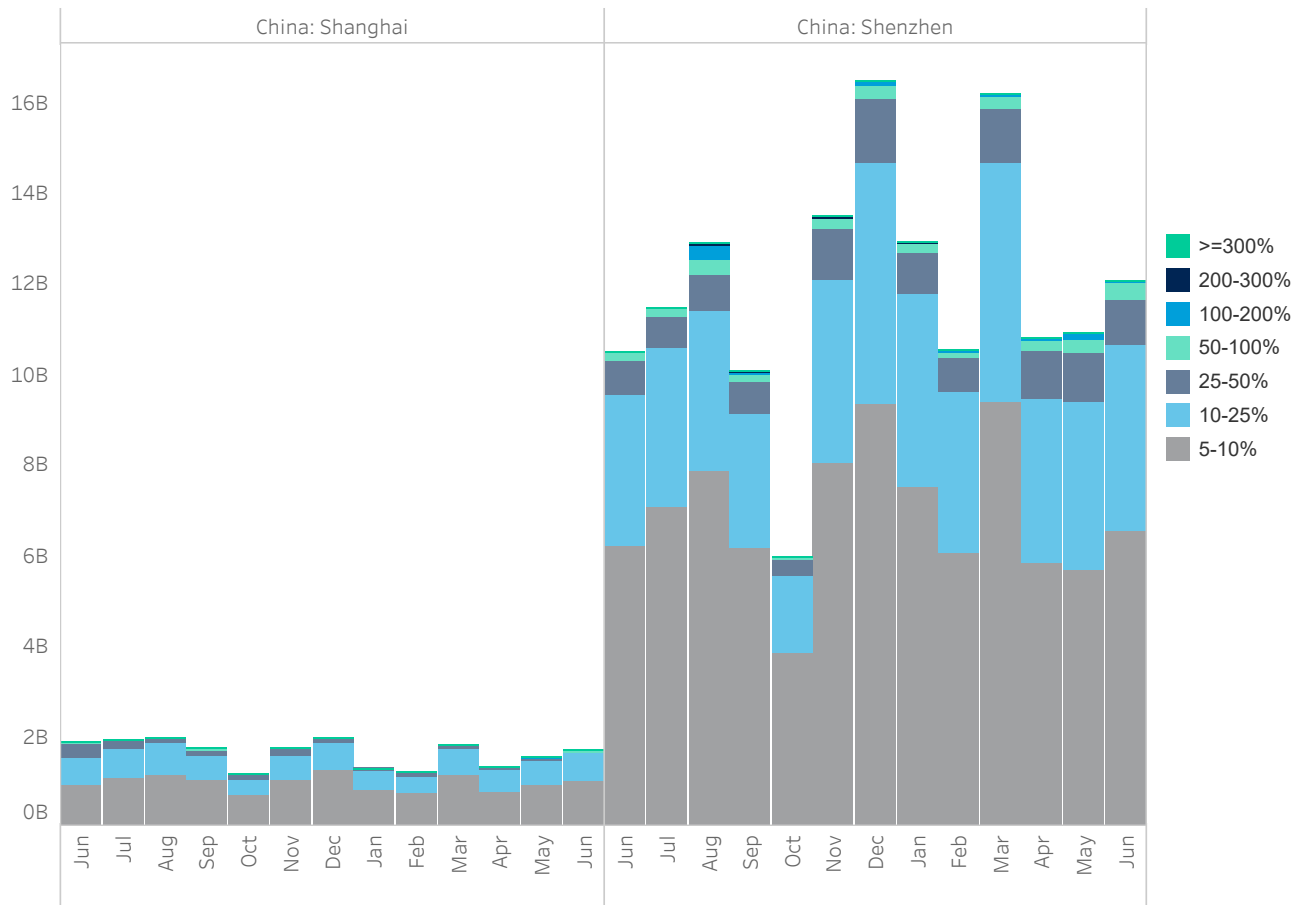
Source data: Virtu Financial

# China

## Average Daily Turnover (Notional USD)



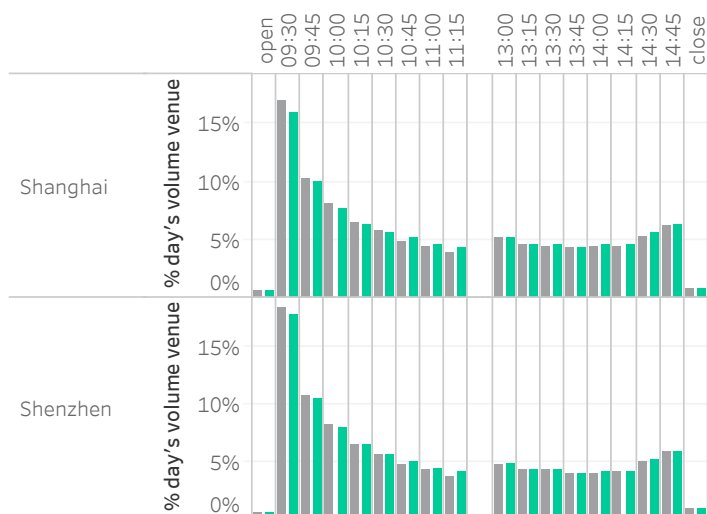
## Large Sized Trades (>=5%ADT)



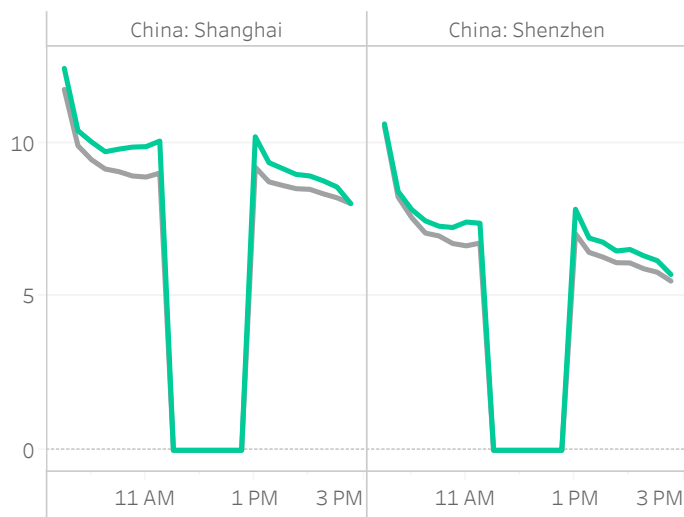
Source data: Virtu Financial

# China

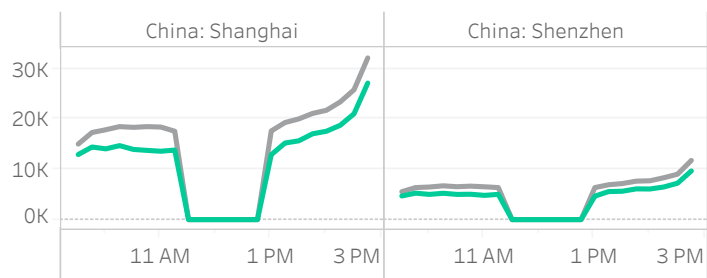
## Volume Curve



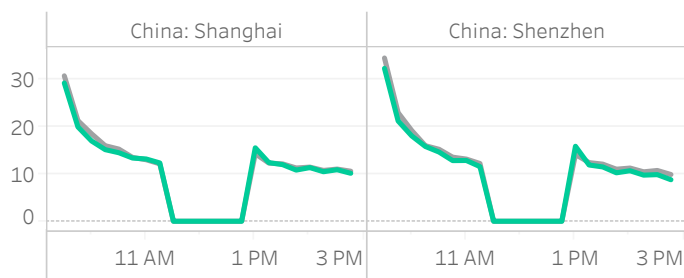
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ June 2022

## Spread Bps

	China: Shanghai									China: Shenzhen								
	21 Q4			22 Q1			22 Q2			21 Q4			22 Q1			22 Q2		
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
firstHalfHour	10.3	9.8	9.3	10.0	9.9	10.9	11.1	10.9	10.3	9.0	8.4	7.8	9.0	8.3	9.1	9.9	9.0	8.5
midday	8.5	8.3	8.0	8.2	8.4	9.4	9.7	9.5	8.6	6.5	6.2	5.8	6.3	6.2	7.0	7.4	7.0	6.4
lastHalfHour	7.6	7.6	7.3	7.7	7.7	8.3	8.4	8.2	7.4	5.4	5.3	4.9	5.3	5.2	5.9	6.2	5.9	5.3

## One Minute Volatility Bps

firstHalfHour	22.8	19.2	17.8	20.5	18.5	21.7	23.8	19.6	20.1	26.3	24.1	21.8	27.0	22.1	24.2	27.8	23.3	23.4
midday	9.0	7.5	7.3	8.4	7.8	10.1	11.6	9.1	10.1	10.4	9.6	9.2	11.3	9.8	11.9	13.1	10.6	11.3
lastHalfHour	7.1	5.9	5.9	7.4	6.4	8.3	9.3	6.6	7.3	7.9	7.2	7.1	8.8	7.6	8.7	9.8	7.4	8.0

## Quotesize in Shares

firstHalfHour	14K	16K	16K	13K	13K	13K	11K	14K	14K	6K	7K	5K	4K	4K	4K	4K	4K	5K
midday	17K	19K	19K	16K	16K	14K	12K	15K	16K	8K	8K	6K	4K	5K	5K	5K	5K	6K
lastHalfHour	26K	31K	30K	23K	23K	22K	19K	24K	25K	12K	13K	9K	6K	7K	7K	7K	7K	8K

Median used for all metrics

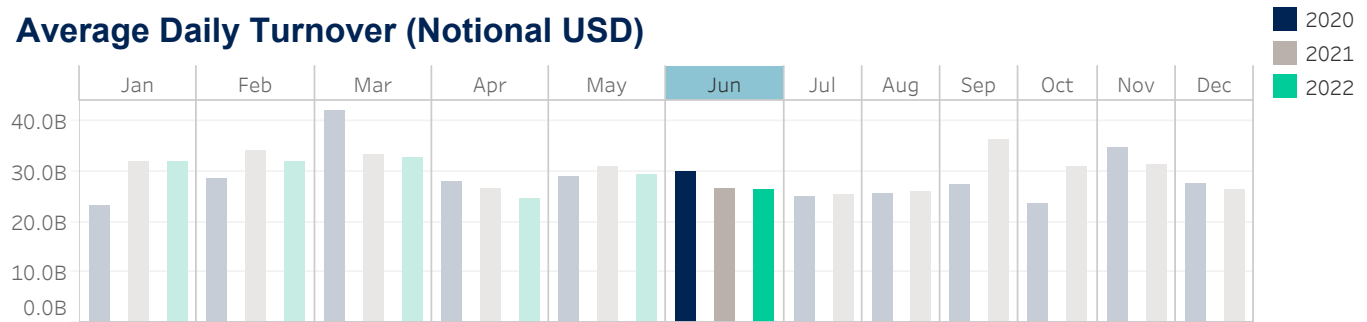
One minute volatility is calculated using the difference between the high and low price within a one minute time bin, divided by that bin's VWAP

Source data: Virtu Financial

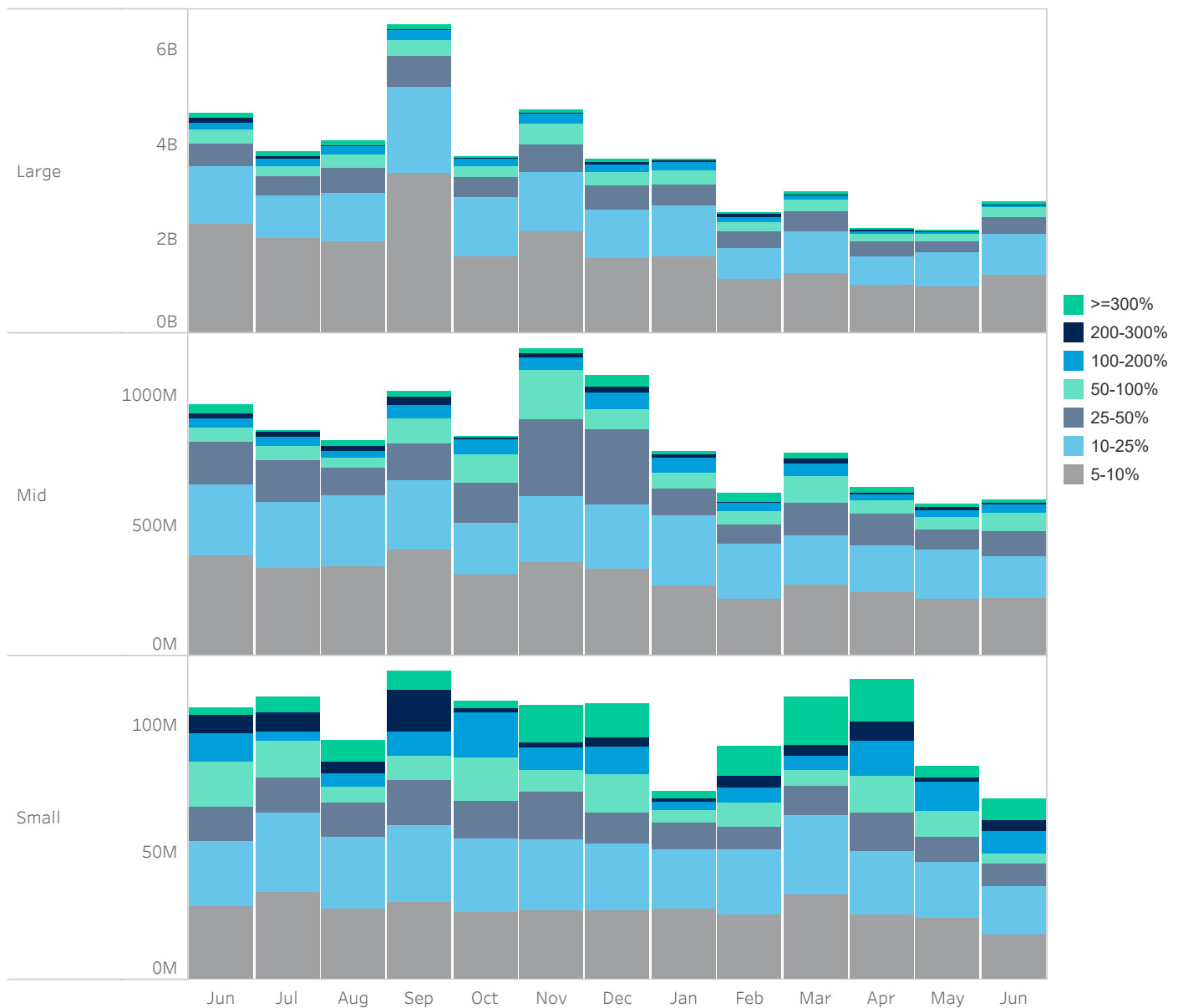


# Japan

## Average Daily Turnover (Notional USD)



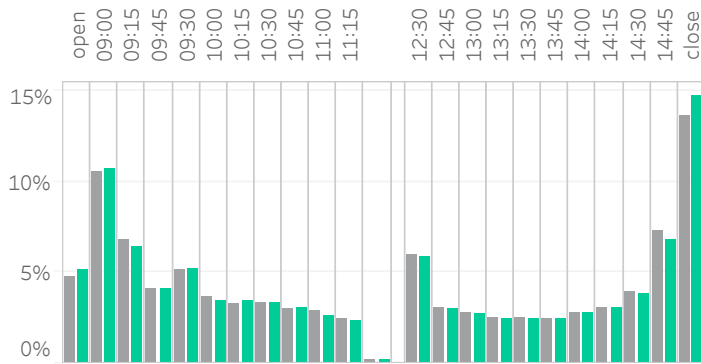
## Large Sized Trades (>=5%ADT)



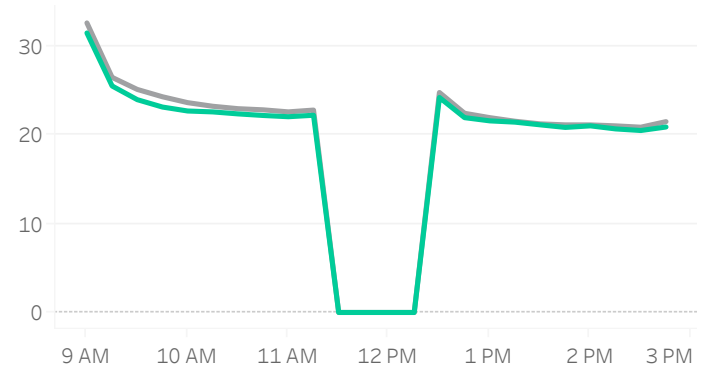
Source data: Virtu Financial

# Japan

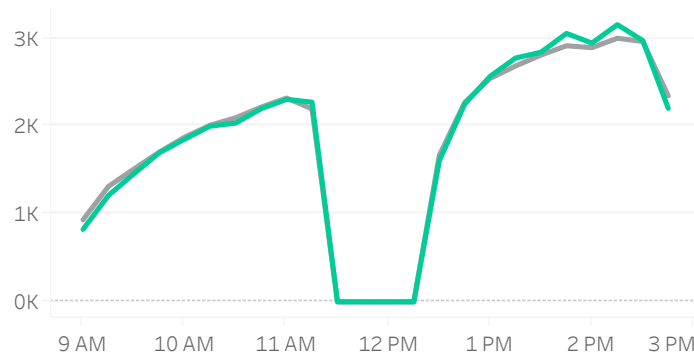
## Volume Curve



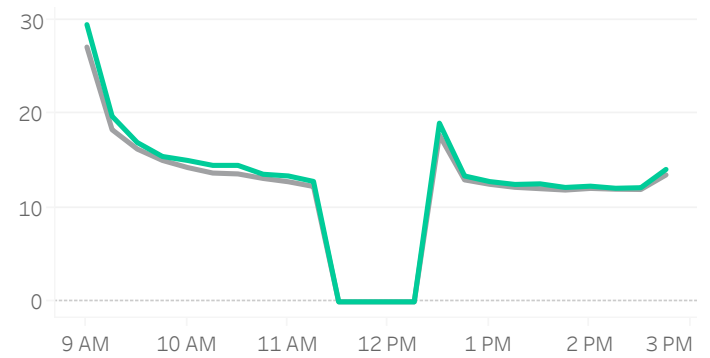
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	26.7	27.2	28.7	29.4	28.2	28.4	26.8	27.3	26.7
midday	21.9	22.1	22.5	23.3	22.7	22.7	22.1	22.0	21.8
lastHalfHour	19.7	20.2	20.7	21.6	21.2	21.2	20.6	20.4	20.8

## One Minute Volatility Bps

firstHalfHour	14.5	13.2	14.6	16.5	17.0	17.5	15.2	16.6	15.4
midday	7.1	6.1	6.4	7.7	7.6	8.9	7.0	7.1	6.6
lastHalfHour	6.8	10.1	6.1	6.5	7.1	8.0	6.4	6.2	5.9

## Quotesize in Shares

firstHalfHour	1,263	1,289	1,136	1,084	1,033	1,019	1,160	1,085	1,126
midday	2,521	2,700	2,453	2,128	2,031	2,109	2,379	2,337	2,423
lastHalfHour	3,161	3,282	2,896	2,602	2,605	2,496	2,872	2,720	2,642

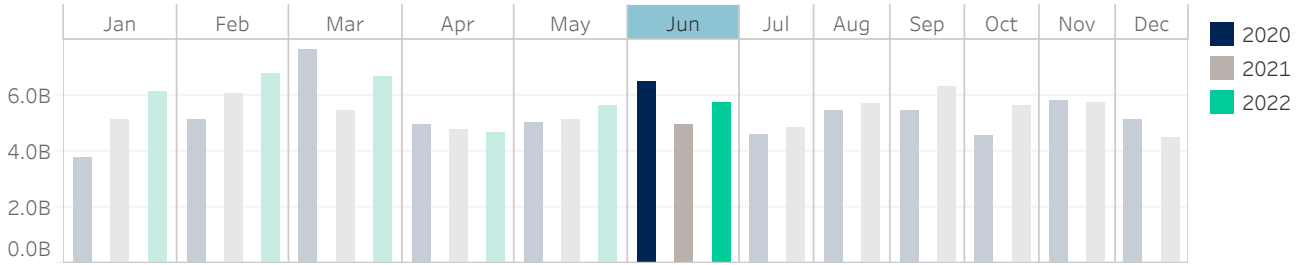
Median used for all metrics

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

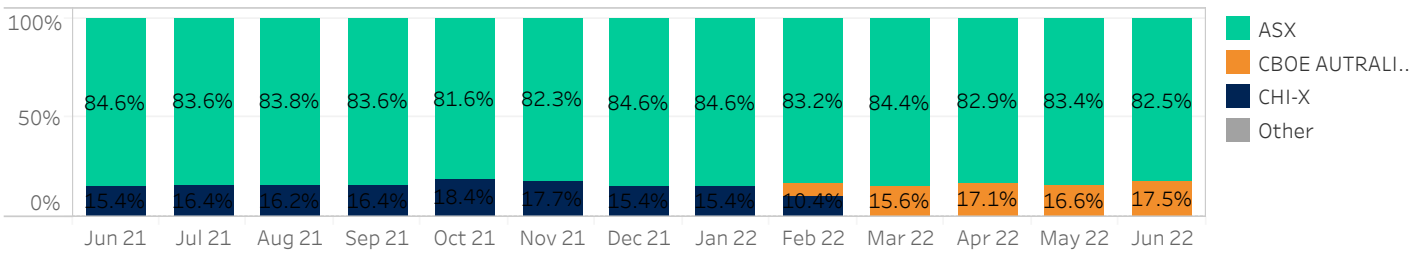
Source data: Virtu Financial

# Australia

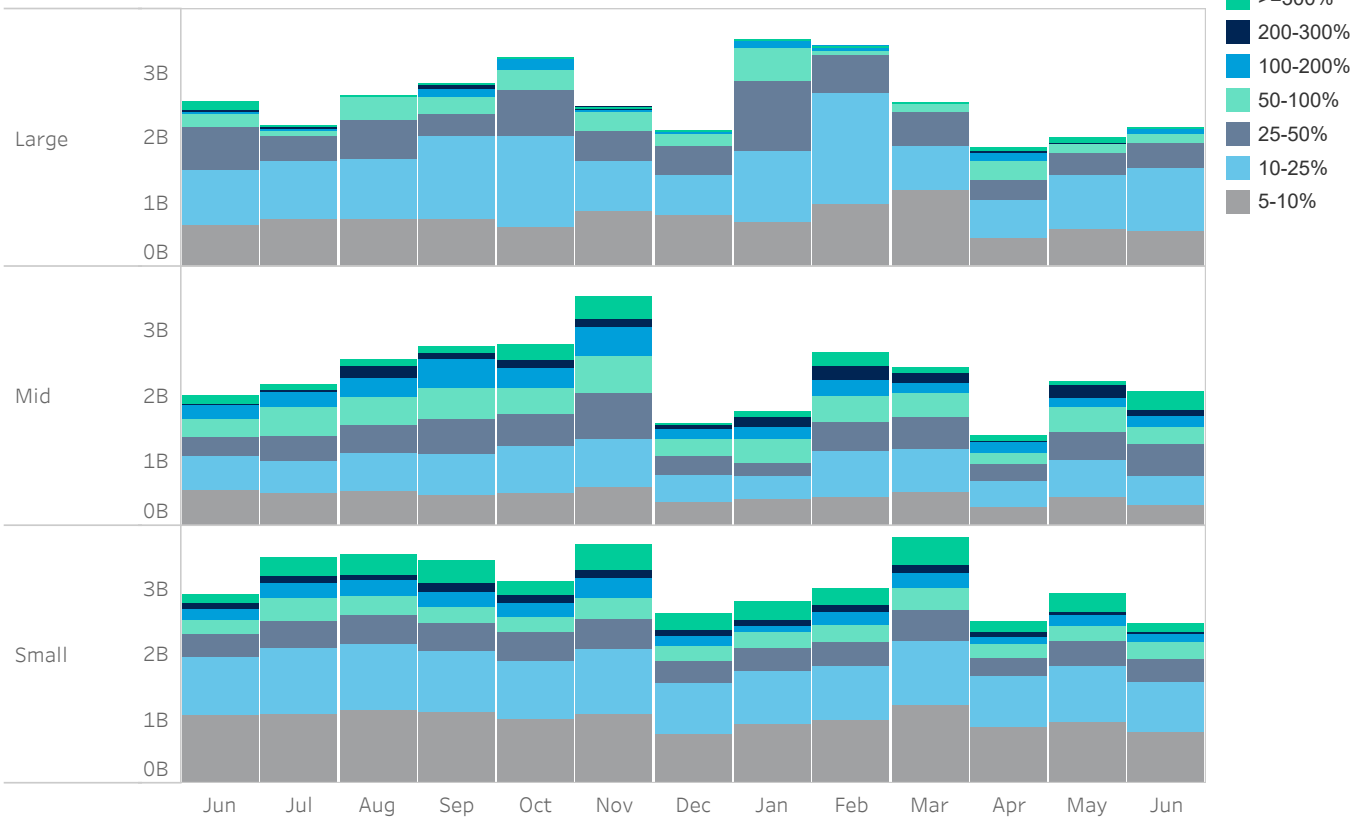
## Average Daily Turnover (Notional USD)



## Venue Market Share (Notional USD)



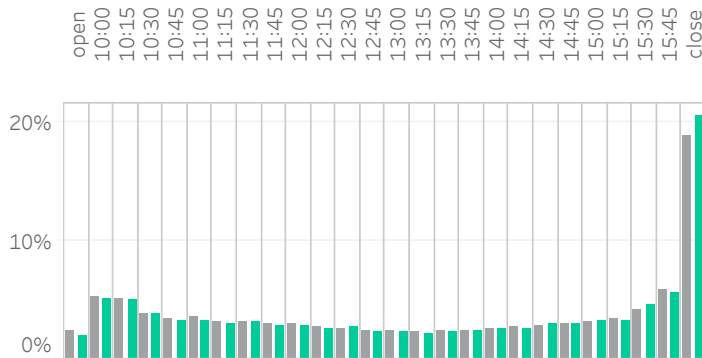
## Large Sized Trades (>=5%ADT)



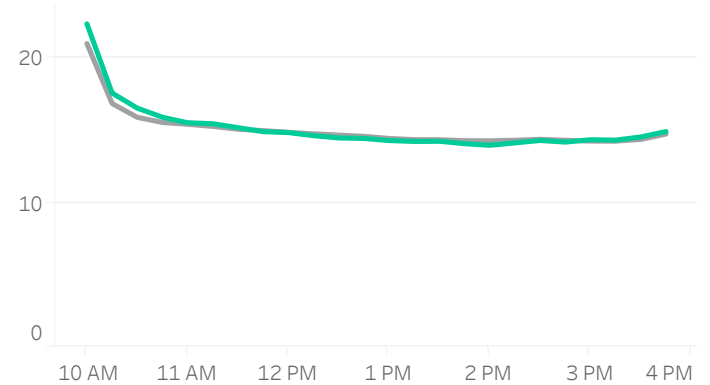
Source data: Virtu Financial

# Australia

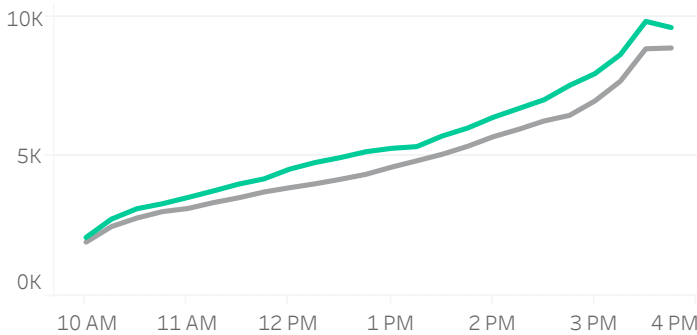
## Volume Curve



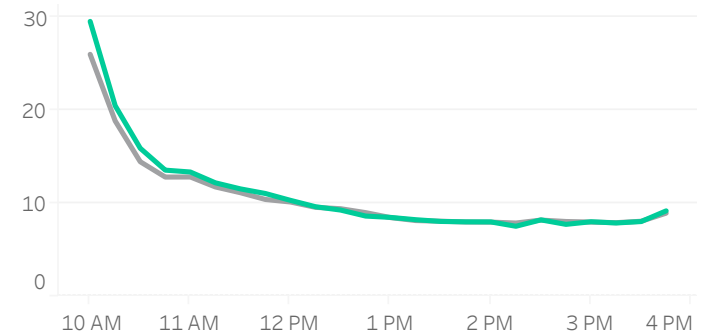
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	16.9	17.1	17.7	18.0	18.9	18.6	18.4	19.0	20.5
midday	14.0	14.1	14.5	14.6	15.0	15.1	14.6	14.6	16.2
lastHalfHour	13.9	14.1	14.2	14.1	14.3	14.5	14.3	14.7	16.4

## One Minute Volatility Bps

firstHalfHour	15.6	15.7	15.9	16.4	20.9	18.6	15.8	19.3	21.3
midday	4.4	4.2	4.2	5.4	6.2	5.2	4.2	4.7	5.3
lastHalfHour	3.9	3.4	3.2	5.0	3.9	3.7	3.1	3.6	4.0

## Quotesize in Shares

firstHalfHour	2,177	2,120	1,936	1,991	2,092	2,236	2,394	2,413	2,340
midday	4,276	4,427	4,117	3,945	4,008	4,728	5,180	5,148	5,554
lastHalfHour	9,183	9,297	8,472	8,020	8,680	9,575	9,457	9,953	9,528

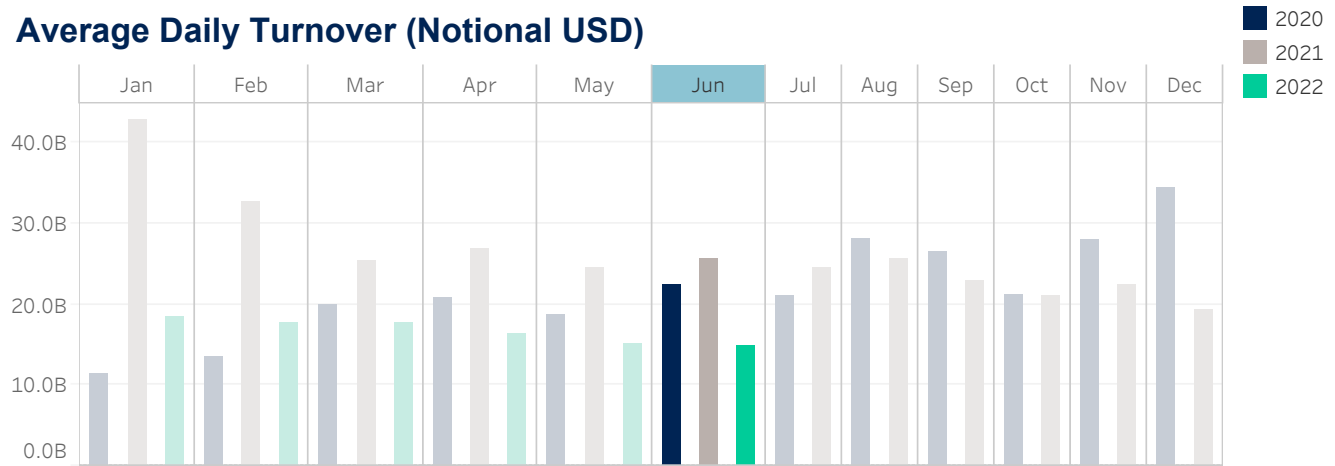
Median used for all metrics

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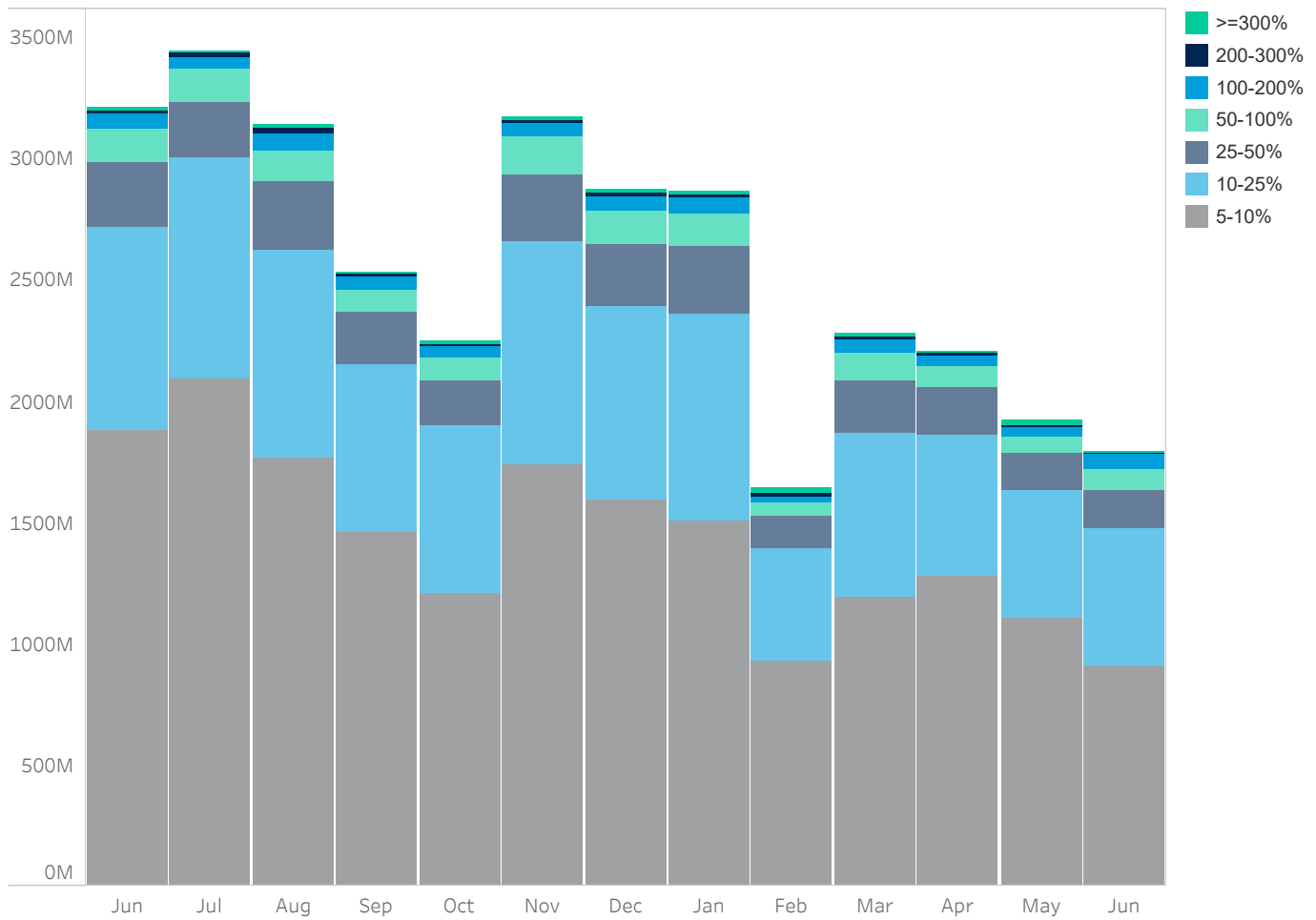
Source data: Virtu Financial

# South Korea

## Average Daily Turnover (Notional USD)



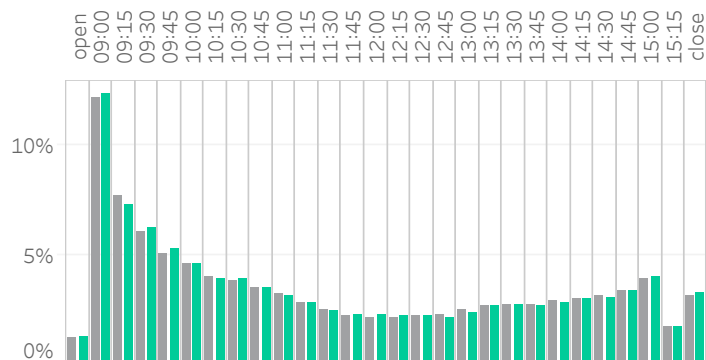
## Large Sized Trades (>=5%ADT)



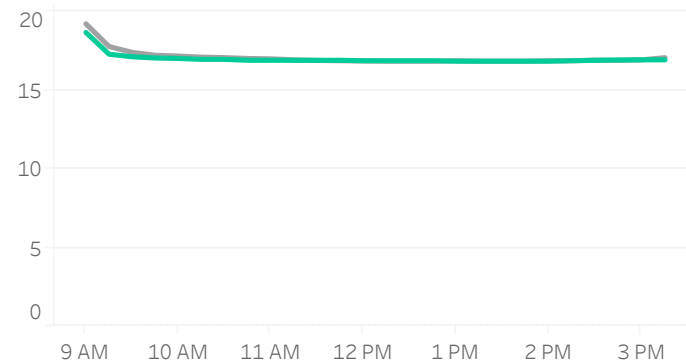
Source data: Virtu Financial

# South Korea

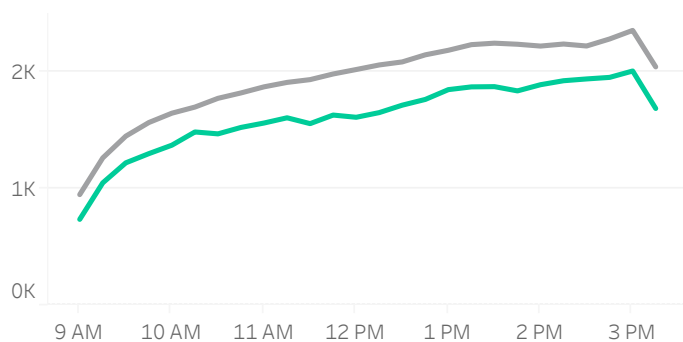
## Volume Curve



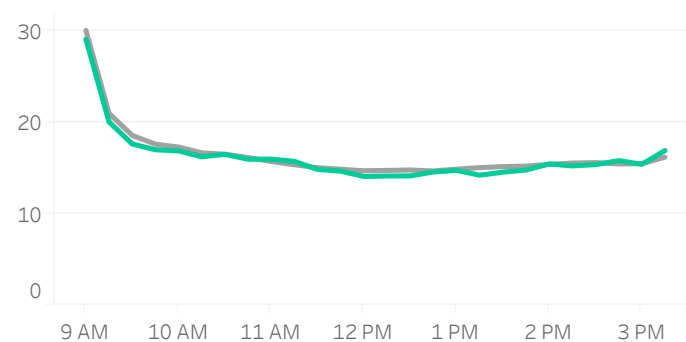
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	18.9	19.8	18.3	18.9	18.8	17.9	17.5	17.6	18.5
midday	17.2	17.9	17.2	17.4	17.4	17.0	16.6	16.9	17.2
lastHalfHour	17.2	17.9	17.3	17.4	17.3	17.0	16.7	16.9	17.3

## One Minute Volatility Bps

midday	10.7	11.2	10.6	11.9	11.5	10.3	10.2	10.8	11.6
firstHalfHour	16.5	16.9	14.9	18.2	17.6	15.1	13.1	14.4	18.0
lastHalfHour	12.7	15.6	25.1	13.0	13.3	25.4	23.1	25.3	13.8

## Quotesize in Shares

firstHalfHour	890	909	899	813	822	931	945	898	743
midday	1,653	1,773	1,608	1,528	1,313	1,669	1,603	1,653	1,351
lastHalfHour	1,871	2,018	1,807	1,727	1,598	1,929	1,900	1,950	1,495

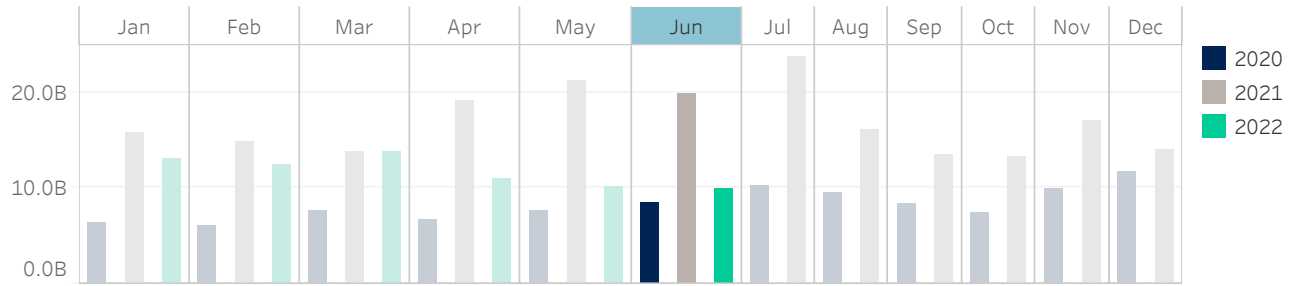
Median used for all metrics

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

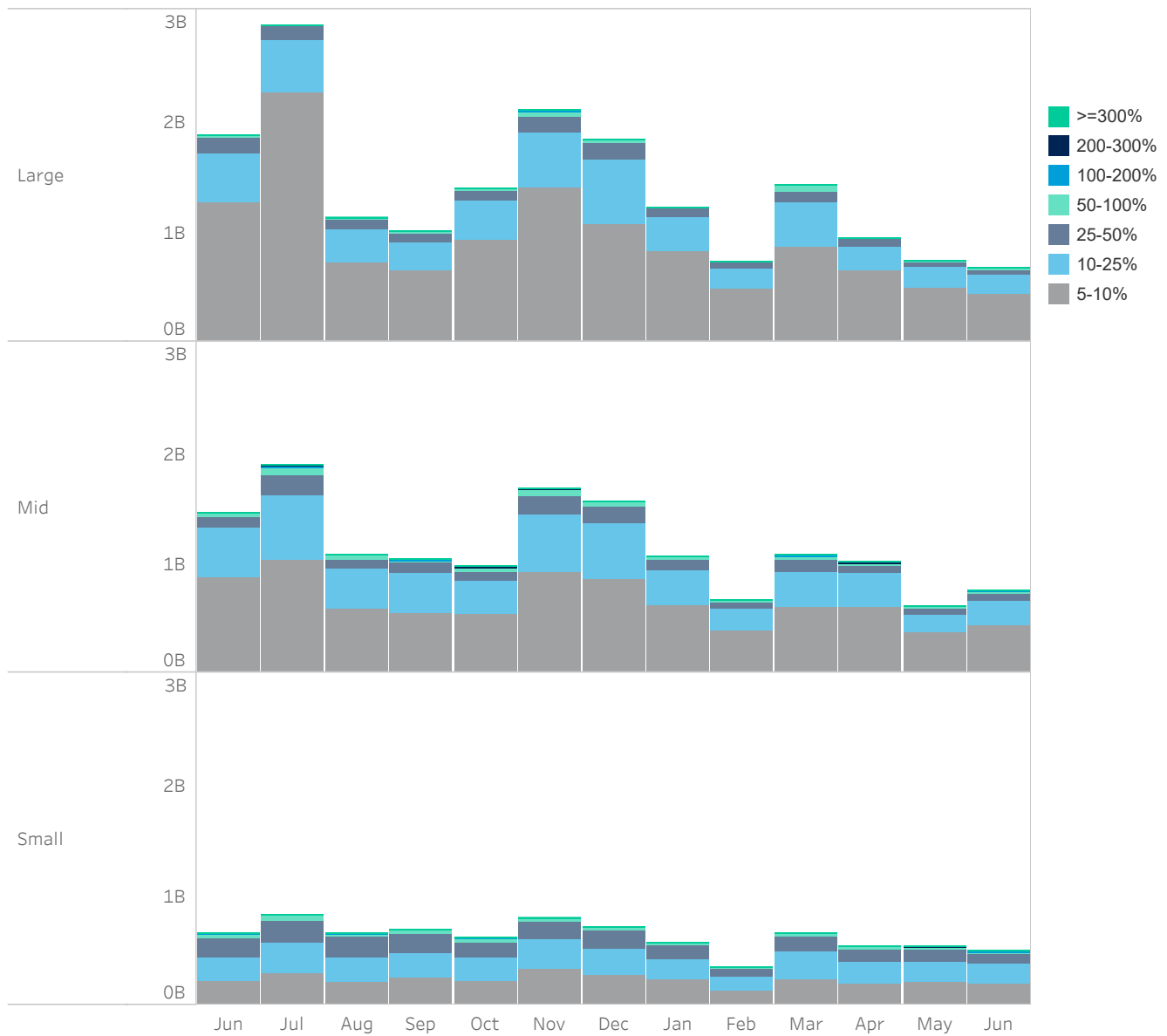
Source data: Virtu Financial

# Taiwan

## Average Daily Turnover (Notional USD)



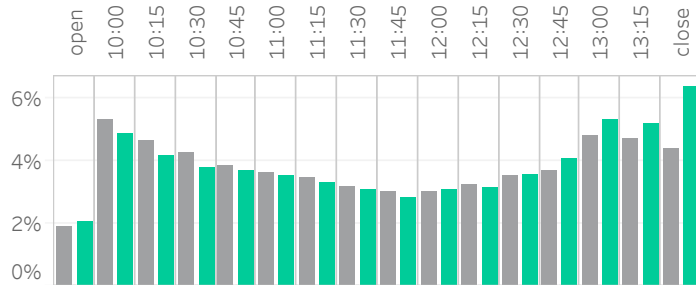
## Large Sized Trades (>=5%ADT)



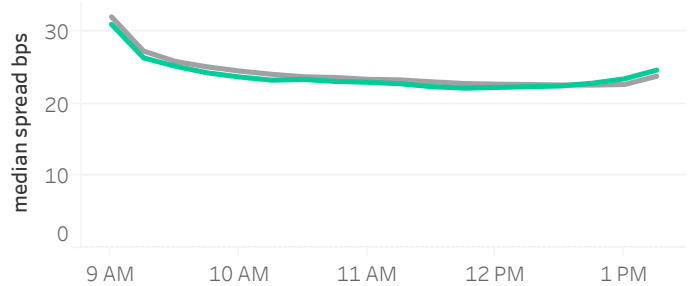
Source data: Virtu Financial

# Taiwan

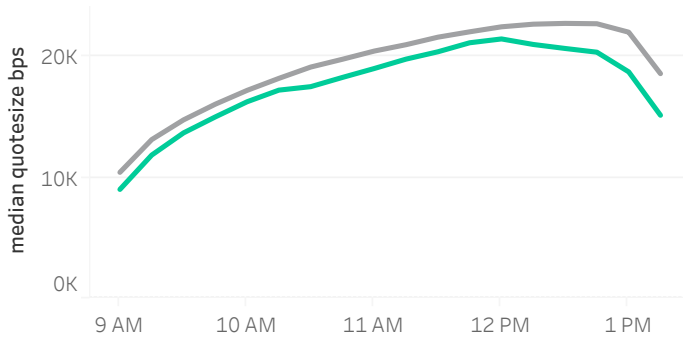
## Volume Curve



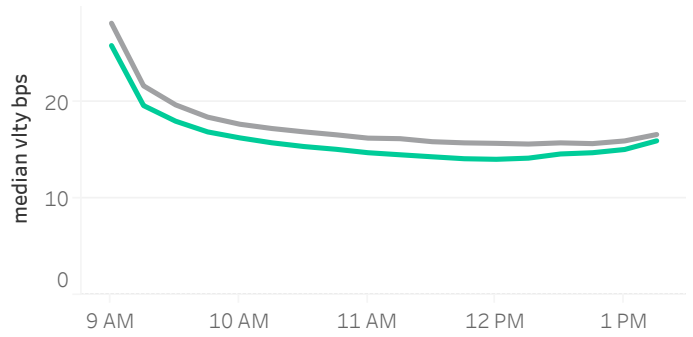
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg    ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	30.4	28.0	26.5	28.6	26.7	26.6	26.7	27.3	28.1
midday	24.2	22.5	21.7	22.2	21.9	21.7	22.4	22.9	23.3
lastHalfHour	23.8	22.4	21.6	22.6	22.3	22.2	23.0	23.9	24.9

## One Minute Volatility Bps

firstHalfHour	15.5	14.4	11.7	13.6	11.9	12.2	13.2	13.0	14.5
midday	7.2	6.6	6.6	7.6	6.5	6.5	6.8	6.8	7.7
lastHalfHour	8.1	9.3	9.2	7.8	9.1	8.1	8.1	8.7	10.0

## Quotesize in Shares

firstHalfHour	10,944	12,921	13,588	12,185	11,983	12,049	11,350	10,743	10,141
midday	18,385	22,487	24,891	22,588	22,644	24,091	20,379	19,000	17,224
lastHalfHour	18,001	22,498	24,520	21,888	20,421	22,083	18,462	16,745	14,500

Median used for all metrics

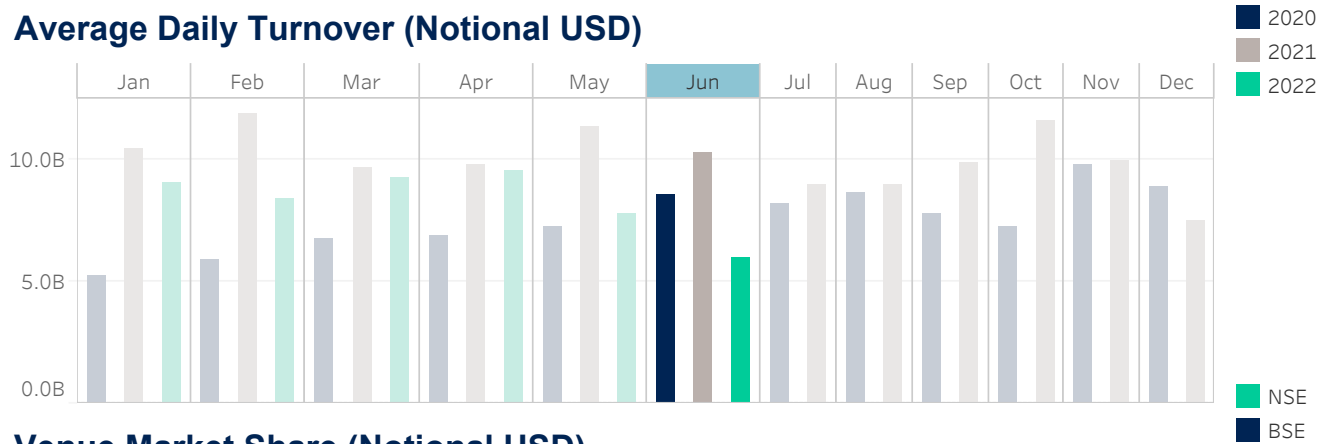
One minute volatility is calculated using the difference between the high and low price within a one minute time bin, divided by that bin's VWAP

Source data: Virtu Financial

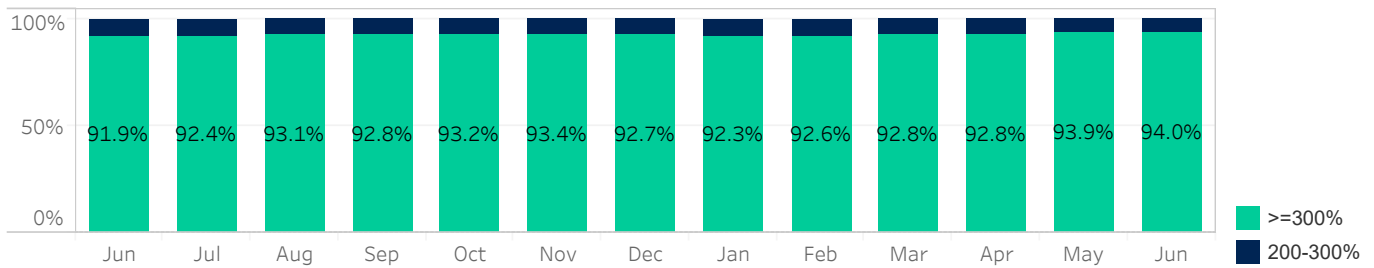


# India

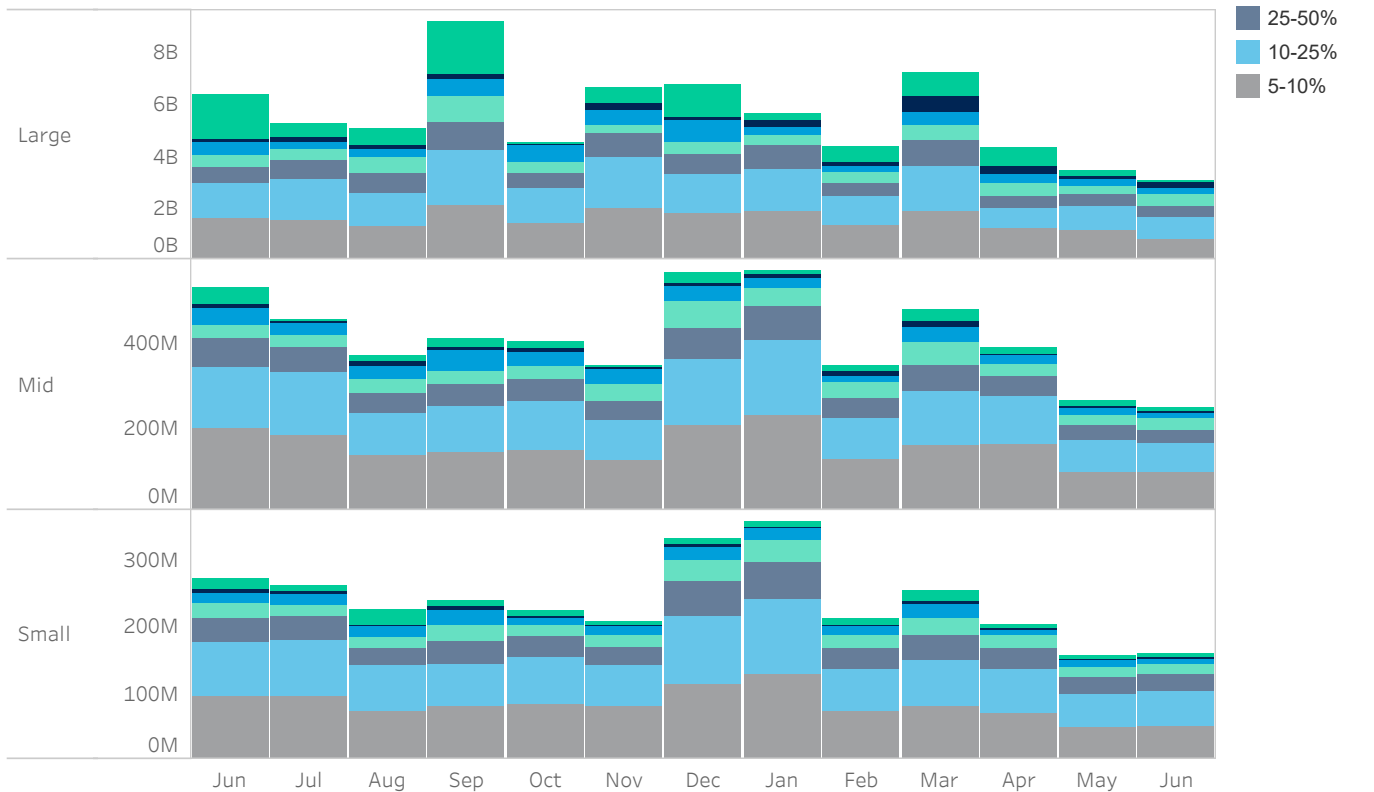
## Average Daily Turnover (Notional USD)



## Venue Market Share (Notional USD)



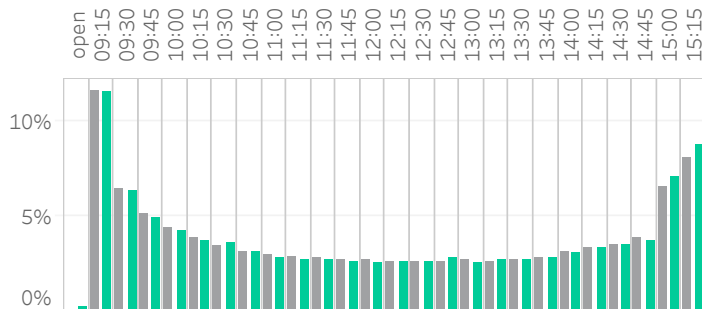
## Large Sized Trades (>=5%ADT)



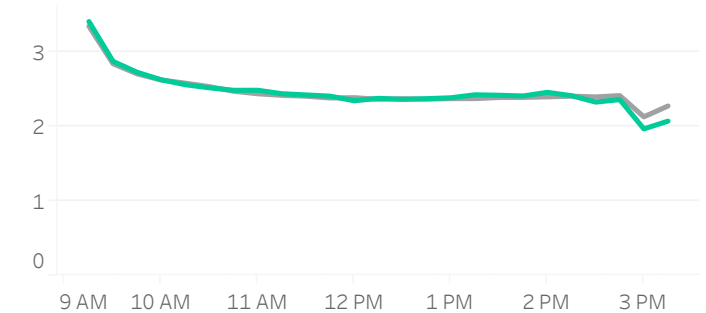
Source data: Virtu Financial

# India

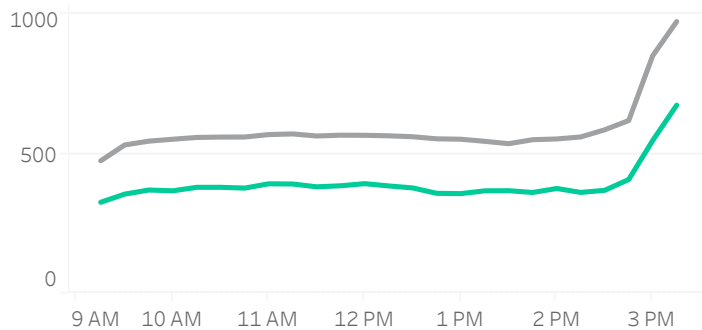
## Volume Curve



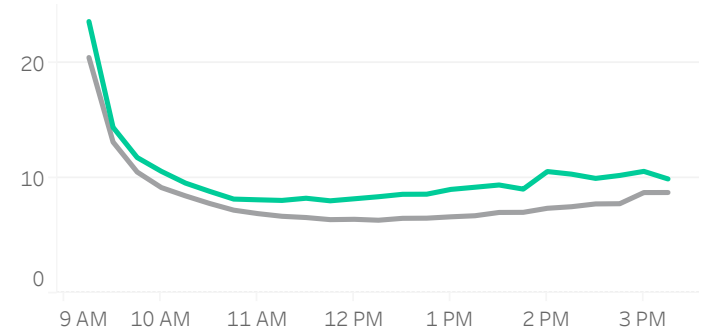
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	3.2	3.1	3.0	3.1	3.1	2.9	2.8	3.0	3.0
midday	2.6	2.5	2.4	2.4	2.5	2.4	2.2	2.4	2.4
lastHalfHour	2.1	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9

## One Minute Volatility Bps

firstHalfHour	16.9	14.7	13.7	14.7	16.4	15.7	13.4	16.7	14.8
midday	7.3	6.5	5.6	5.9	7.4	7.3	6.1	8.6	7.1
lastHalfHour	7.7	7.3	7.0	7.3	7.8	8.7	7.8	9.7	8.1

## Quotesize in Shares

firstHalfHour	425	408	416	394	370	465	415	345	364
midday	459	444	502	451	417	478	455	373	393
lastHalfHour	780	826	856	736	664	783	725	586	672

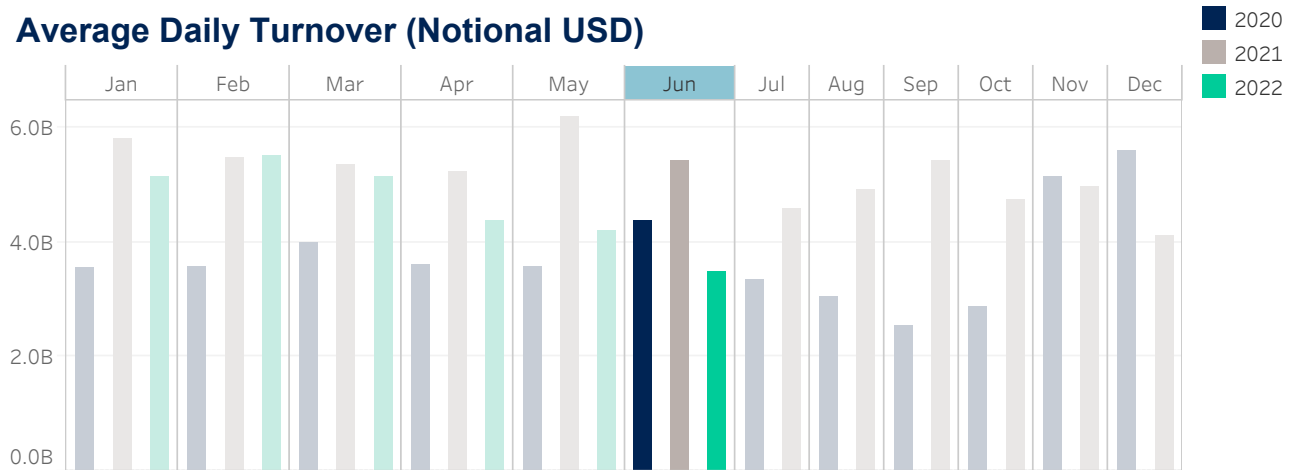
Median used for all metrics

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

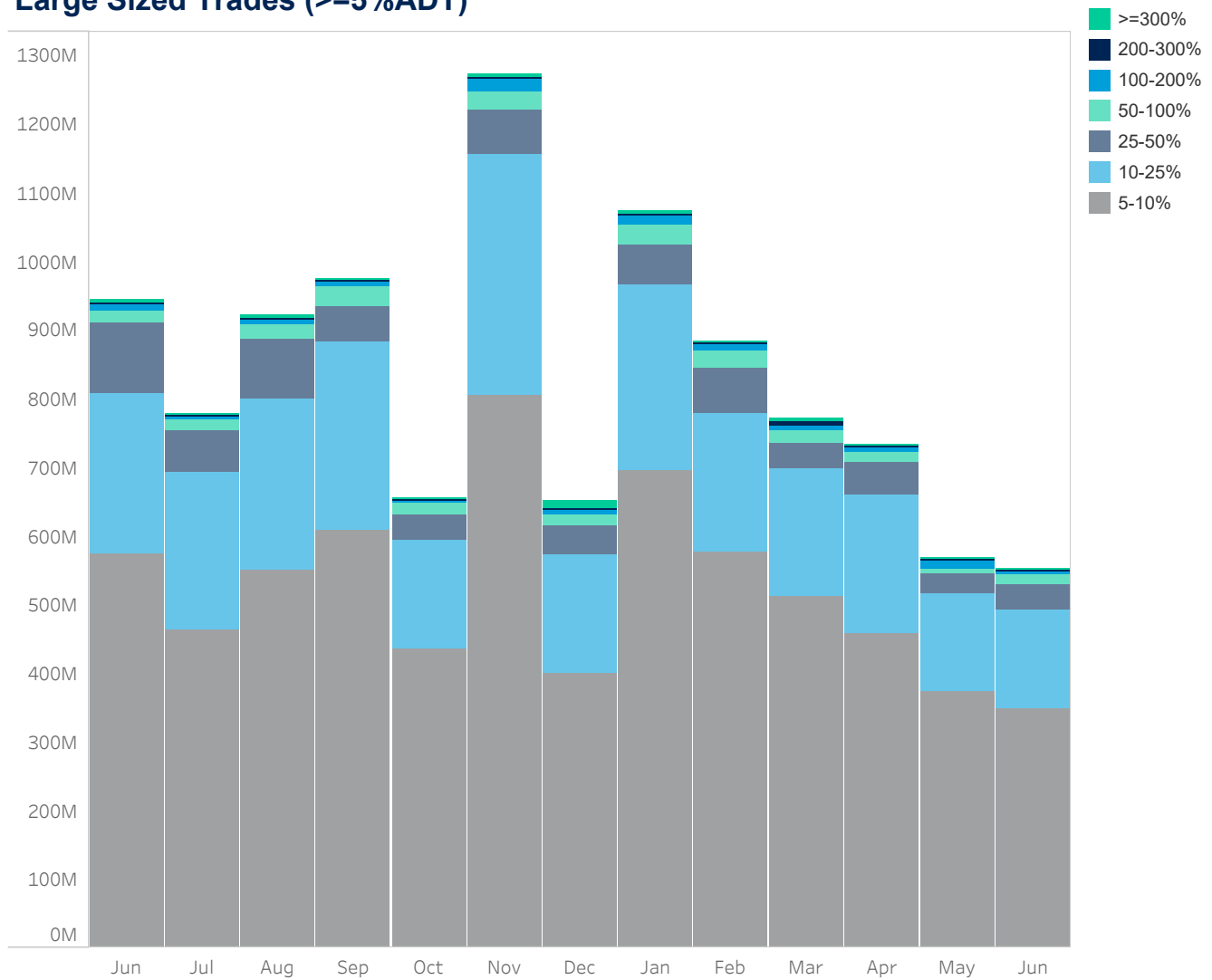
Source data: Virtu Financial

# Thailand

## Average Daily Turnover (Notional USD)



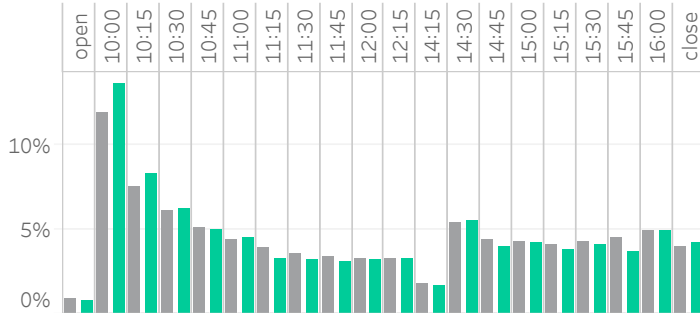
## Large Sized Trades (>=5%ADT)



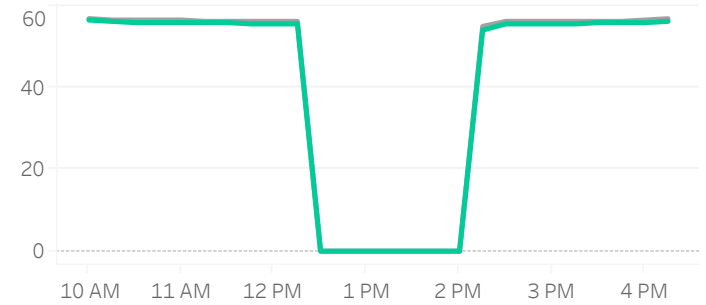
Source data: Virtu Financial

# Thailand

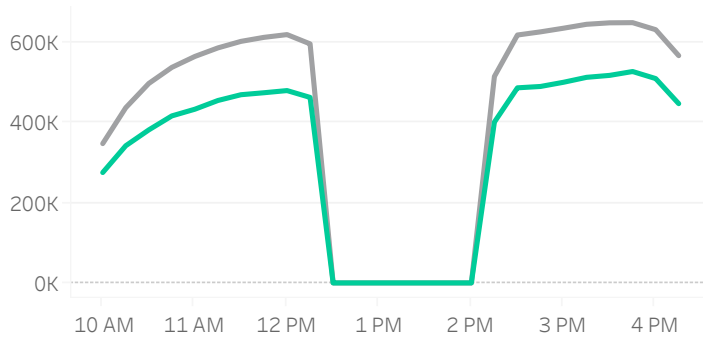
## Volume Curve



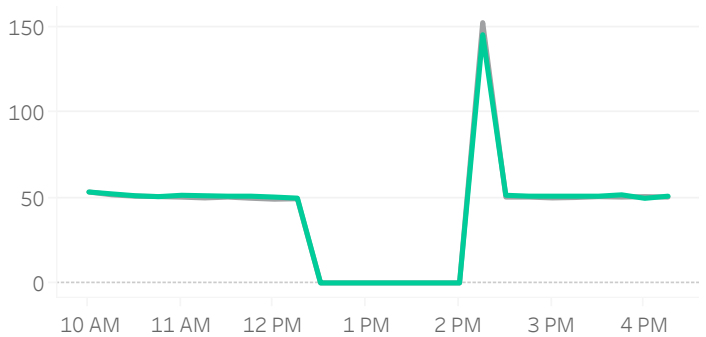
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg   ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	56.5	55.2	54.1	54.5	55.2	56.2	55.8	56.5	57.5
midday	56.3	54.6	53.4	54.3	54.9	55.6	55.4	55.9	57.1
lastHalfHour	56.5	55.1	53.8	54.4	55.2	55.7	55.9	56.2	57.5

## One Minute Volatility Bps

firstHalfHour	181.9	182.6	120.6	145.0	151.1	54.1	158.6	54.3	144.1
midday	168.2	158.8	152.8	152.7	158.8	152.0	157.2	155.2	173.0
lastHalfHour									

## Quotesize in Shares

firstHalfHour	416,429	402,253	360,899	385,390	374,157	334,148	350,199	296,888	309,227
midday	669,728	654,185	562,512	617,268	597,117	540,531	568,254	472,504	481,812
lastHalfHour	656,823	637,808	551,613	606,051	597,584	539,031	562,618	479,643	473,218

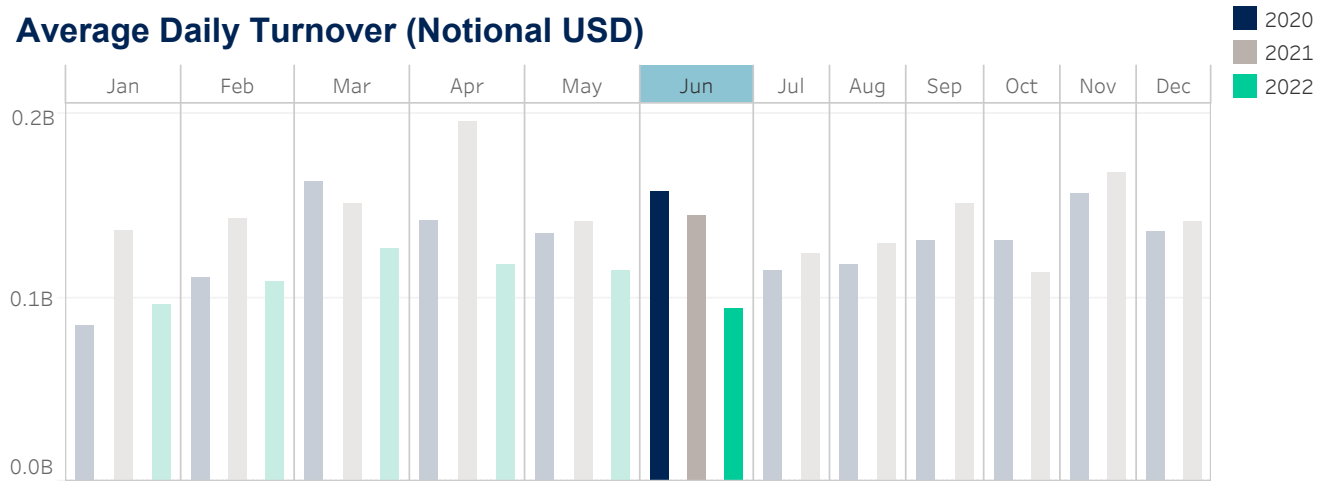
Median used for all metrics

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

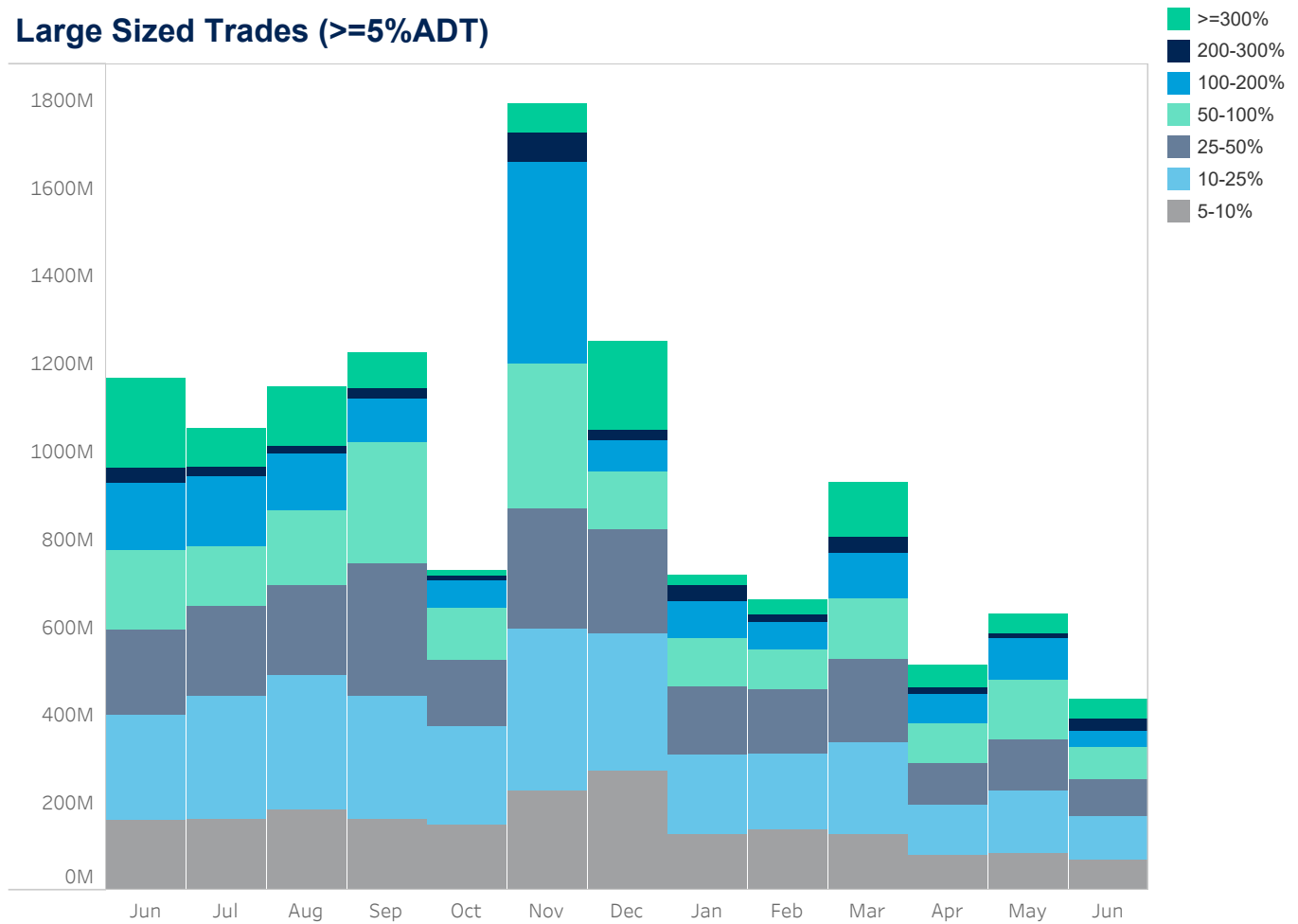
Source data: Virtu Financial

# New Zealand

## Average Daily Turnover (Notional USD)



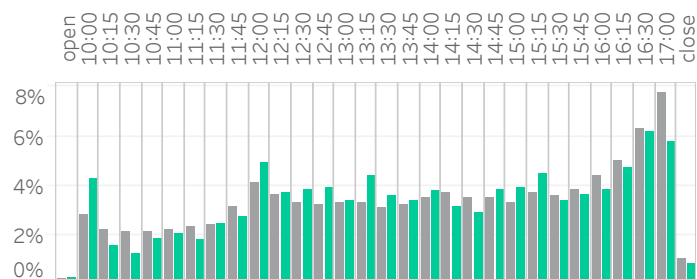
## Large Sized Trades (>=5%ADT)



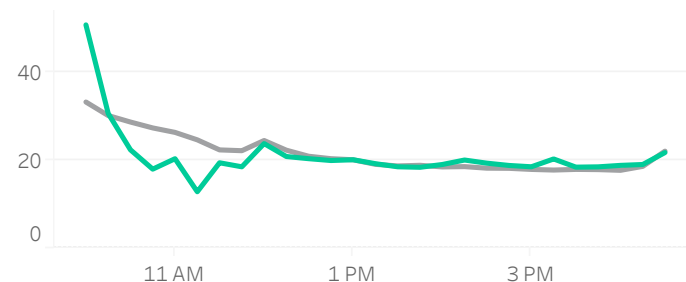
Source data: Virtu Financial

# New Zealand

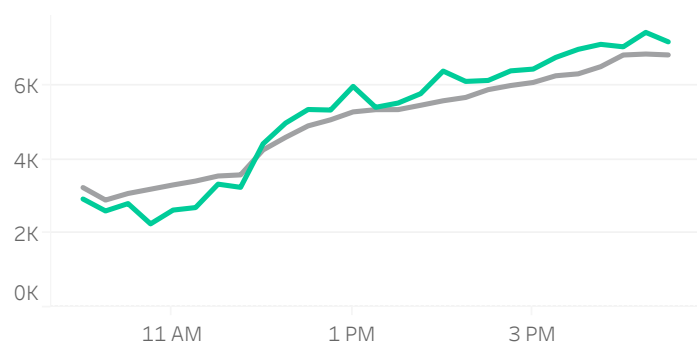
## Volume Curve



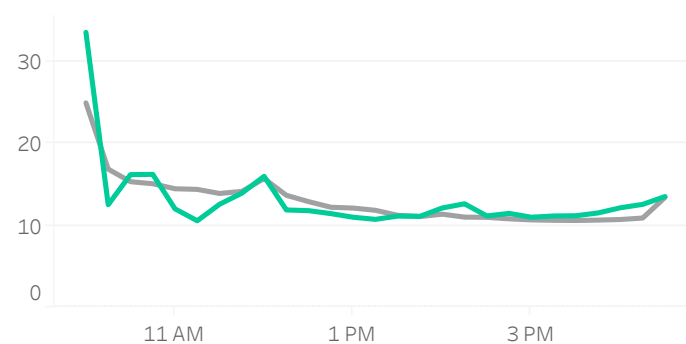
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	29.1	31.3	34.0	33.3	32.2	30.8	34.0	38.6	
midday	18.2	20.0	21.7	21.6	20.8	19.3	17.7	19.6	22.2
lastHalfHour	18.3	18.7	20.5	21.3	23.6	19.3	18.0	20.7	24.8

## One Minute Volatility Bps

firstHalfHour	7.5	7.4	9.1	9.6	8.8	7.1	6.3	9.1	
midday	3.3	4.0	4.2	4.3	4.8	4.3	3.2	3.8	3.7
lastHalfHour	4.3	3.5	4.1	3.3	4.7	4.8	3.7	5.3	5.6

## Quotesize in Shares

firstHalfHour	3,090	3,356	3,316	2,843	3,412	3,092	3,044	2,841	
midday	5,679	5,456	5,315	5,011	5,684	5,284	5,456	5,955	6,180
lastHalfHour	7,910	6,898	7,038	6,831	7,951	8,238	7,811	7,376	7,341

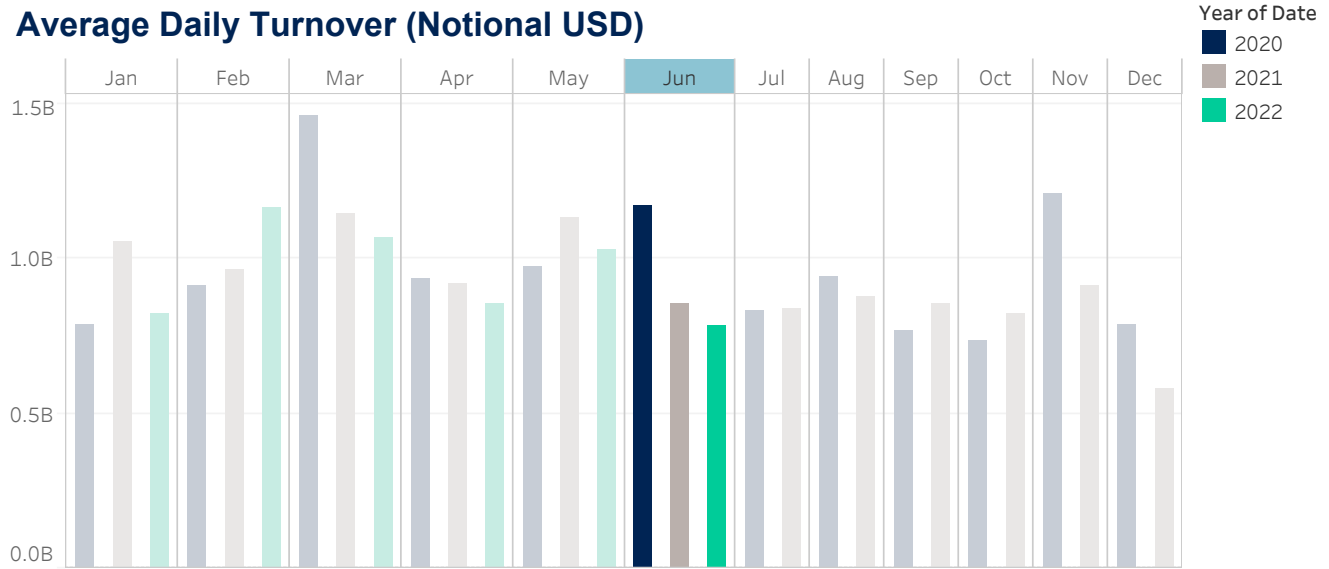
Median used for all metrics

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

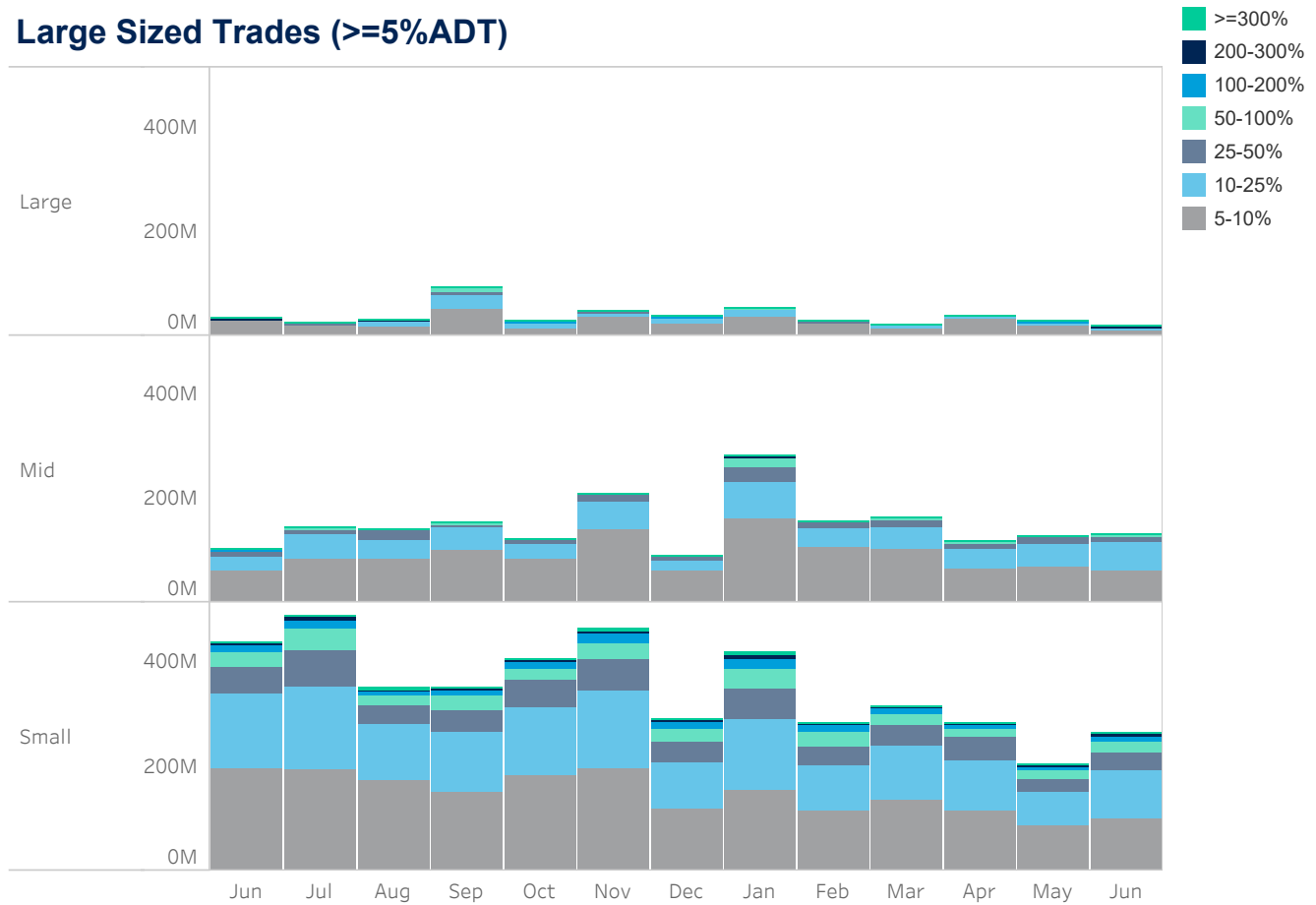
Source data: Virtu Financial

# Singapore

## Average Daily Turnover (Notional USD)



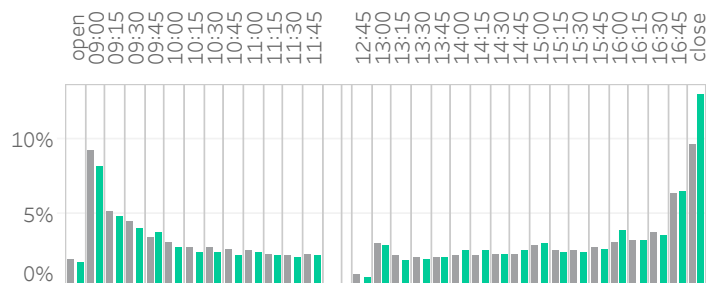
## Large Sized Trades (>=5%ADT)



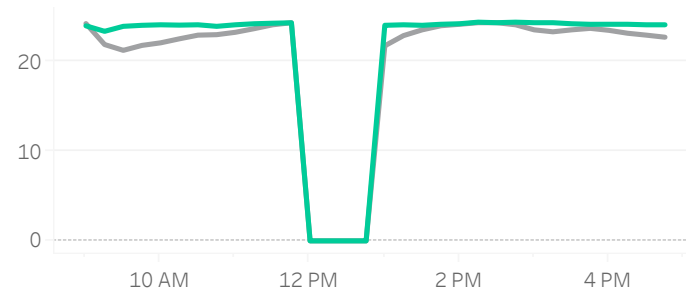
Source data: Virtu Financial

# Singapore

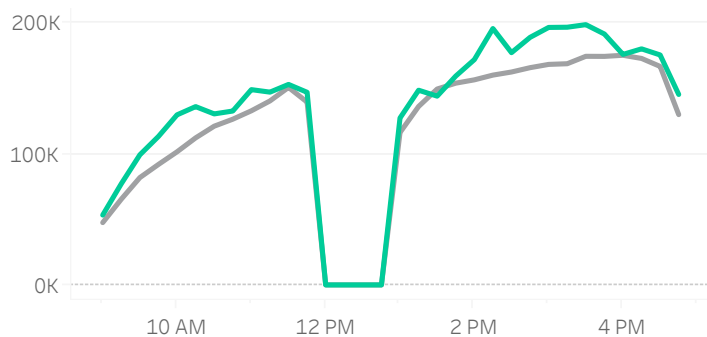
## Volume Curve



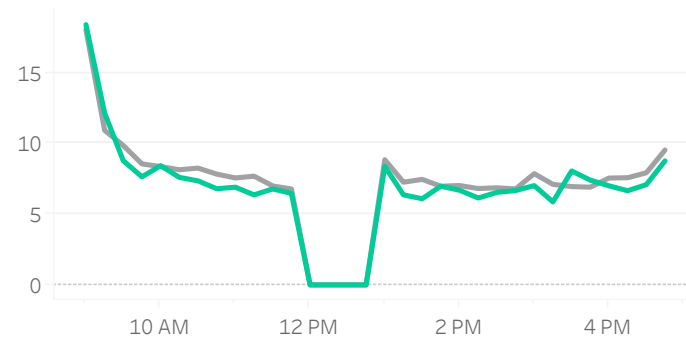
## Intraday Spread (bps)



## Intraday Quotesize (Shares)



## Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ June 2022

## Spread Bps

	21 Q4			22 Q1			22 Q2		
	Oct 21	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22
firstHalfHour	22.7	21.6	23.6	22.5	21.3	21.0	20.5	22.2	22.8
midday	22.8	22.2	24.2	23.4	21.6	21.2	21.8	23.9	24.0
lastHalfHour	22.0	22.1	22.7	21.9	21.2	20.8	21.1	23.9	22.8

## One Minute Volatility Bps

firstHalfHour	7.3	6.4	5.3	5.5	7.6	8.7	5.7	8.1	5.9
midday	3.3	5.5	3.7	4.1	5.3	5.0	4.5	5.8	3.9
lastHalfHour	4.8	4.0	2.9	4.6	2.7	3.7	4.9	5.7	3.6

## Quotesize in Shares

firstHalfHour	54,873	78,883	58,696	57,597	62,465	51,450	48,491	66,272	58,725
midday	150,127	165,639	146,991	140,047	127,607	119,649	116,792	159,349	136,036
lastHalfHour	158,656	183,894	150,357	134,260	152,729	122,584	122,775	163,525	129,298

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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