# May 2022

# APAC Market Structure Monthly

# **Average Daily Turnover (Notional USD)**



#### **Country Breakdowns**

Hong Kong Taiwan

China India

**Japan** Thailand

Australia New Zealand

South Korea Singapore



# May 2022 AP Market Structure Monthly

#### MICROSTRUCTURE OBSERVATIONS

- Lowest notional turnover YTD recorded in China, India, Korea, Thailand and Taiwan.
   Overall trading activity in these countries was down 10-15% since January. Meanwhile,
   Australia, Hong Kong and Japan saw an uptick in average daily turnover with Japan leading at +18% MoM.
- The close auction Australia, Hong Kong, Japan, Korea and Singapore saw 20-30% higher intraday volume completed compared to the rolling 12-month average.
- Liquidity demand for large-sized trades (>/= 5% ADT), intraday volatility and spread remained consistently MoM.

#### AP MARKET STRUCTURE NEWS

Japan Exchange Group to Add Roman Alphabet Characters to Securities Codes in 2024 Japan Exchange Group (JPX) announced on 31 May 2022 that Roman alphabet characters would be used effective 1 January 2024, due to a dwindling number of available specific name codes assigned to general companies (four-digit numbers from [1300] to [9999]). https://www.jpx.co.jp/english/corporate/news/news-releases/0060/20220531-01.html

# JPX Publishes "Analysis of Short Side Market Inefficiencies Using Artificial Market Model" Working Paper

JPX's working paper, Vol.38 "Analysis of Short Side Market Inefficiencies Using Artificial Market Model" was released in English on 12 May 2022, following the Japanese language release on 9 May 2022. With simulated market modeling supplemented and an examination of Tokyo Stock Exchange buy and sell order data, this paper illustrates how market inefficiencies could be more apparent (executed prices deviate more from fundamental prices) when sell-side volumes are reduced, typically due to restrictions and factors such as reduced inventory or stock lending.

https://www.jpx.co.jp/english/corporate/news/news-releases/0010/20220512-01.html

Full text: https://www.jpx.co.jp/english/corporate/research-study/working-paper/b5b4pj000000i468-att/JPXWP\_Vol38e.pdf

Summary: <a href="https://www.jpx.co.jp/english/corporate/research-study/working-paper/b5b4pj000000i468-att/Summary">https://www.jpx.co.jp/english/corporate/research-study/working-paper/b5b4pj000000i468-att/Summary</a> JPXWP Vol38e.pdf

In September 2022, Tokyo Stock Exchange Set to Begin a Carbon Credits Trading Trial
On 16 May 2022, JPX announced that it had awarded the winning bid to Tokyo Stock Exchange, Inc.
(TSE) for the FY2021 Supplemental Carbon Neutral Top League Development Project (Technical Demonstration Project for Carbon Credit Market), commissioned by the Ministry of Economy, Trade and Industry (METI). TSE will start its trading trial of carbon credits in September of this year.

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In its Medium-Term Management Plan 2024, JPX has set forth promoting sustainability that connects society and the economy as one of its priority measures—it's also one of the initiatives that will contribute to the creation of a Japanese carbon credit market.

https://www.jpx.co.jp/english/corporate/news/news-releases/0060/20220516-01.html

# Testing of the Hong Kong Investor Identification Regime Scheduled for 16 May to 15 July 2022 Between Exchange and Intermediaries

Hong Kong Exchanges and Clearing Limited (HKEX) published more details on 12 May 2022 on its end-to-end (E2E) testing with relevant regulated intermediaries (RRIs) for the Hong Kong Investor Identification Regime (HKIDR) rollout. RRIs are reminded that they must participate in the mandatory HKIDR E2E test session to be held from 16 May to 15 July 2022. HKEX has yet to announce the final go-live date for HKIDR.

https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/SEHK/2022/CT04622E.pdf

#### In 4Q 2022, HKEX Will Begin Onboarding FINI Users

Fast Interface for New Issuance (FINI), is an HKEX software platform being actively developed by Hong Kong Securities Clearing Company Limited (HKSCC). FINI aims to reduce operational risk in IPO settlement by shortening the time elapsed between IPO subscription, pricing, and the start of trading, and to enhance Hong Kong's Initial Public Offering (IPO) settlement process.

HKEX announced on 27 May 2022, that it would host technical workshops and demonstrations for market participants in the coming months, as well as begin user registration and onboarding for FINI in 4Q 2022, to prepare for the launch of the platform, tentatively scheduled for June 2023.

https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/HKSCC/2022/ce HKSCC SKA 132 2022.pdf

FINI information pack: <a href="https://www.hkex.com.hk/-/media/HKEX-Market/Services/Next-Generation-Post-Trade-Programme/Fini/FINI-Information-Pack-EN-(27-May-2022).pdf">https://www.hkex.com.hk/-/media/HKEX-Market/Services/Next-Generation-Post-Trade-Programme/Fini/FINI-Information-Pack-EN-(27-May-2022).pdf</a>

# Shanghai Stock Exchange Seeks Public Opinion on Relevant Rules for Market-Making on Science and Technology Innovation Board

Shanghai Stock Exchange announced on 13 May 2022, that it actively advanced the introduction of a market maker mechanism for stocks on the Science and Technology Innovation Board (STAR Market). Drafts for the **Detailed Implementation Rules for the Market Making Business for Stocks on the STAR Market** and the **Business Guide to Securities Trading No. X - Market Making for Stocks on the STAR Market** have been released for comment which is scheduled to close on 28 May 2022. <a href="http://english.sse.com.cn/news/newsrelease/c/5702664.shtml">http://english.sse.com.cn/news/newsrelease/c/5702664.shtml</a>

Korea Exchange to Launch Korea Exchange Real Estate Investment Trusts TOP 10 Indices
On 18 May 2022, Korea Exchange (KRX) announced that it would be offering two new indices beginning
on 23 May 2022. The KRX Real Estate Investment Trusts (REITs) TOP 10 Index, which indexes
KOSPI-listed companies investing in real estate (REITs), and the KRX REITs TOP 10 Leverage Index,
which indexes KRX REITs TOP 10 Index. KRX REITs TOP 10 Index includes the ten largest KOSPI-listed
REITs by market capitalization. Each REIT is weighted according to its float-adjusted market capitalization.
https://global.krx.co.kr/contents/GLB/02/0203/0203000000/GLB0203000000.jsp#ab8758eced0475769e20
0e7e309baf77=1&view=20664



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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# **Hong Kong**

# **Average Daily Turnover (Notional USD)**



# **Hong Kong**

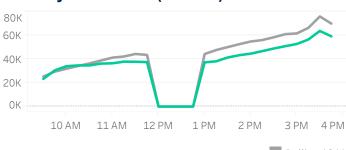
#### **Volume Curve**

# % day's volume % day's volume % popen % popen

#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



Rolling 12 Months Avg May 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 |
| firstHalfHour | 18.5   | 17.3   | 17.3   | 16.2   | 15.8   | 17.8   | 17.6   | 17.4   |
| midday        | 12.7   | 12.8   | 12.5   | 11.9   | 12.0   | 13.4   | 13.3   | 13.4   |
| lastHalfHour  | 12.3   | 12.5   | 12.4   | 11.6   | 11.7   | 12.6   | 12.3   | 13.2   |

#### **One Minute Volatility Bps**

| firstHalfHour | 18.2 | 13.8 | 14.7 | 15.5 | 15.1 | 21.2 | 17.7 | 19.3 |
|---------------|------|------|------|------|------|------|------|------|
| midday        | 6.7  | 6.1  | 6.3  | 6.4  | 6.5  | 9.7  | 8.4  | 7.2  |
| lastHalfHour  | 6.5  | 6.0  | 5.8  | 6.1  | 6.9  | 7.8  | 6.5  | 5.7  |

#### **Quotesize in Shares**

| firstHalfHour | 26,921 | 27,455 | 23,936 | 28,480 | 27,737 | 29,034 | 28,977 | 26,730 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| midday        | 47,554 | 47,292 | 35,935 | 47,428 | 46,616 | 40,716 | 40,059 | 41,296 |
| lastHalfHour  | 75,001 | 72,389 | 54,283 | 70,843 | 71,318 | 65,291 | 62,184 | 56,584 |

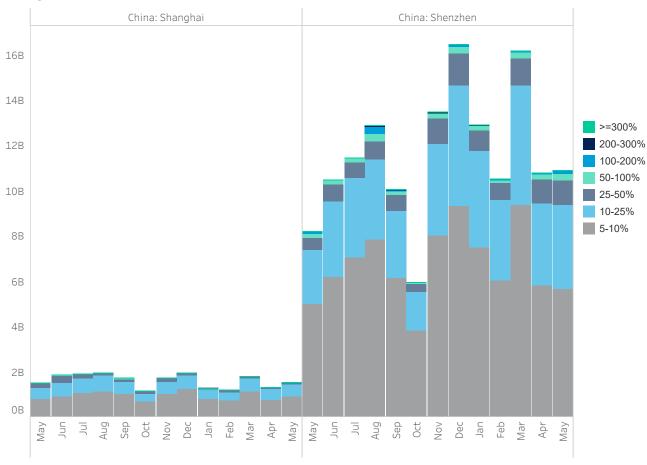
Median used for all metrics

# China

#### **Average Daily Turnover (Notional USD)**

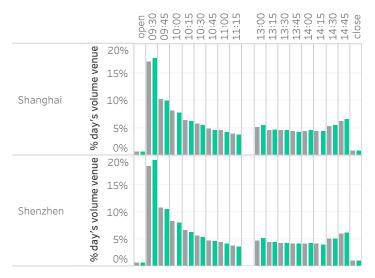


#### **Large Sized Trades (>=5%ADT)**

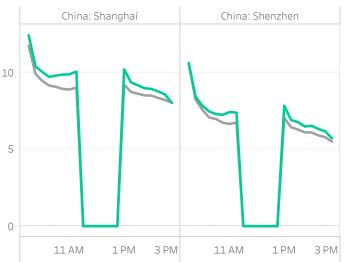


#### China

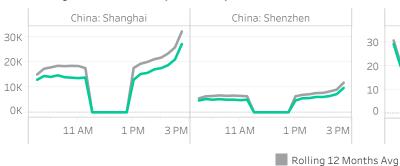
#### **Volume Curve**



#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**

May 2022



#### **Spread Bps**

|               |      |       |     | China: Sh | anghai |      |      |      | China: Shenzhen |     |     |     |     |      |     |     |
|---------------|------|-------|-----|-----------|--------|------|------|------|-----------------|-----|-----|-----|-----|------|-----|-----|
|               |      | 21 Q4 |     |           |        |      |      | )2   | 21 Q4 22 Q1 2   |     |     |     |     | 22 0 | )2  |     |
|               | Oct  | Nov   | Dec | Jan       | Feb    | Mar  | Apr  | May  | Oct             | Nov | Dec | Jan | Feb | Mar  | Apr | May |
| firstHalfHour | 10.3 | 9.8   | 9.3 | 10.0      | 9.9    | 10.9 | 11.1 | 11.1 | 9.0             | 8.4 | 7.8 | 9.0 | 8.3 | 9.1  | 9.9 | 8.9 |
| midday        | 8.5  | 8.3   |     | 8.2       | 8.4    | 9.4  | 9.7  | 10.1 | 6.5             | 6.2 | 5.8 | 6.3 | 6.2 | 7.0  | 7.4 | 7.2 |
| lastHalfHour  | 7.6  | 7.6   | 7.3 | 7.7       | 7.7    | 8.3  | 8.4  | 8.6  | 5.4             | 5.3 | 4.9 | 5.3 | 5.2 | 5.9  | 6.2 | 6.0 |

#### **One Minute Volatility Bps**

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

#### **Quotesize in Shares**

| firstHalfHour | 14K | 16K | 16K | 13K | 13K | 13K | 11K | 13K | 6K  | 7K  | 5K | 4K | 4K | 4K | 4K |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|
| midday        | 17K | 19K | 19K | 16K | 16K | 14K |     | 14K | 8K  | 8K  | 6K | 4K | 5K | 5K | 5K |
| lastHalfHour  | 26K | 31K | 30K | 23K | 23K | 22K | 19K | 21K | 12K | 13K | 9К | 6K | 7K | 7K | 7K |

Median used for all metrics

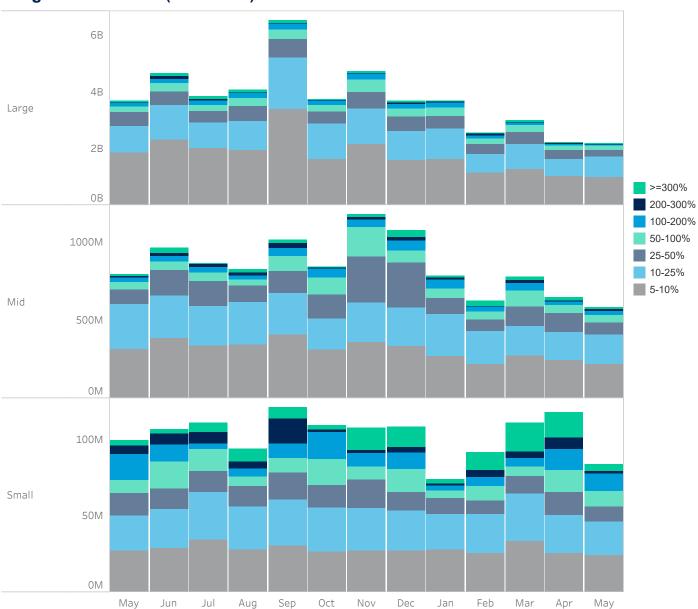
# Japan

# **Average Daily Turnover (Notional USD)**



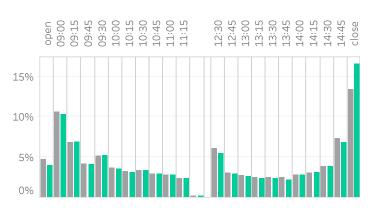


# Large Sized Trades (>=5%ADT)



# **Japan**

#### **Volume Curve**



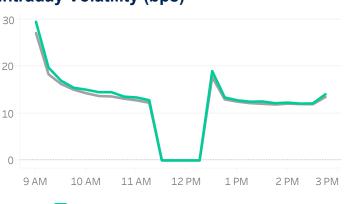
#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



Rolling 12 Months Avg May 2022

#### **Spread Bps**

|               |        | 21 Q4  |        |        | 22 Q1  |        | 22 (   | )2     |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|               | Oct 21 | Nov 21 | Dec 21 | Jan 22 | Feb 22 | Mar 22 | Apr 22 | May 22 |
| firstHalfHour | 26.7   | 27.2   | 28.7   | 29.4   | 28.2   | 28.4   | 26.8   | 26.6   |
| midday        | 21.9   | 22.1   | 22.5   | 23.3   | 22.7   | 22.7   | 22.1   | 21.9   |
| lastHalfHour  | 19.7   | 20.2   | 20.7   | 21.6   | 21.2   | 21.2   | 20.6   | 20.4   |

#### **One Minute Volatility Bps**

| firstHalfHour | 14.5 | 13.2 | 14.6 | 16.5 | 17.0 | 17.5 | 15.2 | 17.2 |
|---------------|------|------|------|------|------|------|------|------|
| midday        | 7.1  | 6.1  | 6.4  | 7.7  | 7.6  | 8.9  | 7.0  | 7.8  |
| lastHalfHour  | 6.8  | 10.1 | 6.1  | 6.5  | 7.1  | 8.0  | 6.4  | 10.0 |

#### **Quotesize in Shares**

| firstHalfHour | 1,263 | 1,289 | 1,136 | 1,084 | 1,033 | 1,019 | 1,160 | 1,102 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
| midday        | 2,521 | 2,700 | 2,453 | 2,128 | 2,031 | 2,109 | 2,379 | 2,423 |
| lastHalfHour  | 3,161 | 3,282 | 2,896 | 2,602 | 2,605 | 2,496 | 2,872 | 2,883 |

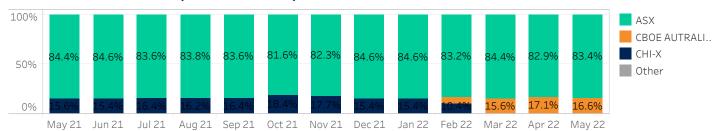
Median used for all metrics

#### Australia

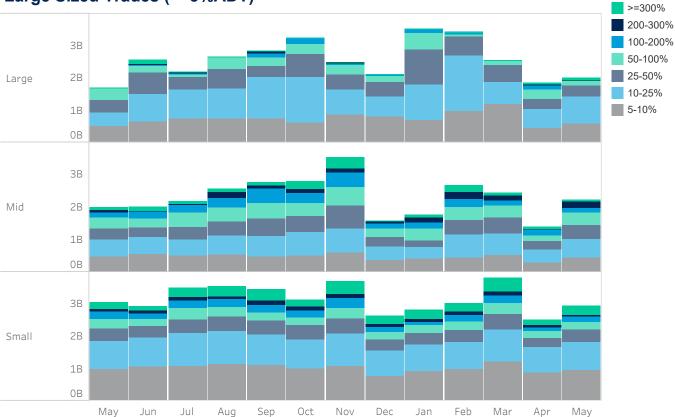
#### **Average Daily Turnover (Notional USD)**



#### **Venue Market Share (Notional USD)**

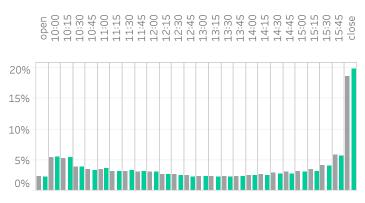


#### **Large Sized Trades (>=5%ADT)**



#### **Australia**

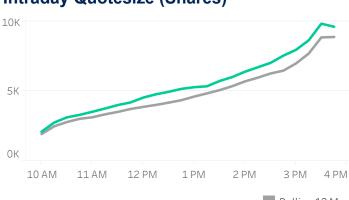
#### **Volume Curve**



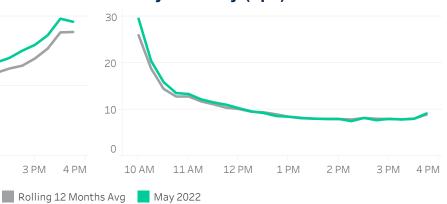
#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



#### **Spread Bps**

|               |        | 21 Q4  |        |        | 22 Q1  |        | 22 (   | Q2     |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|               | Oct 21 | Nov 21 | Dec 21 | Jan 22 | Feb 22 | Mar 22 | Apr 22 | May 22 |
| firstHalfHour | 16.9   | 17.0   | 17.6   | 17.9   | 18.9   | 18.5   | 18.3   | 18.4   |
| midday        | 13.9   | 14.0   | 14.5   | 14.5   | 14.9   | 15.0   | 14.5   | 14.5   |
| lastHalfHour  | 13.8   | 14.1   | 14.0   | 14.0   | 14.2   | 14.4   | 14.3   | 14.6   |

#### **One Minute Volatility Bps**

| firstHalfHour | 15.6 | 15.6 | 15.9 | 16.5 | 20.7 | 18.7 | 15.9 | 18.0 |
|---------------|------|------|------|------|------|------|------|------|
| midday        | 4.4  | 4.2  | 4.2  | 5.4  | 6.1  | 5.1  | 4.2  | 4.9  |
| lastHalfHour  | 3.8  | 3.5  | 3.2  | 4.9  | 3.9  | 3.7  | 3.2  | 2.5  |

#### **Quotesize in Shares**

| firstHalfHour | 2,151 | 2,097 | 1,921 | 1,969 | 2,066 | 2,207 | 2,360 | 2,376 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
| midday        | 4,220 | 4,365 | 4,063 | 3,897 | 3,959 | 4,663 | 5,082 | 4,650 |
| lastHalfHour  | 9,069 | 9,121 | 8,286 | 7,966 | 8,557 | 9,438 | 9,297 | 9,859 |

Median used for all metrics

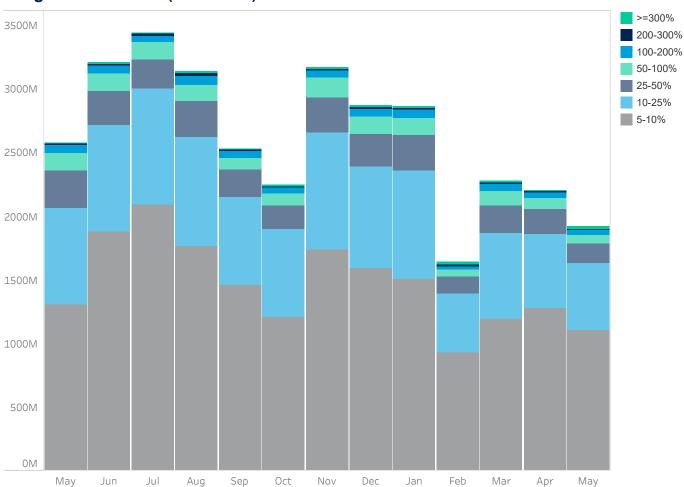
#### South Korea

#### **Average Daily Turnover (Notional USD)**



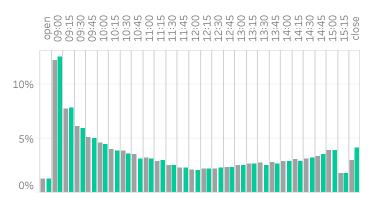


#### Large Sized Trades (>=5%ADT)



#### **South Korea**

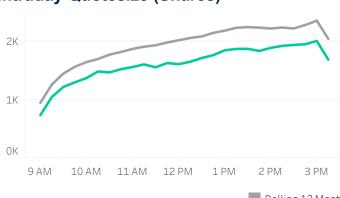
#### **Volume Curve**



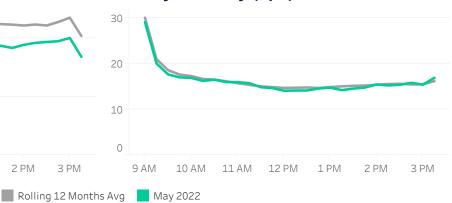
#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



#### **Spread Bps**

|               |        | 21 Q4  |        |        | 22 Q1  |        |        | Q2     |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|               | Oct 21 | Nov 21 | Dec 21 | Jan 22 | Feb 22 | Mar 22 | Apr 22 | May 22 |
| firstHalfHour | 18.9   | 19.8   | 18.3   | 18.9   | 18.8   | 17.9   | 17.5   | 17.4   |
| midday        | 17.2   | 17.9   | 17.2   | 17.4   | 17.4   | 17.0   | 16.6   | 16.8   |
| lastHalfHour  | 17.2   | 17.9   | 17.3   | 17.4   | 17.3   | 17.0   | 16.7   | 16.9   |

#### **One Minute Volatility Bps**

| midday        | 10.7 | 11.2 | 10.6 | 11.9 | 11.5 | 10.3 | 10.2 | 10.8 |
|---------------|------|------|------|------|------|------|------|------|
| firstHalfHour | 16.5 | 16.9 | 14.9 | 18.2 | 17.6 | 15.1 | 13.1 | 14.2 |
| lastHalfHour  | 12.7 | 15.6 | 25.1 | 13.0 | 13.3 | 25.4 | 23.1 | 21.0 |

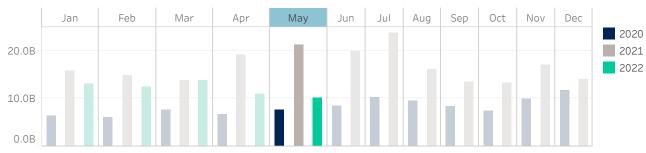
#### **Quotesize in Shares**

| firstHalfHour | 890   | 909   | 899   | 813   | 822   | 931   | 945   | 916   |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
| midday        | 1,653 | 1,773 | 1,608 | 1,528 | 1,313 | 1,669 | 1,603 | 1,611 |
| lastHalfHour  | 1,871 | 2,018 | 1,807 | 1,727 | 1,598 | 1,929 | 1,900 | 1,868 |

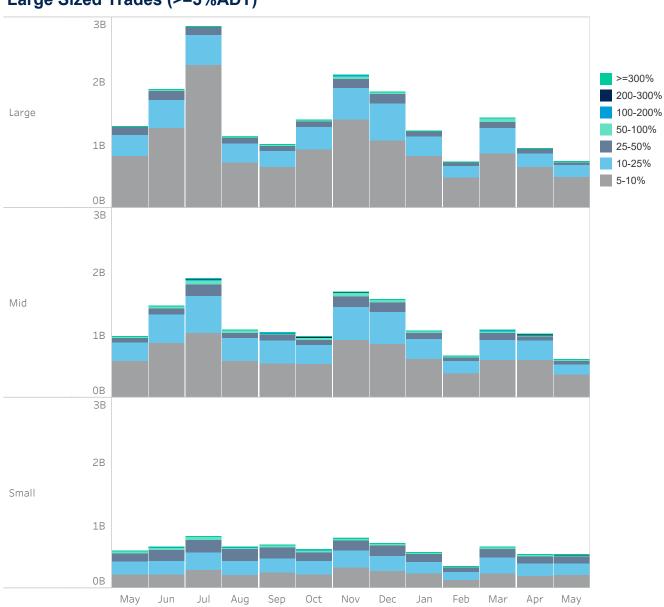
Median used for all metrics

#### Taiwan

# **Average Daily Turnover (Notional USD)**

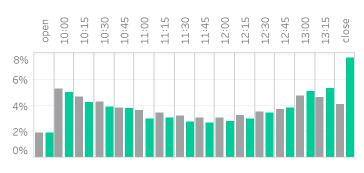


#### **Large Sized Trades (>=5%ADT)**



#### **Taiwan**

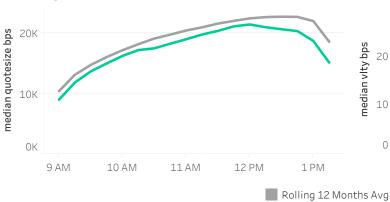
#### **Volume Curve**



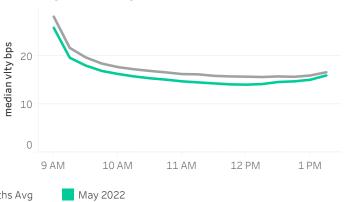
# **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



#### **Spread Bps**

|               |        | 21 Q4  |        |        | 22 Q1  |        |        | Q2     |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|               | Oct 21 | Nov 21 | Dec 21 | Jan 22 | Feb 22 | Mar 22 | Apr 22 | May 22 |
| firstHalfHour | 30.4   | 28.0   | 26.5   | 28.6   | 26.7   | 26.6   | 26.7   | 28.0   |
| midday        | 24.2   | 22.5   | 21.7   | 22.2   | 21.9   | 21.7   | 22.4   | 22.6   |
| lastHalfHour  | 23.8   | 22.4   | 21.6   | 22.6   | 22.3   | 22.2   | 23.0   | 23.4   |

#### **One Minute Volatility Bps**

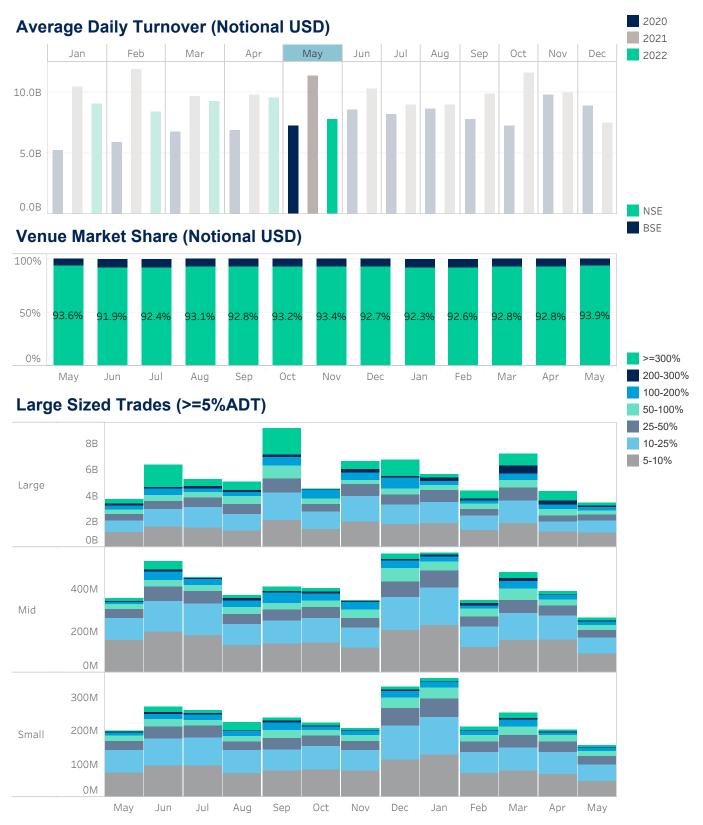
| firstHalfHour | 15.5 | 14.4 | 11.7 | 13.6 | 11.9 | 12.2 | 13.2 | 14.9 |
|---------------|------|------|------|------|------|------|------|------|
| midday        | 7.2  | 6.6  | 6.6  | 7.6  | 6.5  | 6.5  | 6.8  | 6.5  |
| lastHalfHour  | 8.1  | 9.3  | 9.2  | 7.8  | 9.1  | 8.1  | 8.1  | 7.3  |

#### **Quotesize in Shares**

| firstHalfHour | 10,944 | 12,921 | 13,588 | 12,185 | 11,983 | 12,049 | 11,350 | 10,610 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
| midday        | 18,385 | 22,487 | 24,891 | 22,588 | 22,644 | 24,091 | 20,379 | 20,325 |
| lastHalfHour  | 18,001 | 22,498 | 24,520 | 21,888 | 20,421 | 22,083 | 18,462 | 18,630 |

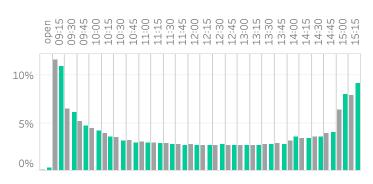
Median used for all metrics

India



#### India

#### **Volume Curve**



#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



#### **Spread Bps**

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

#### **One Minute Volatility Bps**

| firstHalfHour | 16.9 | 14.7 | 13.7 | 14.7 | 16.4 | 15.7 | 13.4 | 17.6 |
|---------------|------|------|------|------|------|------|------|------|
| midday        | 7.3  | 6.5  | 5.6  | 5.9  | 7.4  | 7.3  | 6.1  | 8.8  |
| lastHalfHour  | 7.7  | 7.3  | 7.0  | 7.3  | 7.8  | 8.7  | 7.8  | 9.7  |

#### **Quotesize in Shares**

| firstHalfHour | 425 | 408 | 416 | 394 | 370 | 465 | 415 | 310 |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|
| midday        | 459 | 444 | 502 | 451 | 417 | 478 | 455 | 330 |
| lastHalfHour  | 780 | 826 | 856 | 736 | 664 | 783 | 725 | 500 |

Median used for all metrics

# Thailand

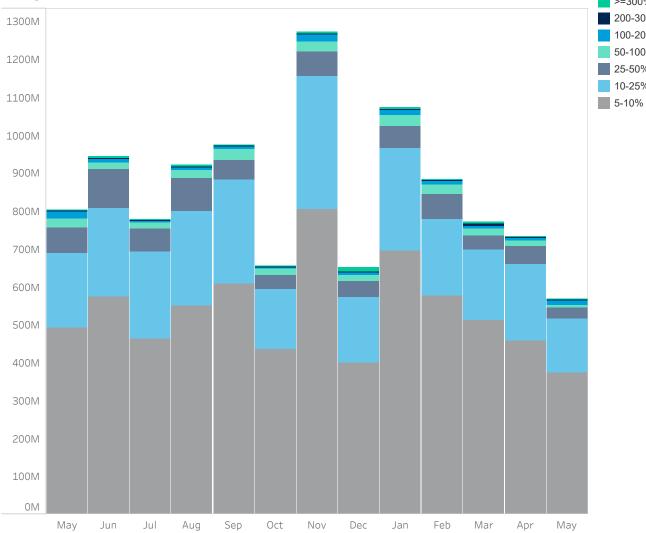


>=300% 200-300%

100-200% 50-100%

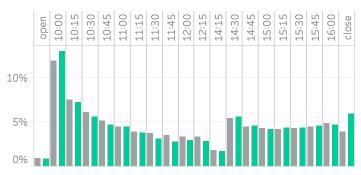
25-50% 10-25%





# **Thailand**





#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



#### **Spread Bps**

|               |        | 21 Q4  |        |        | 22 Q1  | 22 Q2  |        |        |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|               | Oct 21 | Nov 21 | Dec 21 | Jan 22 | Feb 22 | Mar 22 | Apr 22 | May 22 |
| firstHalfHour | 56.5   | 55.2   | 54.1   | 54.5   | 55.2   | 56.2   | 55.8   | 56.0   |
| midday        | 56.3   | 54.6   | 53.4   | 54.3   | 54.9   | 55.6   | 55.4   | 55.5   |
| lastHalfHour  | 56.5   | 55.1   | 53.8   | 54.4   | 55.2   | 55.7   | 55.9   | 56.3   |

Rolling 12 Months Avg May 2022

#### **One Minute Volatility Bps**

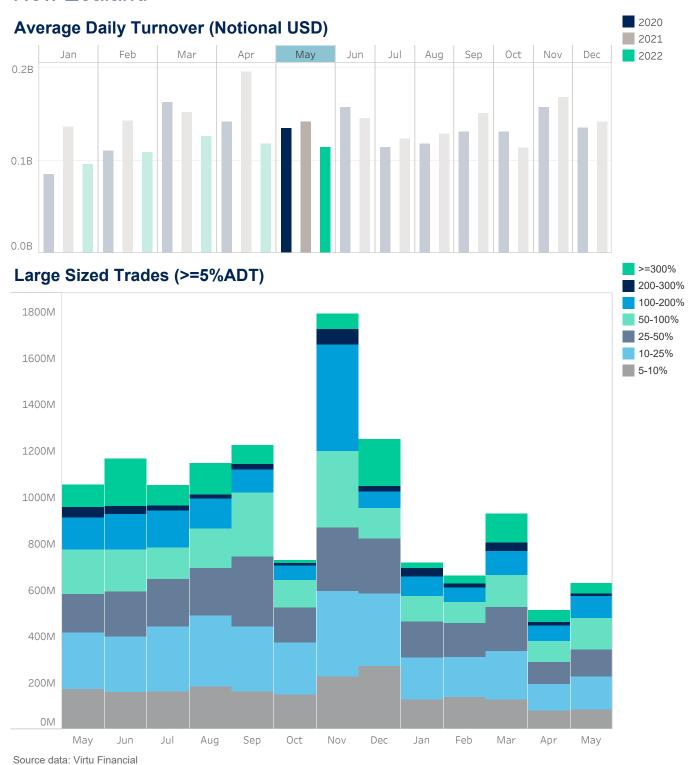
| firstHalfHour | 181.9 | 182.6 | 120.6 | 145.0 | 151.1 | 54.1  | 158.6 | 42.8  |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
| midday        | 168.2 | 158.8 | 152.8 | 152.7 | 158.8 | 152.0 | 157.2 | 166.5 |
| lastHalfHour  |       |       |       |       |       |       |       |       |

#### **Quotesize in Shares**

| firstHalfHour | 416,429 | 402,253 | 360,899 | 385,390 | 374,157 | 334,148 | 350,199 | 294,066 |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| midday        | 669,728 | 654,185 | 562,512 | 617,268 | 597,117 | 540,531 | 568,254 | 478,923 |
| lastHalfHour  | 656,823 | 637,808 | 551,613 | 606,051 | 597,584 | 539,031 | 562,618 | 491,186 |

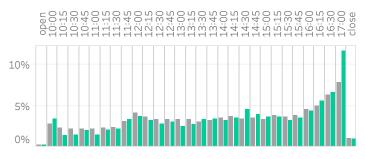
Median used for all metrics

# **New Zealand**



#### **New Zealand**

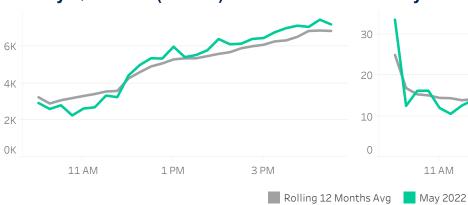
#### **Volume Curve**



#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



#### **Spread Bps**

|               | 21 Q4  |        |        | 22 Q1  |        |        | 22 Q2  |        |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|               | Oct 21 | Nov 21 | Dec 21 | Jan 22 | Feb 22 | Mar 22 | Apr 22 | May 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   | 18.2   |
| lastHalfHour  | 18.3   | 18.7   | 20.5   | 21.3   | 23.6   | 19.3   | 18.0   | 19.4   |

#### **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 | 4.2 |
| lastHalfHour  | 4.3 | 3.5 | 4.1 | 3.3 | 4.7 | 4.8 | 3.7 | 5.2 |

#### **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 | 4,827 |
| lastHalfHour  | 7,910 | 6,898 | 7,038 | 6,831 | 7,951 | 8,238 | 7,811 | 6,363 |

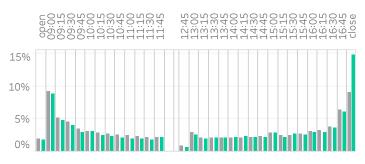
Median used for all metrics

# Singapore



# **Singapore**

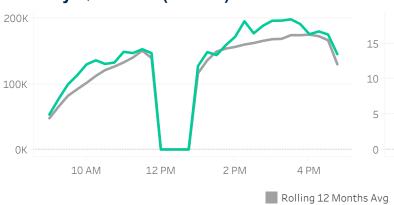
#### **Volume Curve**



#### **Intraday Spread (bps)**



#### **Intraday Quotesize (Shares)**



#### **Intraday Volatility (bps)**



#### **Spread Bps**

|               | 21 Q4  |        |        | 22 Q1  |        |        | 22 Q2  |        |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|
|               | Oct 21 | Nov 21 | Dec 21 | Jan 22 | Feb 22 | Mar 22 | Apr 22 | May 22 |
| firstHalfHour | 22.7   | 21.6   | 23.6   | 22.5   | 21.3   | 21.0   | 20.5   | 21.2   |
| midday        | 22.8   | 22.2   | 24.2   | 23.4   | 21.6   | 21.2   | 21.8   | 22.8   |
| lastHalfHour  | 22.0   | 22.1   | 22.7   | 21.9   | 21.2   | 20.8   | 21.1   | 23.0   |

#### **One Minute Volatility Bps**

| firstHalfHour | 7.3 | 6.4 | 5.3 | 5.5 | 7.6 | 8.7 | 5.7 | 7.3 |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|
| midday        | 3.3 | 5.5 | 3.7 | 4.1 | 5.3 | 5.0 | 4.5 | 3.0 |
| lastHalfHour  | 4.8 | 4.0 | 2.9 | 4.6 | 2.7 | 3.7 | 4.9 | 7.5 |

#### **Quotesize in Shares**

| firstHalfHour | 54,873  | 78,883  | 58,696  | 57,597  | 62,465  | 51,450  | 48,491  | 65,240  |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| midday        | 150,127 | 165,639 | 146,991 | 140,047 | 127,607 | 119,649 | 116,792 | 134,590 |
| lastHalfHour  | 158,656 | 183,894 | 150,357 | 134,260 | 152,729 | 122,584 | 122,775 | 121,902 |

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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