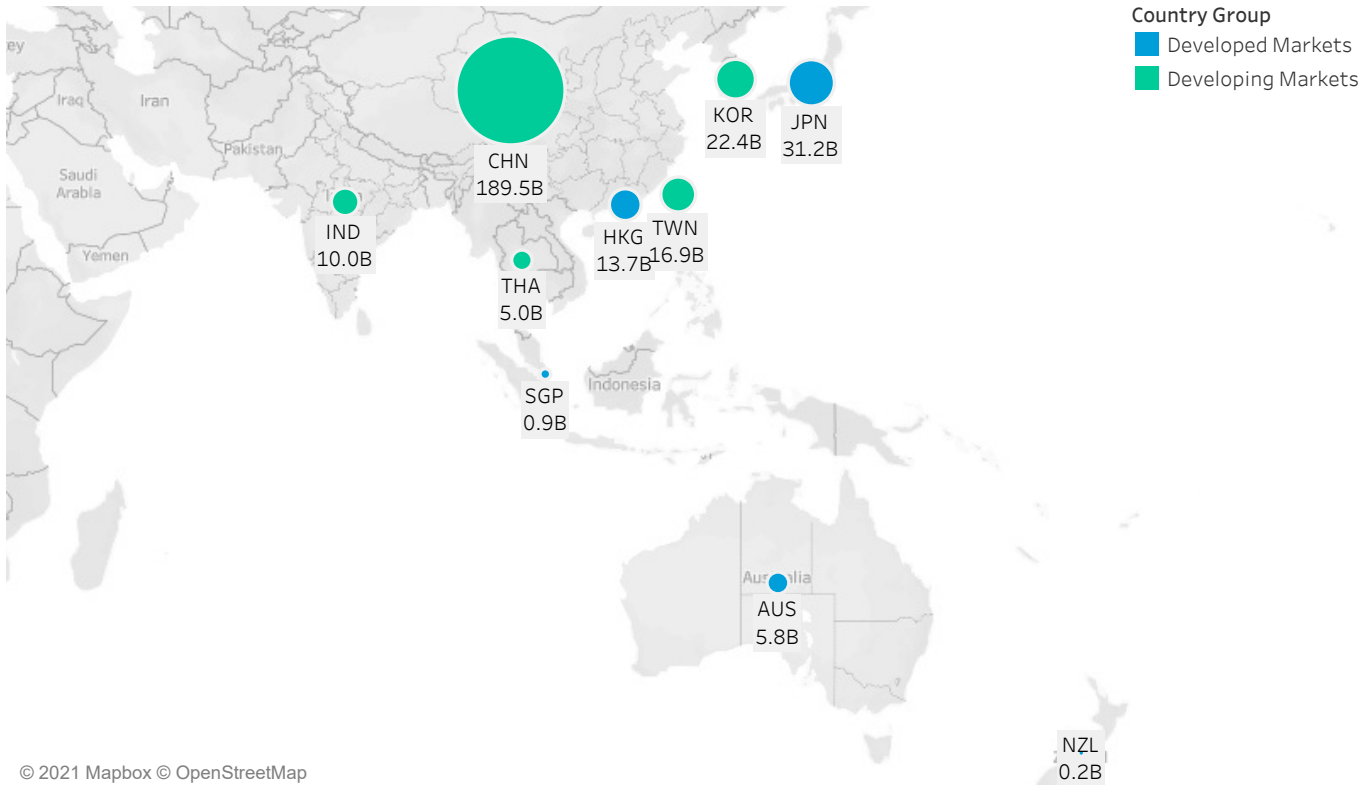


November 2021

APAC Market Structure Monthly

Average Daily Turnover (Notional USD)



Country Breakdowns

Hong Kong

China

Japan

Australia

South Korea

Taiwan

India

Thailand

New Zealand

Singapore

November 2021

APAC Market Structure Monthly

MICROSTRUCTURE OBSERVATIONS

- Most countries in our APAC universe saw higher turnover MoM. The largest increases were in Taiwan and India, where turnover increased 27% and 16% respectively, from October. An exception to this is Hong Kong, where monthly turnover remained consistent at US\$13.8B.
- In Australia, 18% of daily turnover was completed in the close auction, up 2% from the 12-month rolling average and 3% from October.
- Intraday spreads in Taiwan and India traced below the 12-month average while Taiwan intraday quote size elevated to Q1 levels.

APAC MARKET STRUCTURE NEWS

HKEX Joins Global Coalition to Support Low-Carbon Transition

On 3 November, the Hong Kong Exchanges and Clearing Limited (HKEX) announced that it had joined the Glasgow Financial Alliance for Net Zero and the Net Zero Financial Service Providers Alliance, as it commits to long-term sustainable development of global financial markets. HKEX seeks to be a key agent for change in contributing to limiting the rising global temperature to 1.5°C above pre-industrial levels.

https://www.hkex.com.hk/News/News-Release/2021/211103news?sc_lang=en

HKEX Publishes Updates on Hong Kong Investor Identification Regime

On 26 November, HKEX published materials addressing some of the most frequently asked questions relating to the Hong Kong Investor Identification Regime (HKIDR). To allow regulated relevant intermediaries (RRIs) to get ready for the implementation of the HKIDR, an end to end test session is expected to be arranged in 2Q 2022.

HKIDR 26-Nov-2021 circular : <https://www.hkex.com.hk/-/media/HKEX-Market/Services/Circulars-and-Notices/Participant-and-Members-Circulars/SEHK/2021/CT14221E.pdf>

HKIDR: https://www.hkex.com.hk/Services/Trading/Securities/Overview/Trading-Mechanism/HKIDR?sc_lang=en

HKEX Publishes Conclusions on Reforms to Enhance Listing Regime for Overseas Issuers

On 19 November, HKEX published its conclusions on the proposals to enhance and streamline the listing regime for the Stock Exchange of Hong Kong. Key highlights of the conclusions include: (1) overseas issuer listing regime proposals received strong support; (2) proposals will be implemented with minor modifications; and (3) related listing rule amendments and new guidance materials take effect on 1 January 2022.

https://www.hkex.com.hk/News/Regulatory-Announcements/2021/211119news?sc_lang=en

Consultation Conclusions: [https://www.hkex.com.hk/-/media/HKEX-Market/News/Market-Consultations/2016-Present/March-2021-Listing-Regime/Conclusions-\(Nov-2021\)/cp202103cc.pdf?la=en](https://www.hkex.com.hk/-/media/HKEX-Market/News/Market-Consultations/2016-Present/March-2021-Listing-Regime/Conclusions-(Nov-2021)/cp202103cc.pdf?la=en)

ASIC Imposes Additional License Conditions on ASX and Issues Expectations to Improve Market Resilience

On 24 November, Australia Securities & Investments Commission (ASIC) concluded its investigation of the November 2020 ASX Limited (ASX) market outage. Additional license conditions have been imposed on the licenses held within the ASX Group, which are directed at mitigating risks for future upgrades, with specific emphasis on the oversight of the CHES Replacement Program, due to go live in April 2023.

<https://asic.gov.au/about-asic/news-centre/find-a-media-release/2021-releases/21-313mr-asic-imposes-additional-licence-conditions-on-asx-and-issues-expectations-to-improve-market-resilience/>

LSEG and JPX to Develop Net Zero Climate Indices Covering Japan's Equity Market

Japan Exchange Group (JPX) announced that they are expanding their existing partnership with London Stock Exchange Group (LSEG), by developing climate indices based on the TOPIX 500, which provides diversified exposure across the Japanese stock market. LSEG's index business, FTSE Russell, JPX and Tokyo Stock Exchange are working closely to launch the FTSE/JPX Net Zero Index Series in the first half of 2022. The index series will adhere to the EU's Climate Transition Benchmark standards.

<https://www.jpx.co.jp/english/news/1044/20211102-01.html>

Philippines Stock Exchange Returned to Five-hour Trading, Effective 6 Dec 2021

On 22 November, Philippines Stock Exchange announced that it would revert to its pre-pandemic five-hour trading schedule, effective on Monday, 6 December 2021. The pre-open session starts at 9AM, and the morning session spans from 9:30AM to 12PM. The afternoon session resumes at 1PM and closes at 3PM. The close auction is between 2:45-2:50PM and the run-off session between 2:50-3:00PM.

<https://documents.pse.com.ph/CircularOPSPDF/CN-2021-0059.pdf>

Virtu White Paper: The Conditional Order Type - Enhancing the Discovery of Block Liquidity

On 11 November, Virtu APAC published a white paper on the conditional order type, providing more clarity on conditional order function and the benefits in the context of a block-seeking algorithmic order. The paper also discusses the current landscape and trends of conditional order usage in APAC region.

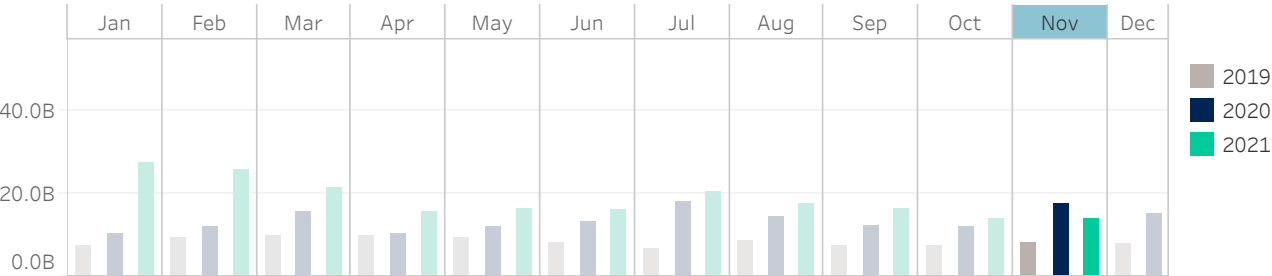
[Read the full paper >](#)

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

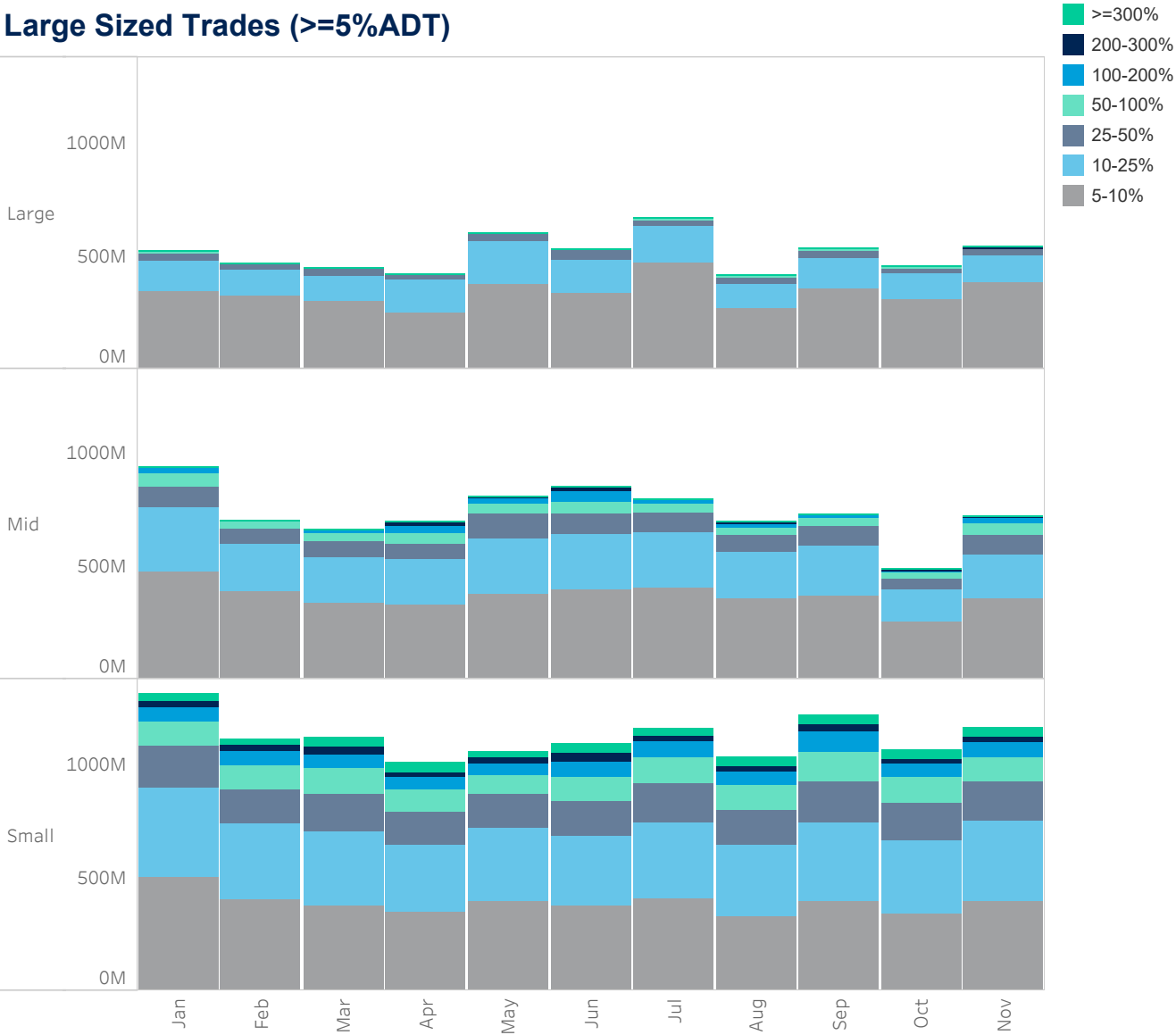
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Hong Kong

Average Daily Turnover (Notional USD)

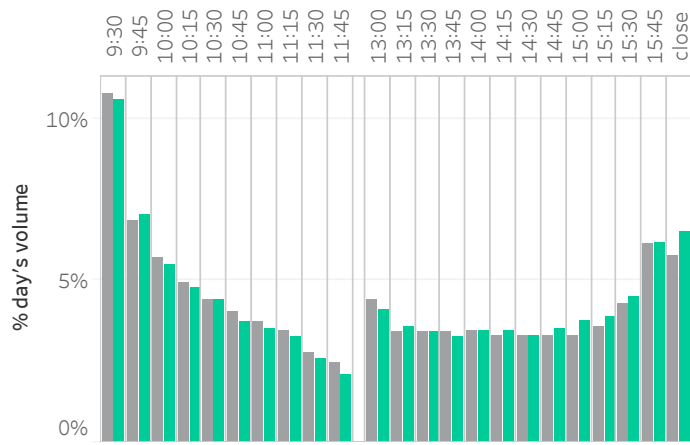


Large Sized Trades (>=5%ADT)

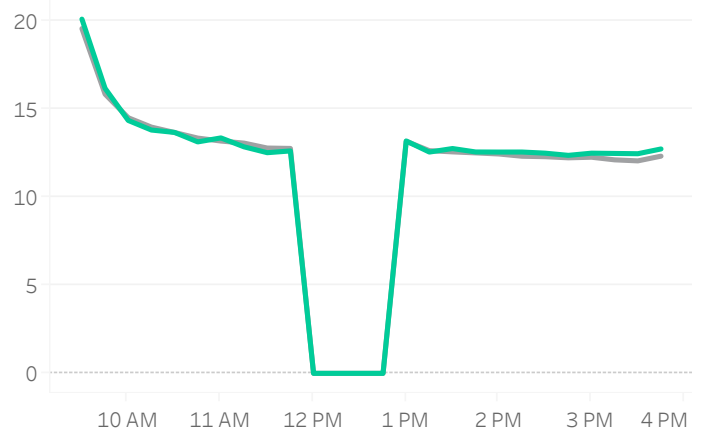


Hong Kong

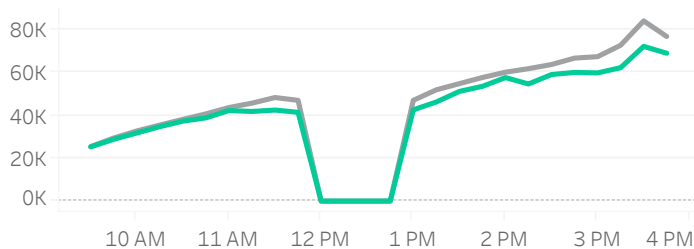
Volume Curve



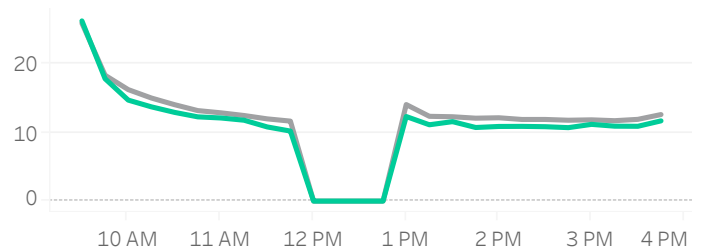
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



■ Rolling 12 Months Avg ■ November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	16.9	16.6	16.9	15.8	15.4	15.6	16.9	18.4	18.1	18.5	17.3
midday	13.4	13.0	12.5	12.4	11.7	11.9	13.1	13.7	12.9	12.7	12.8
lastHalfHour	12.5	12.1	11.7	11.7	11.3	11.5	12.3	12.6	12.3	12.3	12.5

One Minute Volatility Bps

firstHalfHour	17.6	16.8	18.5	12.2	11.8	11.6	15.8	16.7	17.5	18.2	13.8
midday	8.1	8.8	8.7	6.0	6.0	5.8	7.8	7.0	7.5	6.7	6.1
lastHalfHour	6.9	6.9	7.3	6.5	6.6	6.1	8.1	6.7	6.5	6.5	6.0

Quotesize in Shares

firstHalfHour	29,369	28,259	24,138	24,880	28,539	27,890	26,823	27,946	28,697	26,921	27,455
midday	52,420	49,671	39,835	49,281	59,450	57,843	49,961	47,200	49,020	47,554	47,292
lastHalfHour	80,787	82,321	70,652	79,757	92,195	85,221	76,912	80,882	77,790	75,001	72,389

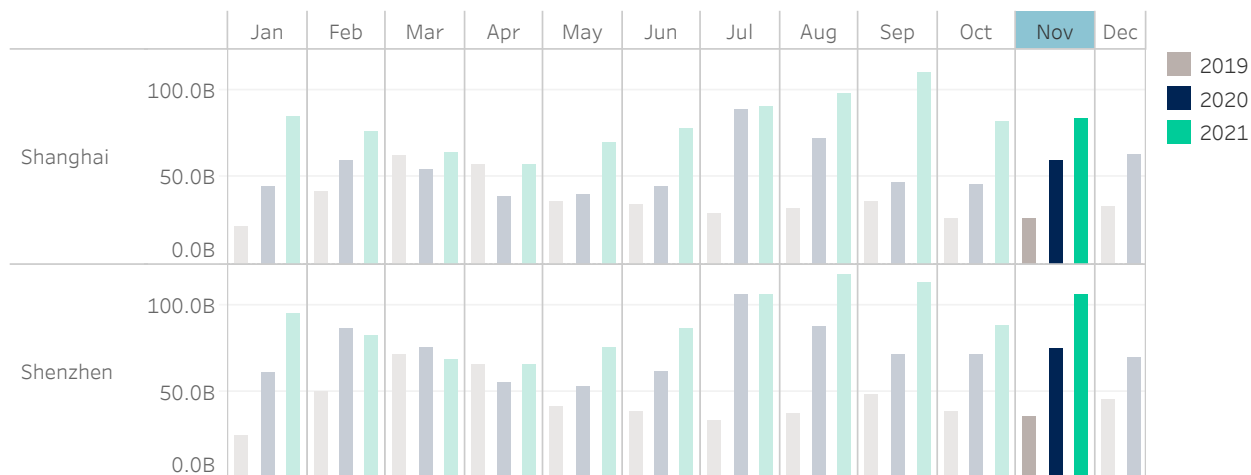
Median used for all metrics

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

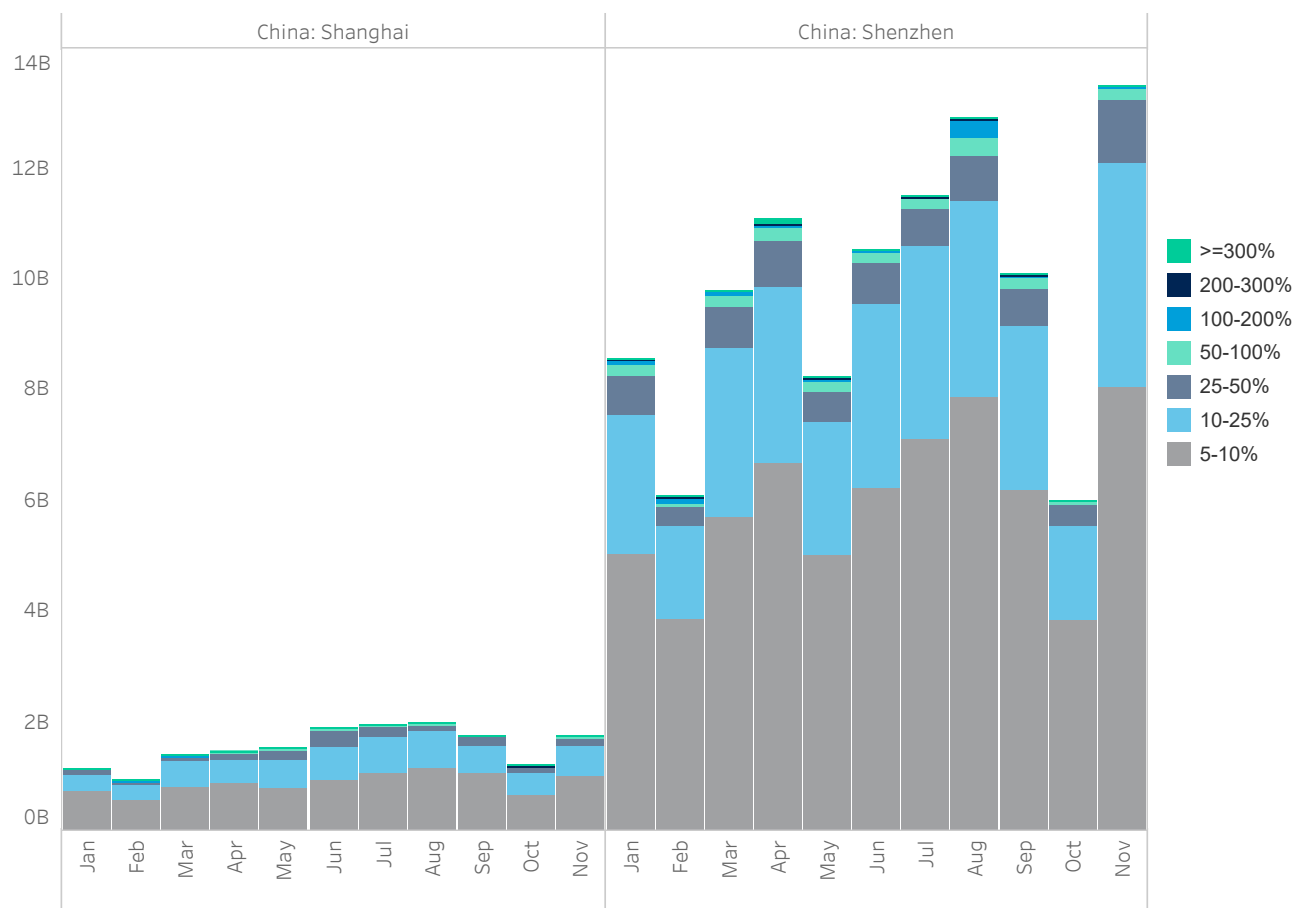
Source data: Virtu Financial

China

Average Daily Turnover (Notional USD)



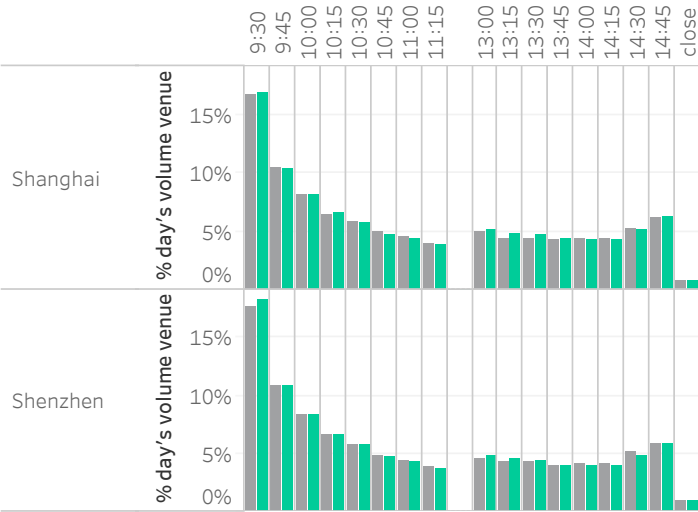
Large Sized Trades (>=5%ADT)



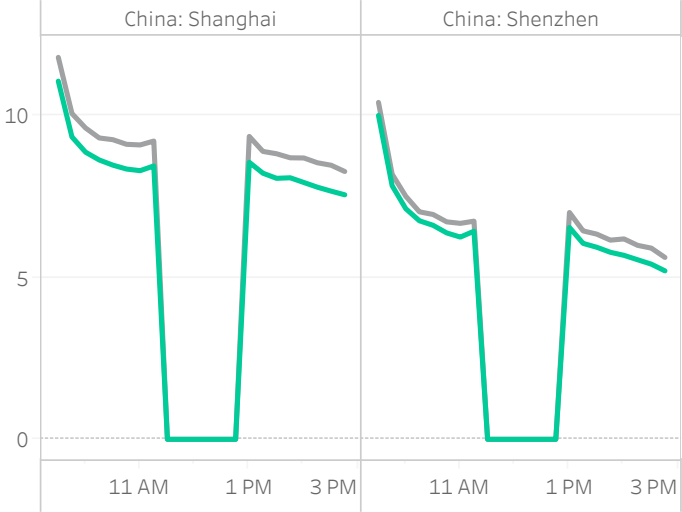
Source data: Virtu Financial

China

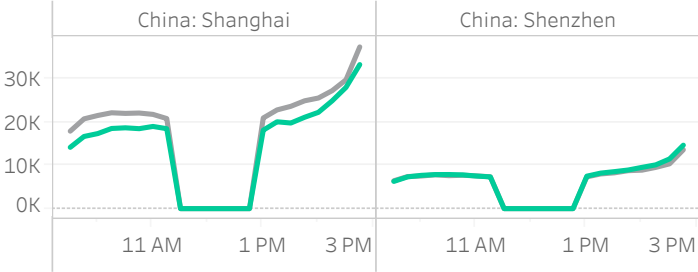
Volume Curve



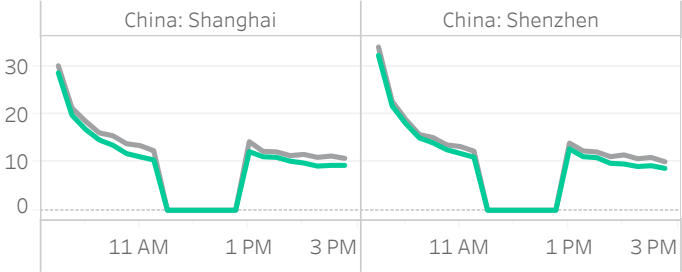
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg November 2021

Spread Bps

	China: Shanghai											China: Shenzhen										
	21 Q1			21 Q2			21 Q3			21 Q4		21 Q1			21 Q2			21 Q3			21 Q4	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
firstHalfHour	10.6	10.8	10.2	10.1	10.3	9.9	10.5	10.8	10.7	10.3	9.8	9.3	9.3	8.8	8.1	8.4	8.3	8.8	9.3	9.3	9.0	8.4
midday	9.2	9.5	9.1	9.0	9.1	8.5	8.6	8.7	8.5	8.5	8.3	7.0	7.1	6.7	6.4	6.5	6.1	6.4	6.6	6.5	6.5	6.2
lastHalfHour	8.6	8.9	8.5	8.5	8.6	8.0	7.8	7.7	7.4	7.6	7.6	6.1	6.2	5.9	5.6	5.6	5.3	5.4	5.5	5.4	5.4	5.3

One Minute Volatility Bps

firstHalfHour	23.2	23.2	20.9	17.1	17.8	18.4	21.6	23.3	31.4	31.0	26.7	21.3	21.4	21.6	25.1	26.6
midday	11.6	11.4	9.5	7.0	7.8	8.0	9.2	10.0	15.0	14.7	12.2	9.1	9.5	9.5	11.1	11.7
lastHalfHour	9.7	9.6	7.9	6.3	6.3	6.5	7.7	7.5	12.0	12.2	9.5	7.5	7.5	7.5	8.2	8.2

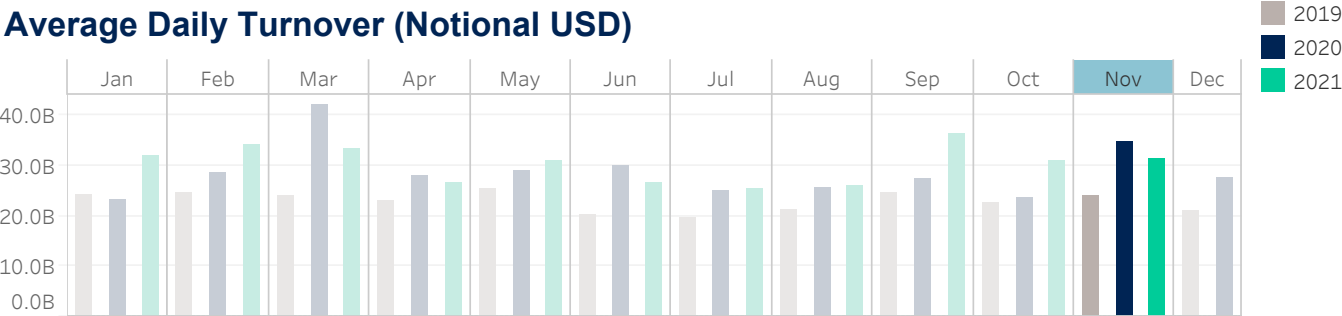
Quotesize in Shares

firstHalfHour	19K	18K	18K	20K	22K	19K	17K	17K	17K	14K	16K	7K	7K	6K	7K	8K	7K	7K	7K	7K	6K	7K
midday	21K	20K	21K	25K	27K	23K	21K	21K	18K	17K	19K	8K	7K	7K	8K	9K	8K	8K	8K	8K	8K	8K
lastHalfHour	31K	29K	31K	37K	40K	34K	31K	33K	29K	26K	31K	11K	10K	10K	13K	13K	12K	12K	13K	13K	12K	13K

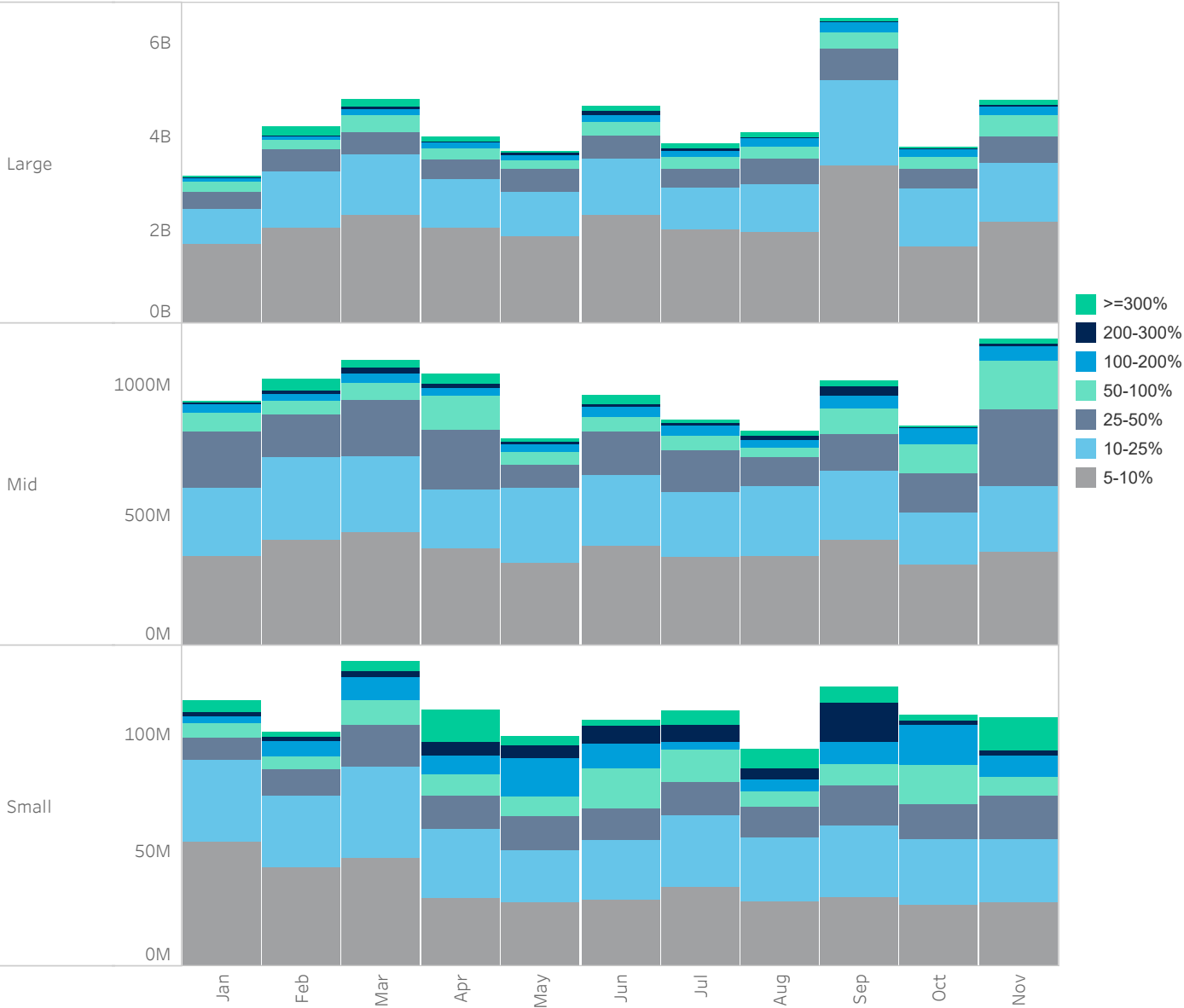
Median used for all metrics
One minute volatility is calculated using the difference between the high and low price within a one minute time bin, divided by that bin's VWAP
Source data: Virtu Financial

Japan

Average Daily Turnover (Notional USD)



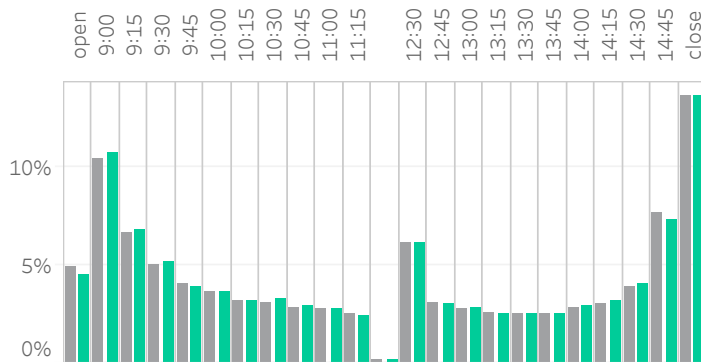
Large Sized Trades (>=5%ADT)



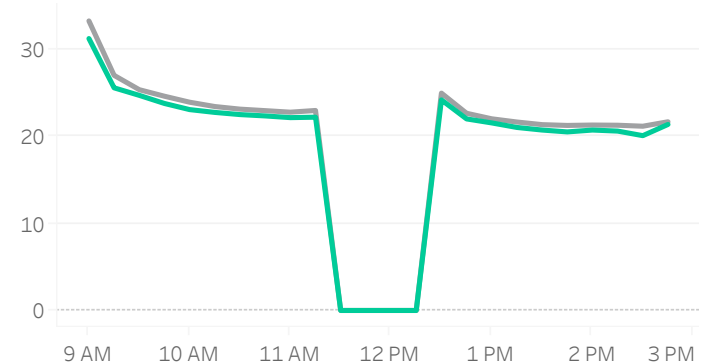
Source data: Virtu Financial

Japan

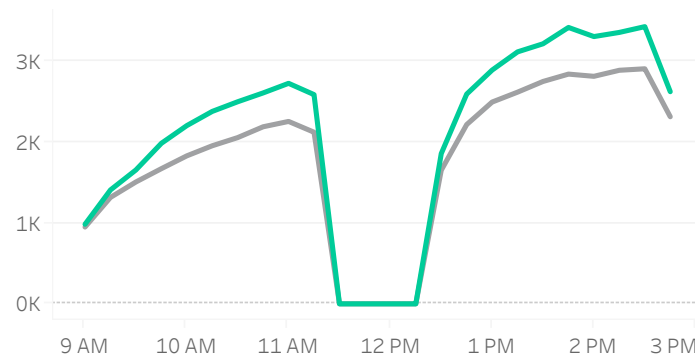
Volume Curve



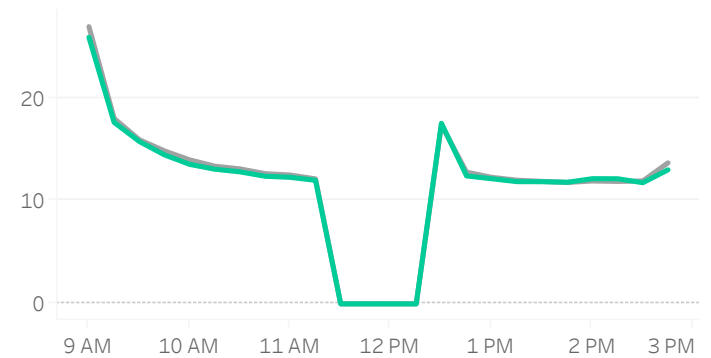
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	29.3	33.1	32.7	29.4	28.2	26.6	25.6	27.3	25.8	26.7	27.2
midday	22.9	24.6	24.8	22.9	21.7	21.0	20.7	21.4	21.1	21.9	22.1
lastHalfHour	21.7	22.6	22.5	21.1	20.5	19.8	19.6	19.9	19.8	19.7	20.2

One Minute Volatility Bps

firstHalfHour	15.1	15.7	15.9	14.7	15.9	13.0	12.1	12.6	12.4	14.5	13.2
midday	6.8	6.5	6.9	6.3	6.8	5.9	6.2	5.9	6.0	7.1	6.1
lastHalfHour	7.3	6.7	6.6	6.5	7.0	6.5	11.5	7.9	7.9	6.8	10.1

Quotesize in Shares

firstHalfHour	1,202	1,248	1,170	1,198	1,120	1,295	1,334	1,280	1,380	1,263	1,289
midday	2,260	2,167	1,921	2,163	2,147	2,573	2,700	2,525	2,630	2,521	2,700
lastHalfHour	2,814	2,559	2,177	2,622	2,582	3,165	3,218	3,328	3,397	3,161	3,282

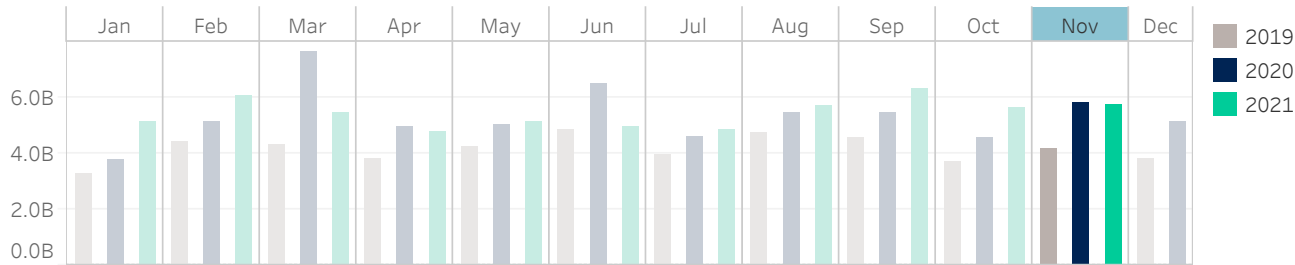
Median used for all metrics

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

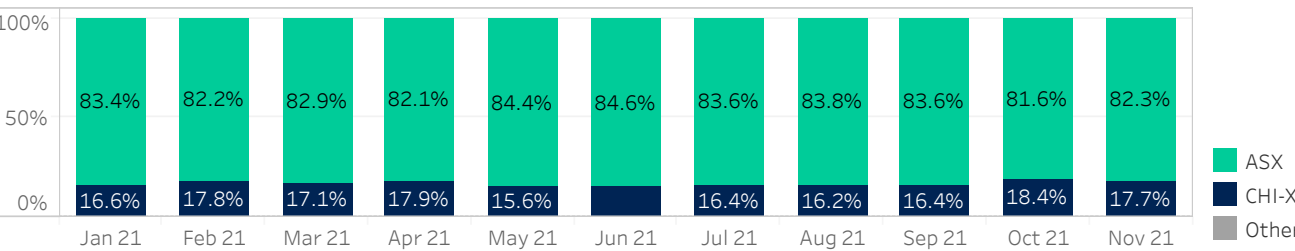
Source data: Virtu Financial

Australia

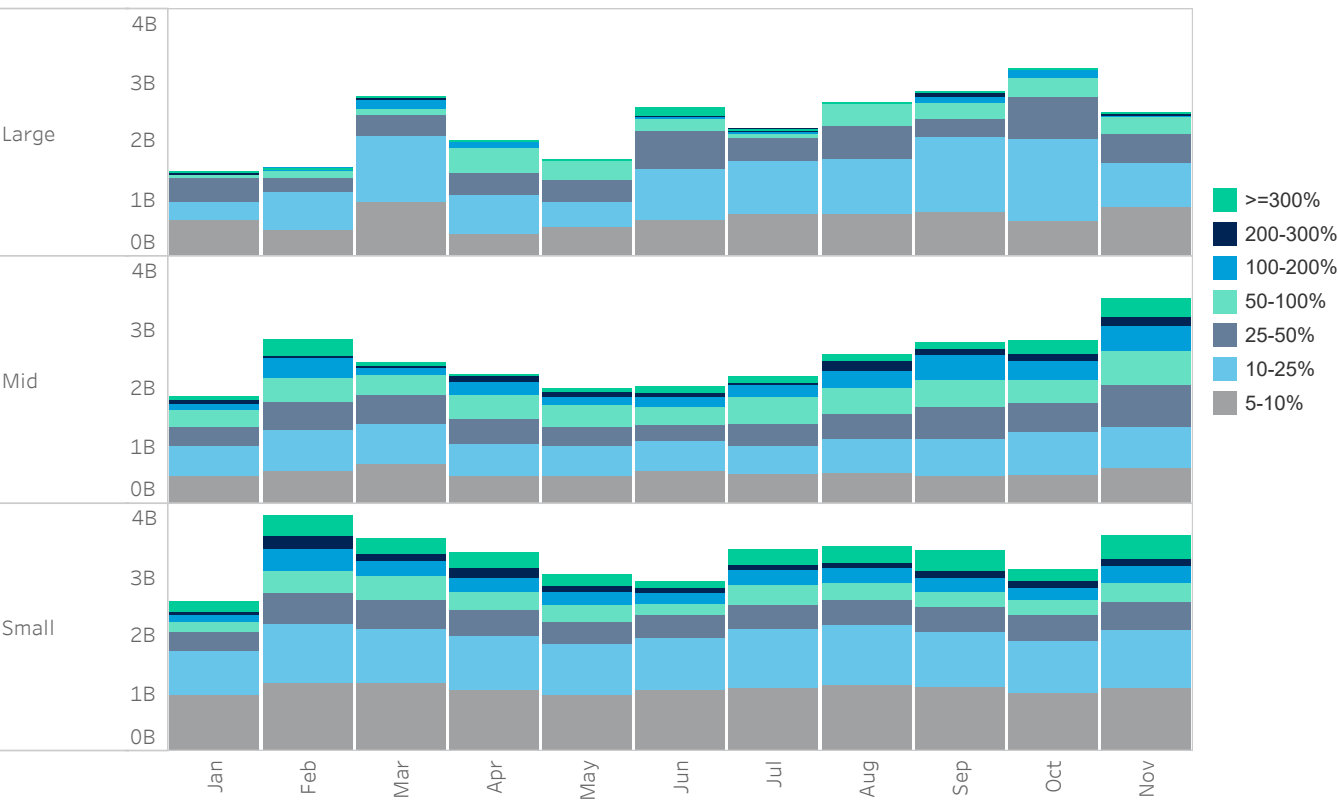
Average Daily Turnover (Notional USD)



Venue Market Share (Notional USD)



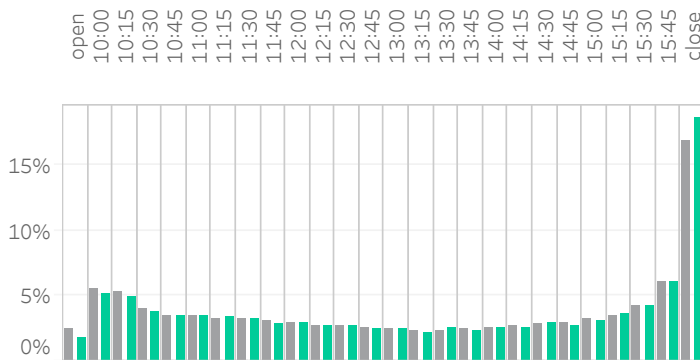
Large Sized Trades (>=5%ADT)



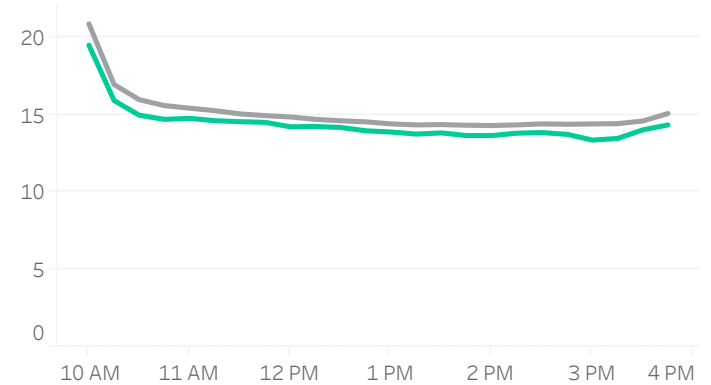
Source data: Virtu Financial

Australia

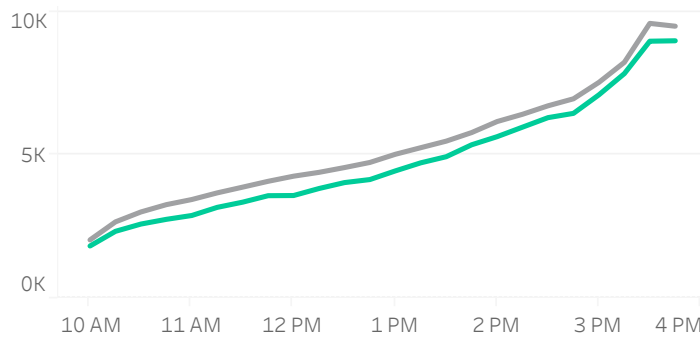
Volume Curve



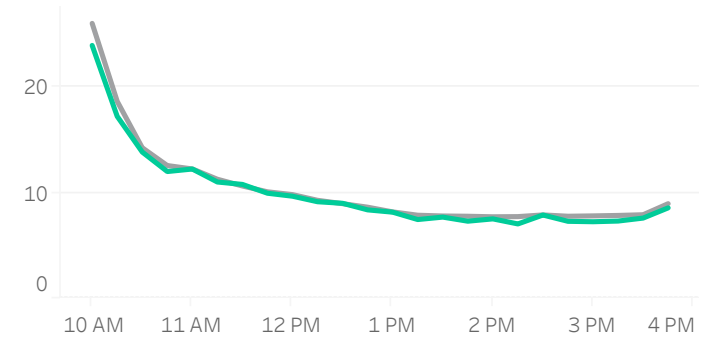
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	19.8	20.2	20.0	18.3	18.9	17.5	17.1	16.5	16.9	16.9	17.1
midday	15.0	15.5	15.6	14.7	14.9	14.1	13.7	13.7	14.2	14.0	14.1
lastHalfHour	15.0	15.5	15.6	14.9	14.9	14.2	13.9	13.8	14.3	13.9	14.1

One Minute Volatility Bps

firstHalfHour	14.4	16.6	16.8	16.0	17.5	17.3	15.5	15.4	16.9	15.6	15.7
midday	4.1	4.6	4.8	3.7	3.9	3.8	3.6	3.6	4.0	4.4	4.3
lastHalfHour	3.7	3.4	3.7	3.4	3.6	3.1	3.3	2.7	3.7	4.0	3.6

Quotesize in Shares

firstHalfHour	2,583	2,326	2,194	2,218	2,190	2,326	2,425	2,398	2,375	2,178	2,129
midday	5,358	4,931	4,686	4,526	4,489	4,746	4,620	4,845	4,604	4,298	4,450
lastHalfHour	11,014	9,734	9,100	8,141	8,231	9,221	8,999	9,113	8,565	9,226	9,302

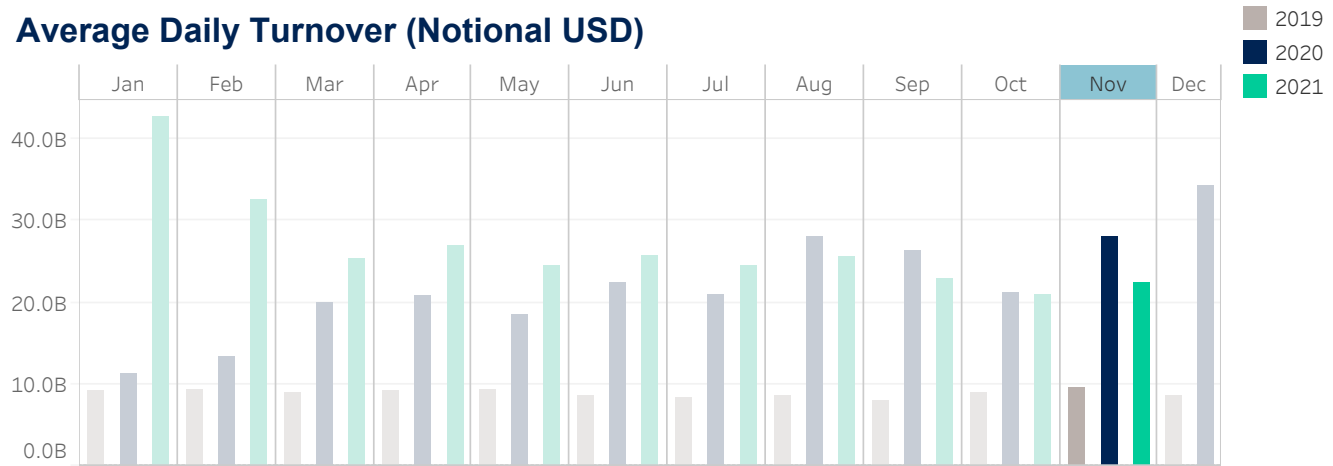
Median used for all metrics

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

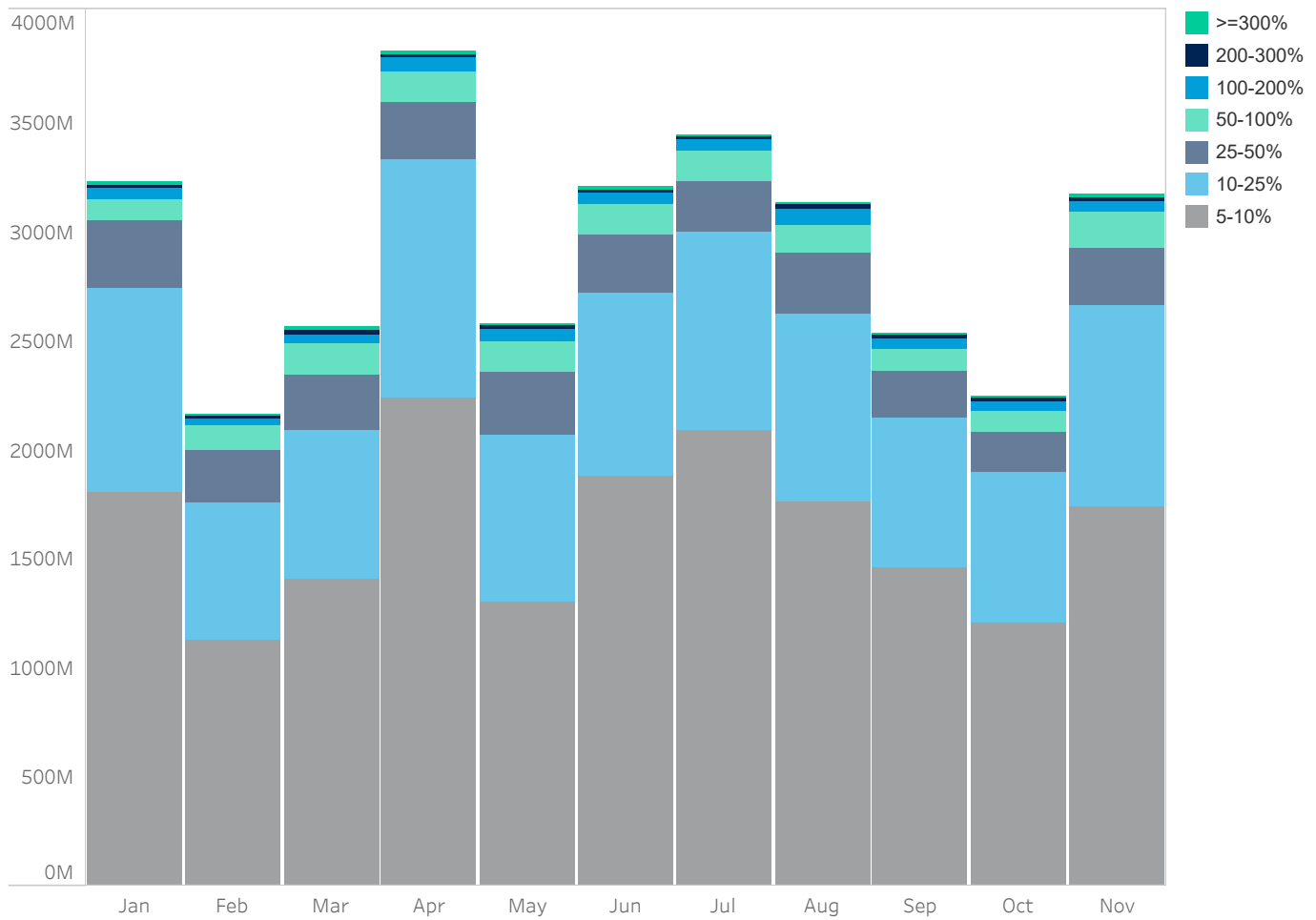
Source data: Virtu Financial

South Korea

Average Daily Turnover (Notional USD)



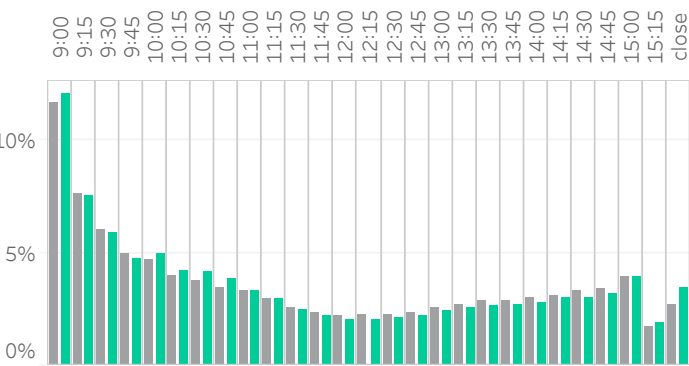
Large Sized Trades (>=5%ADT)



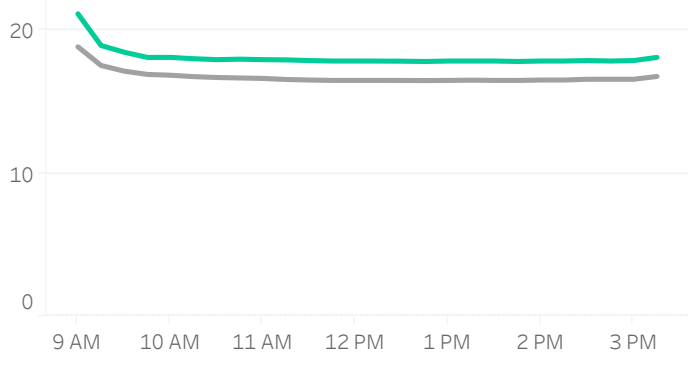
Source data: Virtu Financial

South Korea

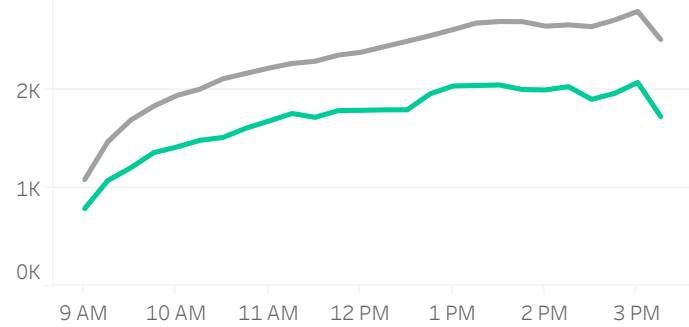
Volume Curve



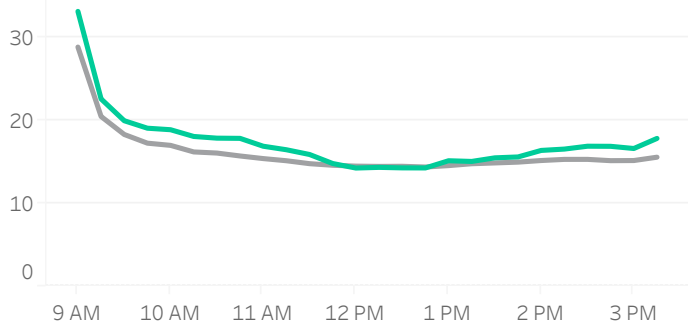
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	18.0	17.4	17.1	17.1	18.3	18.3	18.3	18.5	18.7	18.9	19.8
midday	15.9	15.6	15.8	16.2	17.2	17.6	17.7	17.3	17.6	17.2	17.9
lastHalfHour	15.8	15.6	15.8	16.3	17.2	17.6	17.8	17.3	17.6	17.2	17.9

One Minute Volatility Bps

firstHalfHour	20.9	18.0	15.1	12.7	15.6	13.2	13.0	15.8	15.1	16.5	16.9
midday	11.4	11.1	11.0	10.5	10.9	10.5	10.5	11.1	10.1	10.7	11.2
lastHalfHour	11.3	11.2	14.2	19.7	16.7	26.5	22.9	15.0	19.0	12.7	15.6

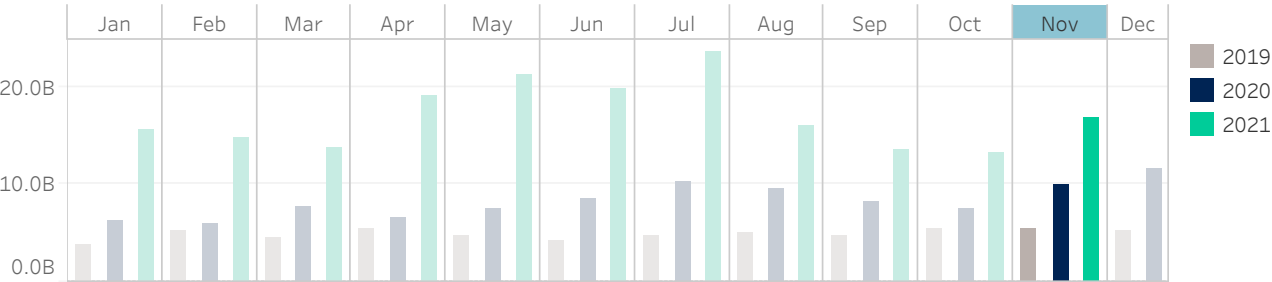
Quotesize in Shares

firstHalfHour	1,352	1,140	1,138	1,384	1,302	1,675	1,526	1,053	1,012	890	909
midday	2,400	1,995	1,986	2,504	2,462	3,161	2,812	2,004	2,023	1,653	1,773
lastHalfHour	2,905	2,454	2,358	2,702	2,864	3,744	3,230	2,336	2,362	1,871	2,018

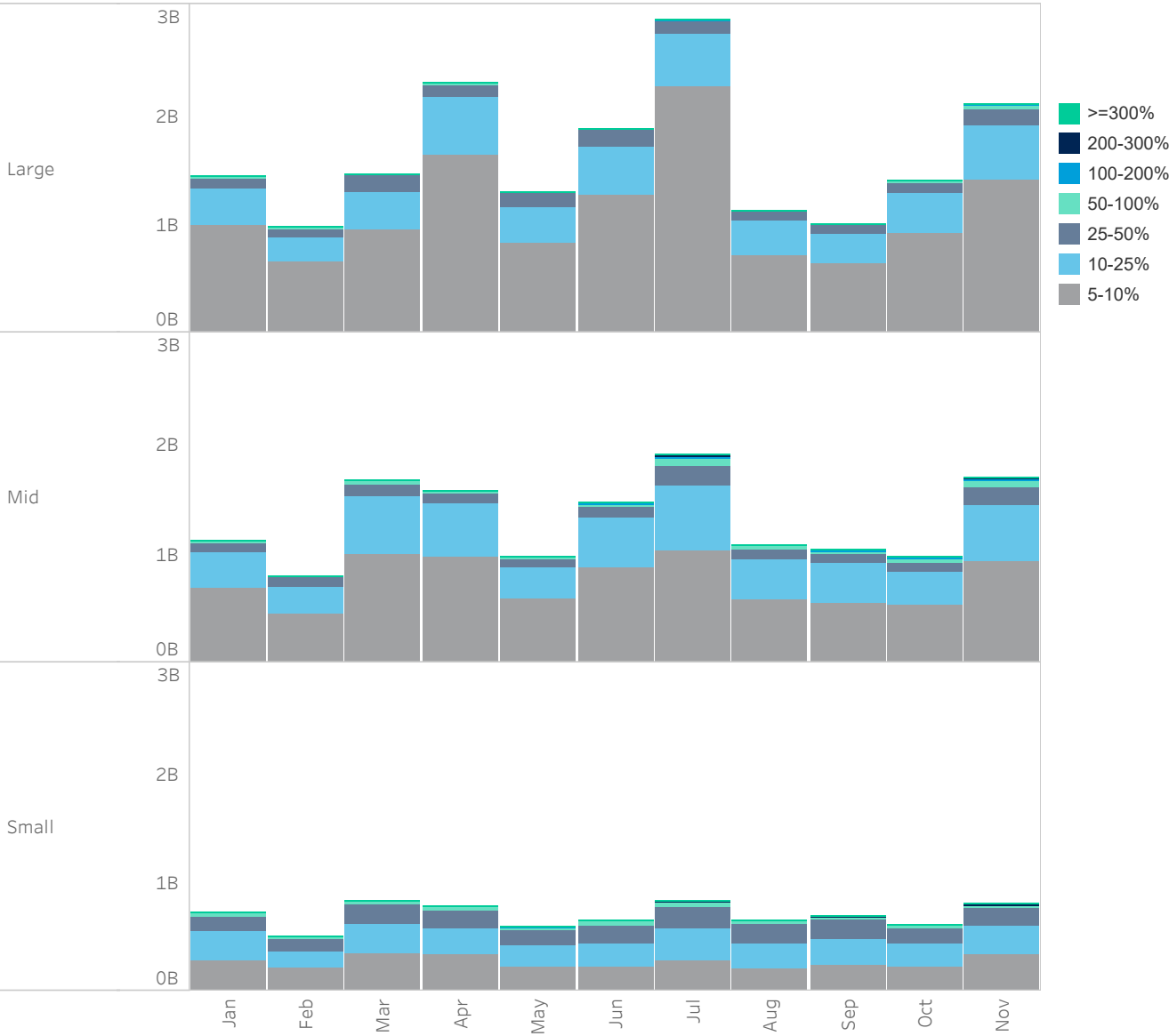
Median used for all metrics
One minute volatility is calculated using the difference between the high and low price within a one minute time bin, divided by that bin's VWAP
Source data: Virtu Financial

Taiwan

Average Daily Turnover (Notional USD)



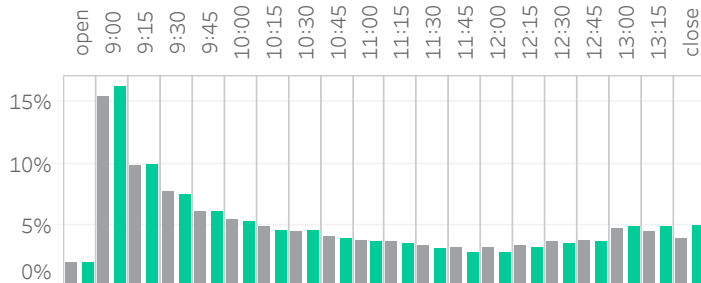
Large Sized Trades (>=5%ADT)



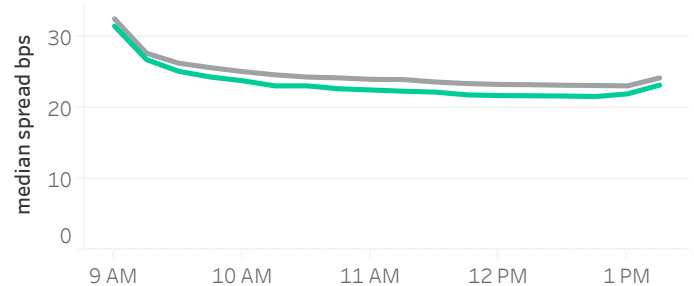
Source data: Virtu Financial

Taiwan

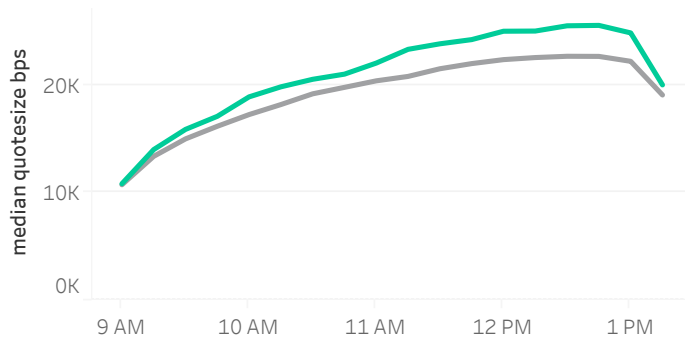
Volume Curve



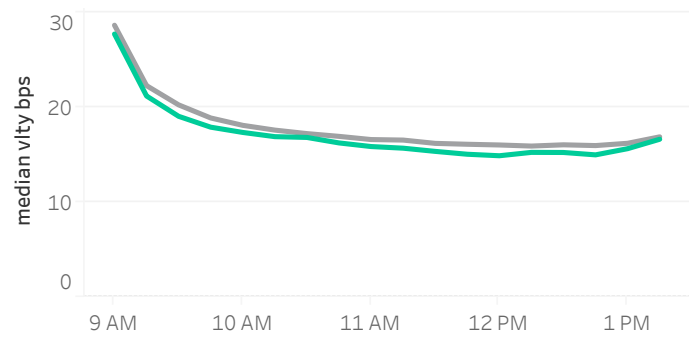
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg

November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	28.5	28.3	26.1	27.4	35.2	28.7	29.0	30.1	29.1	30.4	28.0
midday	24.0	23.3	22.2	22.9	27.8	23.4	23.6	24.1	23.2	24.2	22.5
lastHalfHour	24.1	23.1	22.0	22.3	27.0	23.2	22.7	23.8	23.4	23.8	22.4

One Minute Volatility Bps

firstHalfHour	15.5	15.7	12.5	16.2	27.1	15.6	17.1	17.1	14.7	15.5	14.4
midday	7.2	6.8	6.6	8.2	11.2	7.6	7.5	7.6	6.8	7.2	6.6
lastHalfHour	7.7	8.4	8.4	9.0	10.4	6.7	7.9	7.8	7.9	8.1	9.3

Quotesize in Shares

firstHalfHour	12,798	12,216	14,419	14,883	9,069	12,568	12,027	10,553	11,061	10,944	12,921
midday	20,042	21,454	25,453	24,145	13,090	21,194	18,860	17,088	19,152	18,385	22,487
lastHalfHour	20,321	22,767	26,000	24,740	13,874	21,503	20,270	17,592	18,484	18,001	22,498

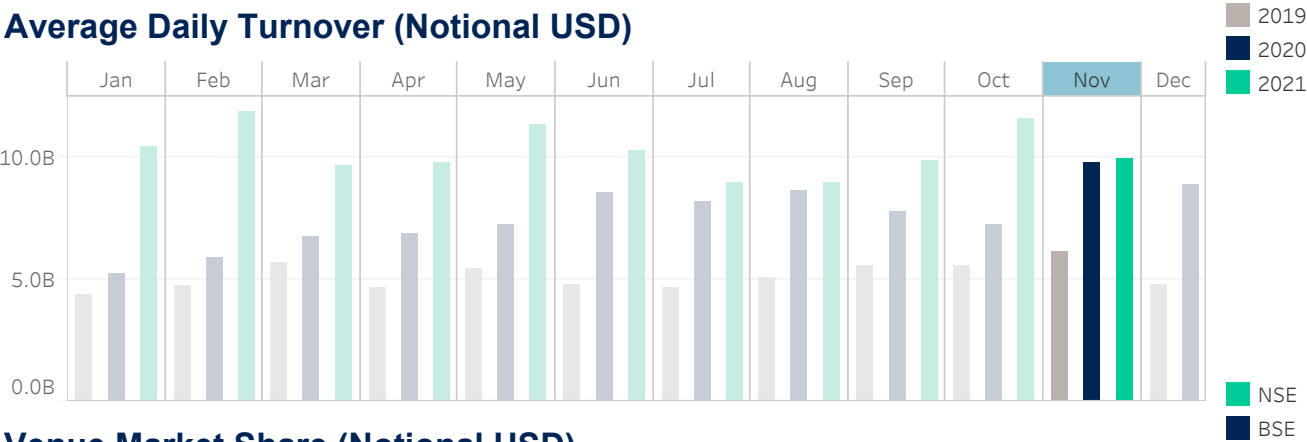
Median used for all metrics

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

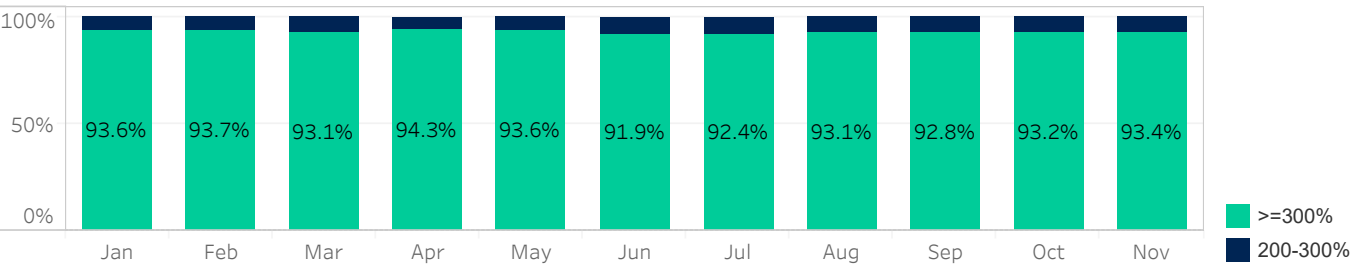
Source data: Virtu Financial

India

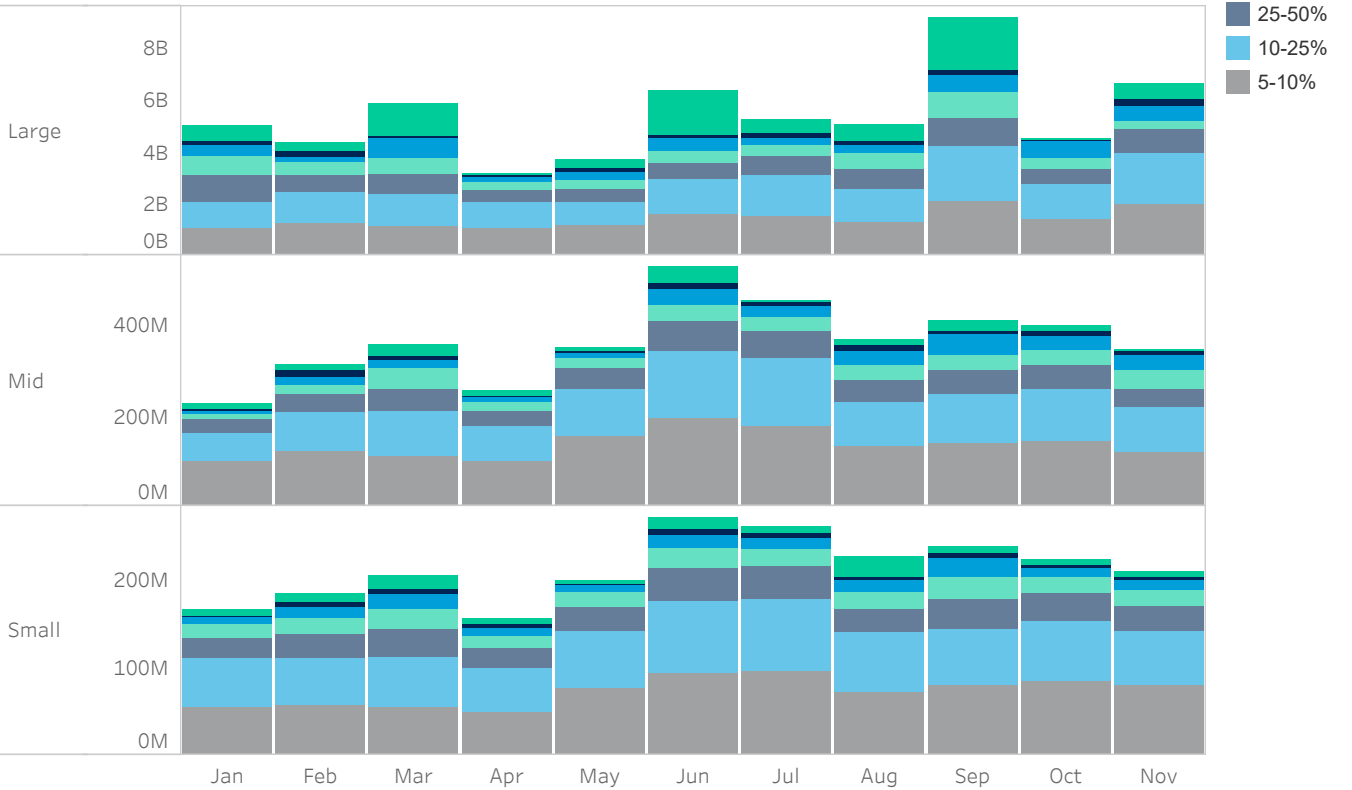
Average Daily Turnover (Notional USD)



Venue Market Share (Notional USD)



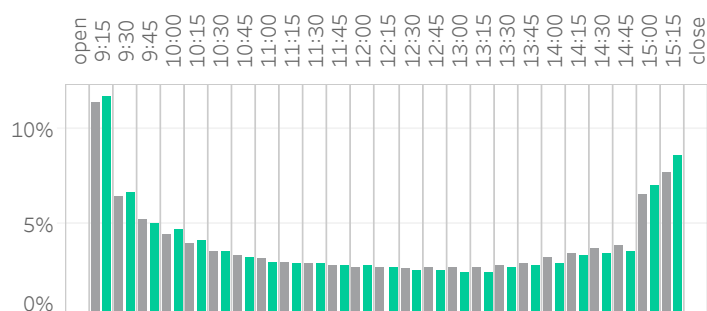
Large Sized Trades (>=5%ADT)



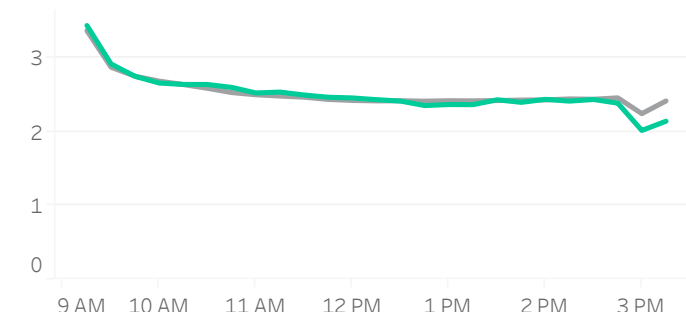
Source data: Virtu Financial

India

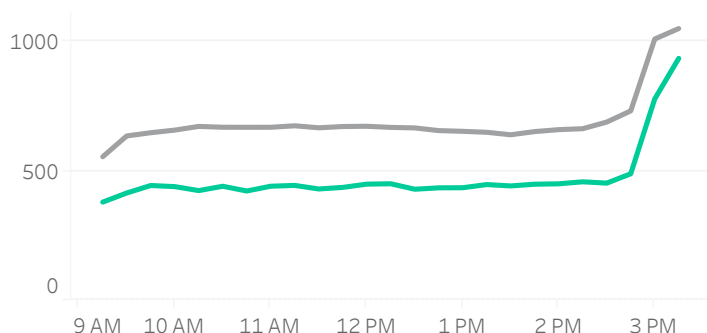
Volume Curve



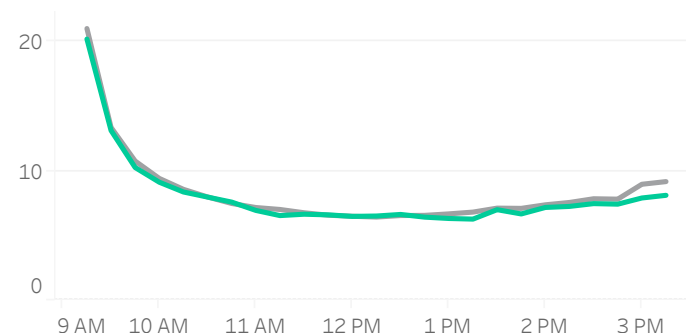
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	3.1	3.2	3.0	3.1	2.9	2.8	2.6	2.8	2.8	3.2	3.1
midday	2.7	2.6	2.5	2.5	2.3	2.2	2.2	2.4	2.3	2.6	2.5
lastHalfHour	2.5	2.6	2.3	2.3	2.2	2.1	2.0	2.1	1.9	2.1	2.0

One Minute Volatility Bps

firstHalfHour	17.3	19.8	17.6	17.7	16.1	12.5	10.5	12.6	12.7	16.9	14.7
midday	7.8	8.8	8.2	7.6	6.4	5.3	4.7	5.5	5.8	7.3	6.5
lastHalfHour	10.1	11.0	10.6	8.9	8.2	7.1	6.1	6.8	6.4	7.7	7.3

Quotesize in Shares

firstHalfHour	684	626	680	559	541	548	533	527	526	425	408
midday	781	757	695	650	630	584	593	583	540	459	444
lastHalfHour	1,080	1,041	1,074	974	918	903	952	929	946	780	826

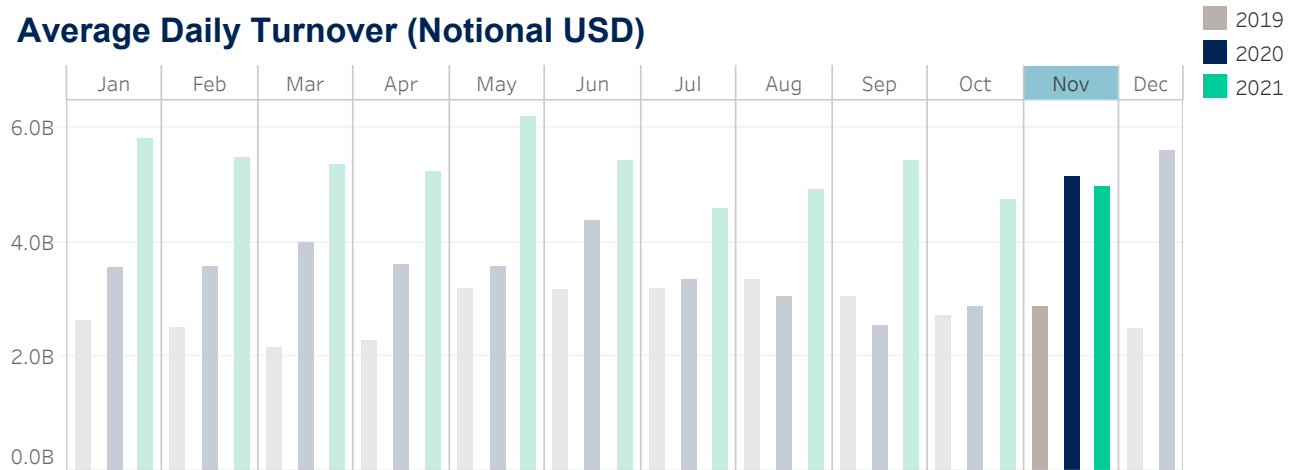
Median used for all metrics

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

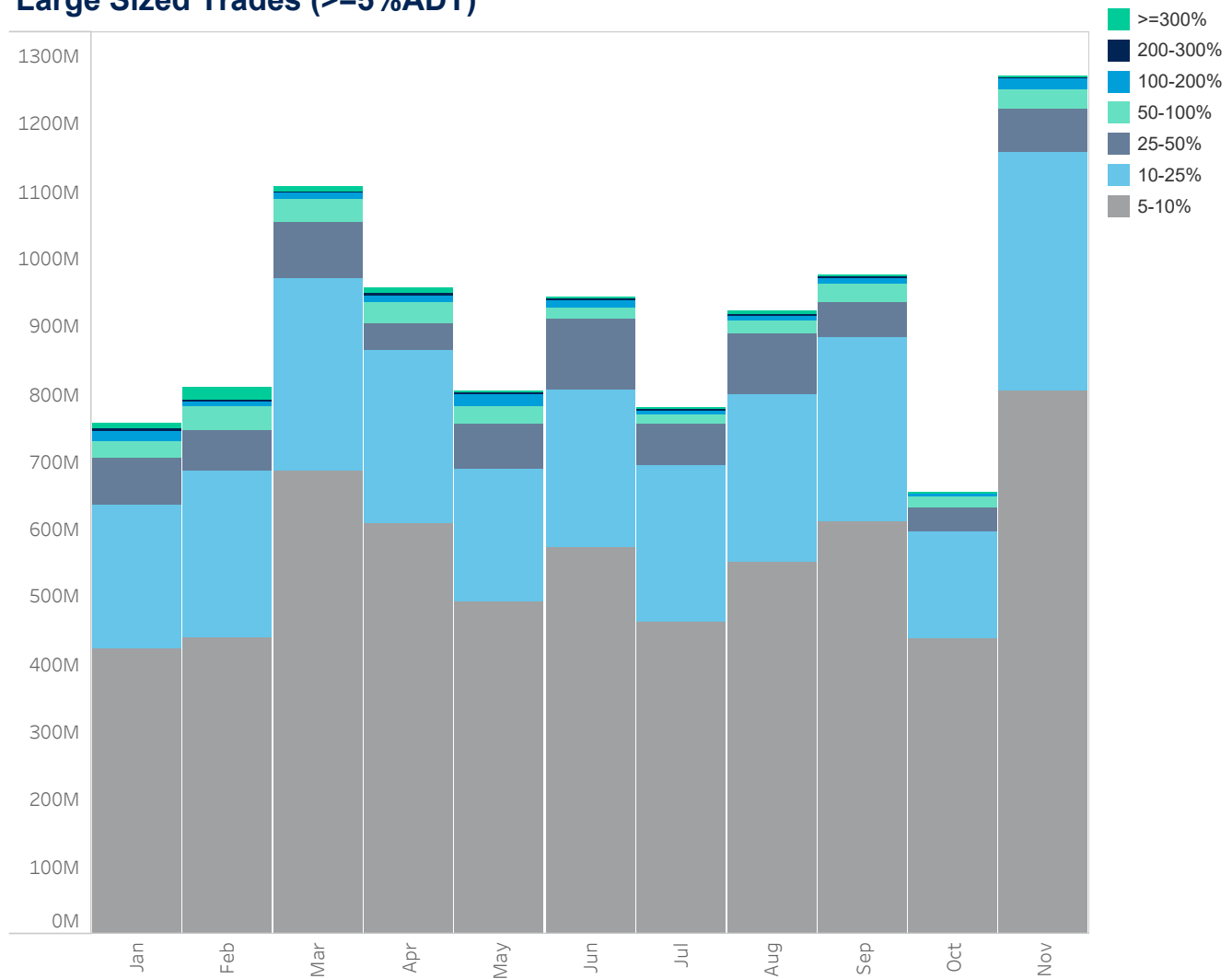
Source data: Virtu Financial

Thailand

Average Daily Turnover (Notional USD)



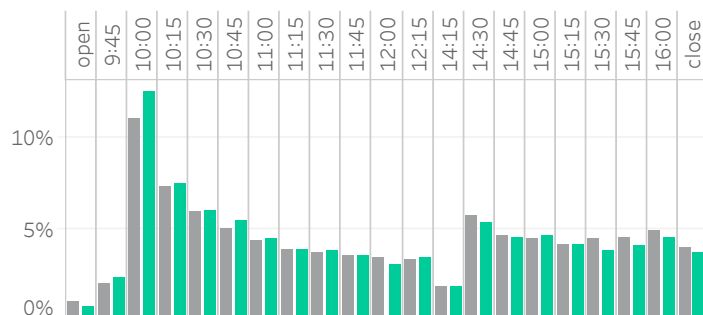
Large Sized Trades (>=5%ADT)



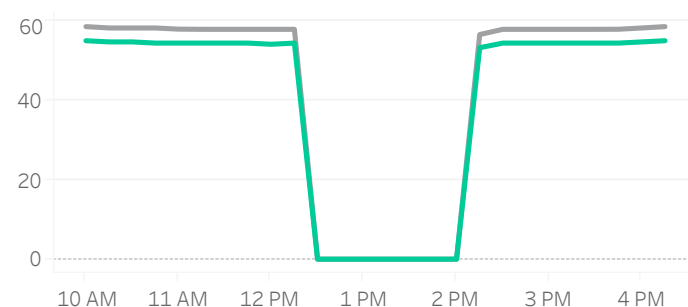
Source data: Virtu Financial

Thailand

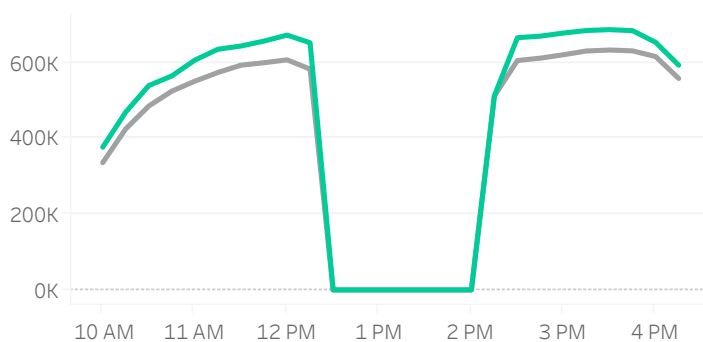
Volume Curve



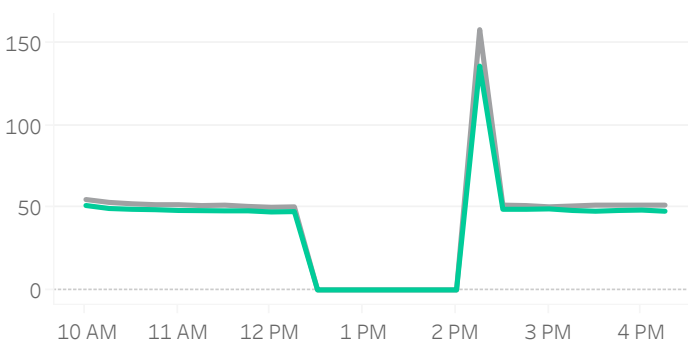
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	59.5	61.8	58.7	57.6	58.1	57.0	58.5	57.3	55.9	56.3	55.0
midday	58.8	61.3	58.4	57.5	57.4	56.5	58.0	56.8	55.6	56.2	54.4
lastHalfHour	59.5	61.5	58.6	57.8	57.6	56.9	58.7	57.1	55.9	56.5	54.9

One Minute Volatility Bps

firstHalfHour	163.6	249.4	233.7	232.1	230.9	177.0	159.4	162.4	168.7	180.7	179.3
midday	229.8	231.9	224.9	223.9	223.2	164.5	130.5	159.5	164.4	167.5	158.7
lastHalfHour					11.0						

Quotesize in Shares

firstHalfHour	329,239	333,863	415,974	396,954	369,050	405,115	327,728	343,555	393,145	415,379	402,678
midday	511,597	531,652	673,700	702,142	632,652	659,585	550,461	566,015	644,261	663,065	654,635
lastHalfHour	524,220	541,490	680,594	713,523	624,167	686,033	542,139	571,302	629,320	657,872	643,271

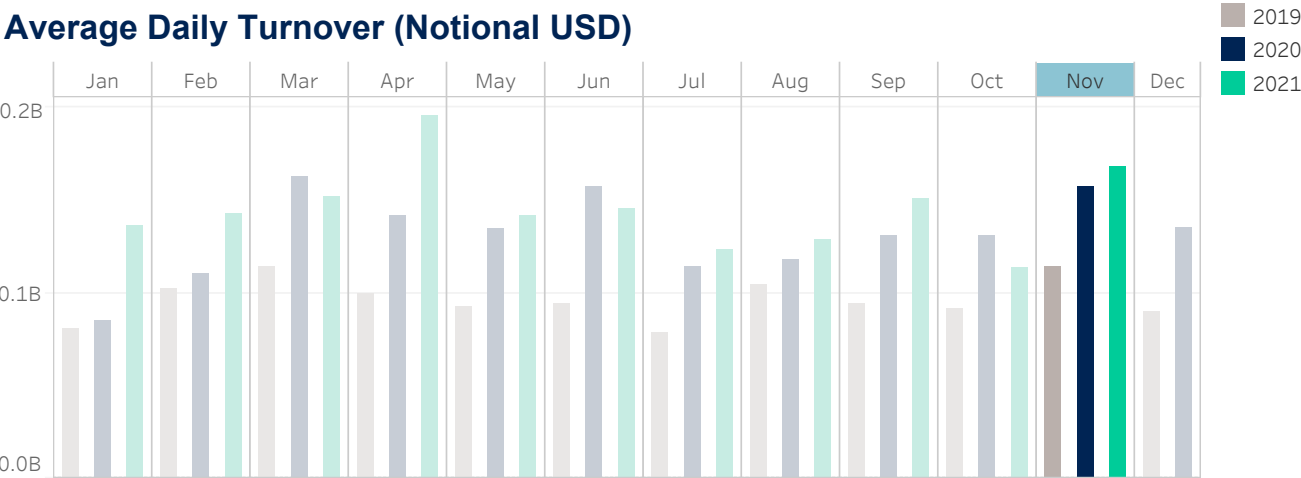
Median used for all metrics

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

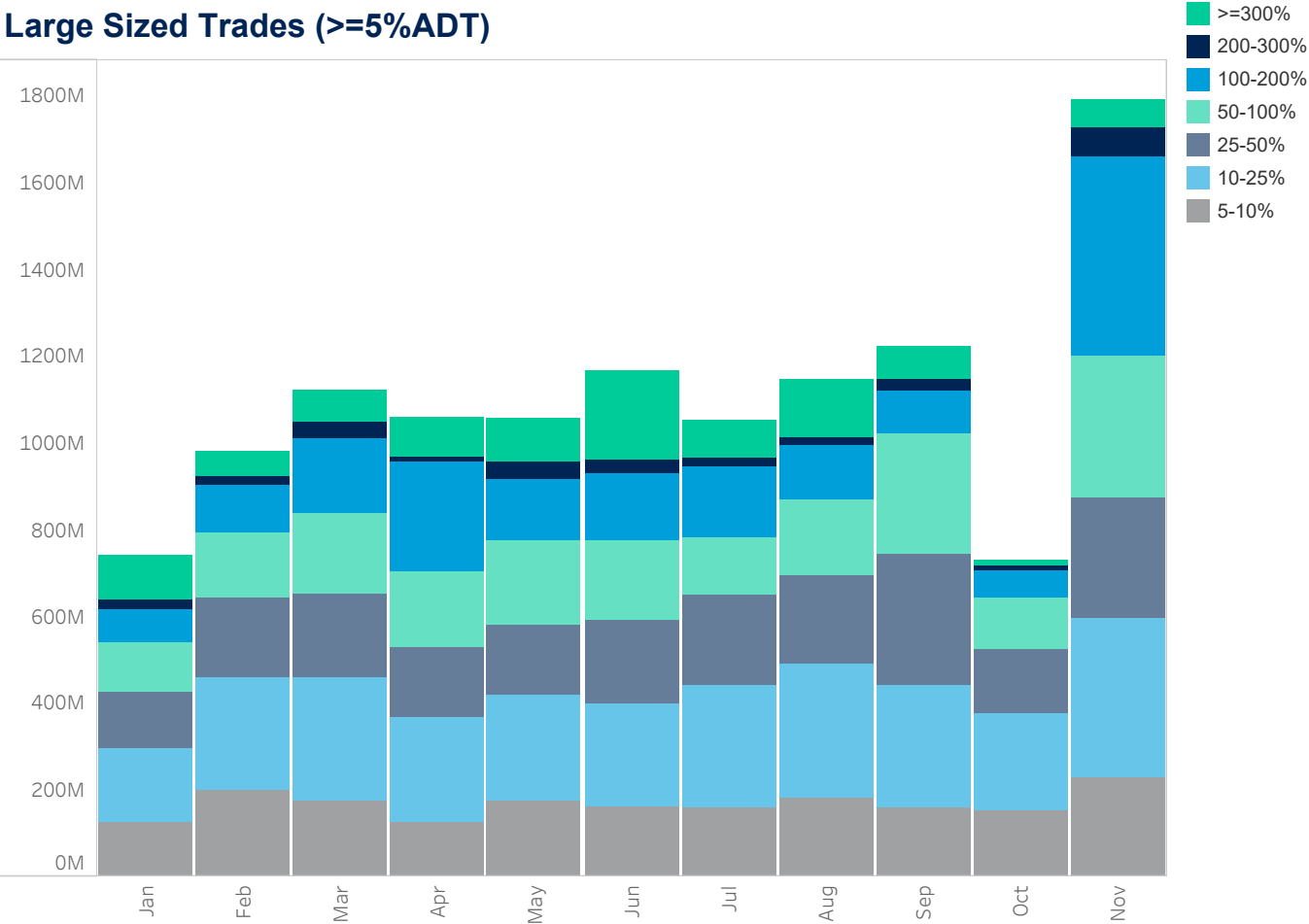
Source data: Virtu Financial

New Zealand

Average Daily Turnover (Notional USD)



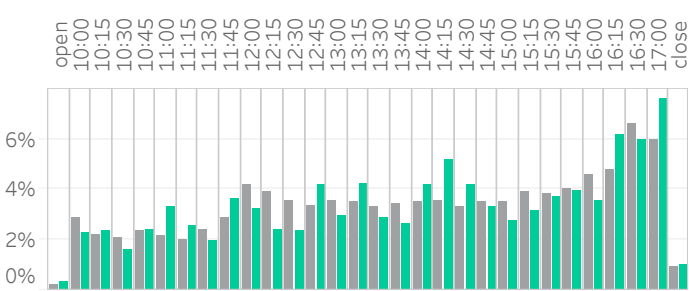
Large Sized Trades (>=5%ADT)



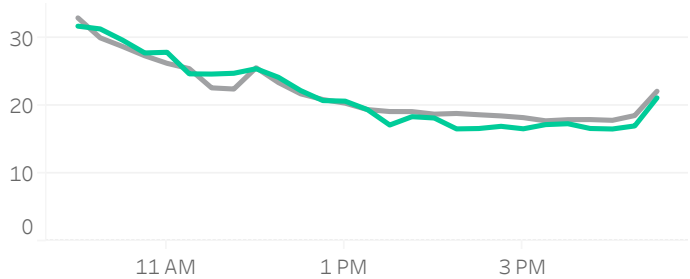
Source data: Virtu Financial

New Zealand

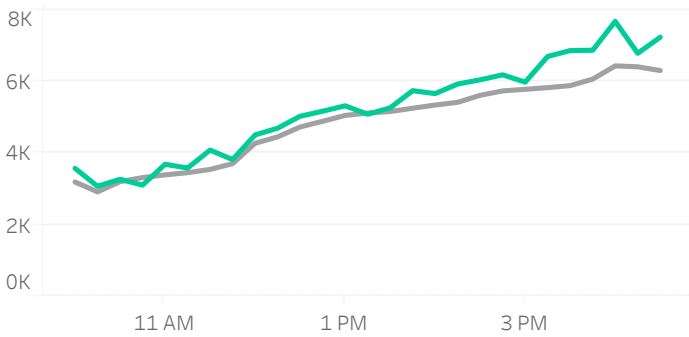
Volume Curve



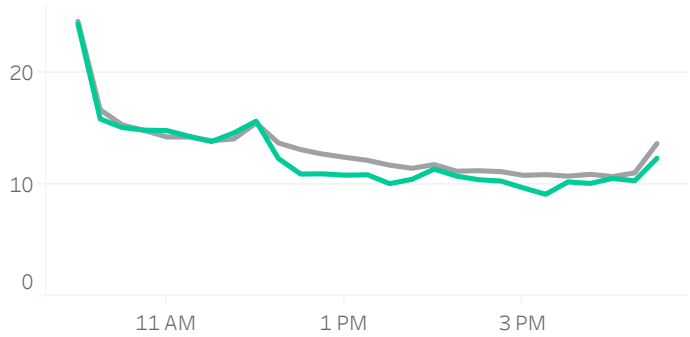
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	33.6	32.4	32.9	29.1	30.1	29.9	30.8	31.6	29.0	29.1	31.3
midday	22.0	22.2	21.3	19.3	20.5	18.4	19.0	21.0	19.5	18.2	20.0
lastHalfHour	22.0	22.2	21.1	21.1	19.6	17.7	19.0	20.0	19.7	18.3	18.7

One Minute Volatility Bps

firstHalfHour	6.0	7.4	7.2	5.7	6.8	5.7	6.1	7.0	6.0	7.5	7.4
midday	3.7	3.6	3.5	3.6	3.5	3.5	3.4	3.6	3.3	3.3	4.0
lastHalfHour	4.7	4.4	6.7	4.0	5.3	4.4	4.0	3.8	3.6	4.3	3.5

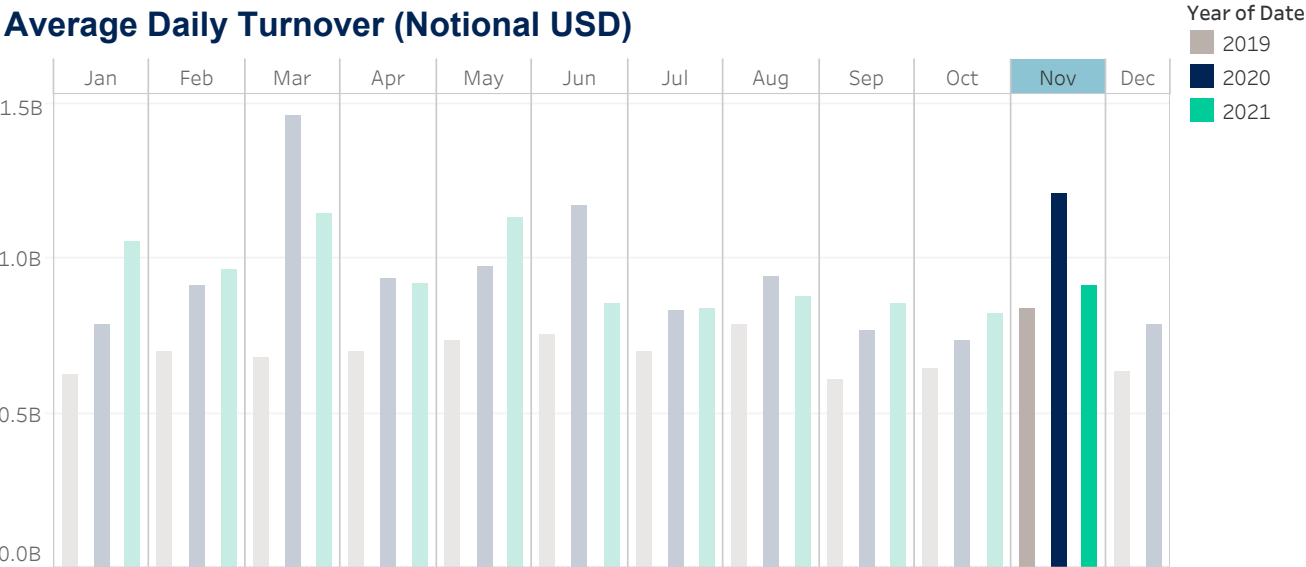
Quotesize in Shares

firstHalfHour	2,934	2,863	3,226	3,083	2,848	2,985	2,792	3,149	3,533	3,090	3,356
midday	4,261	4,306	4,708	5,232	5,145	5,287	5,453	5,494	5,752	5,679	5,456
lastHalfHour	5,198	5,319	6,011	6,862	6,538	6,859	7,213	6,762	7,042	7,910	6,898

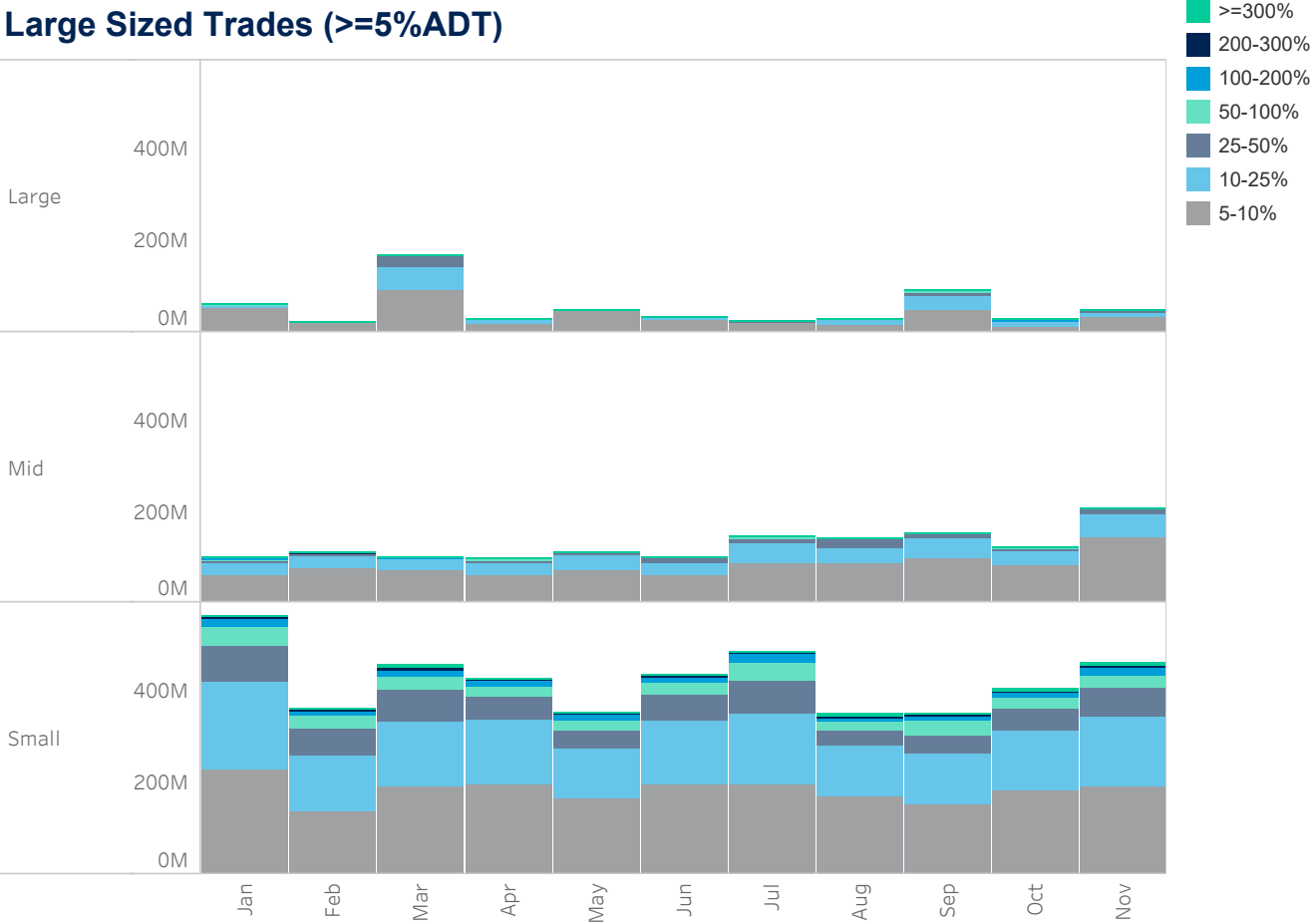
Median used for all metrics
One minute volatility is calculated using the difference between the high and low price within a one minute time bin, divided by that bin's VWAP
Source data: Virtu Financial

Singapore

Average Daily Turnover (Notional USD)



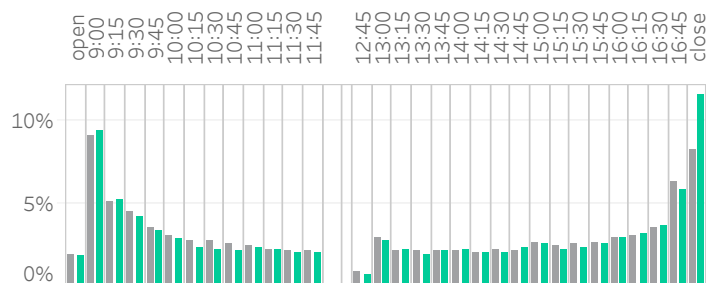
Large Sized Trades (>=5%ADT)



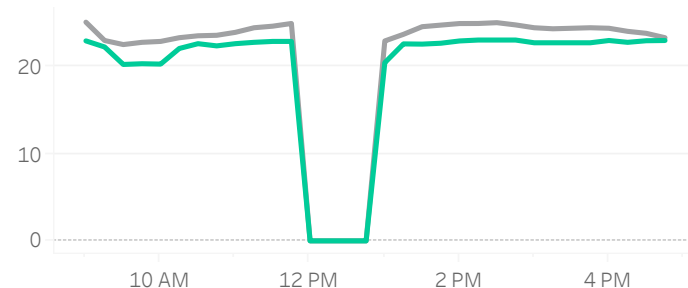
Source data: Virtu Financial

Singapore

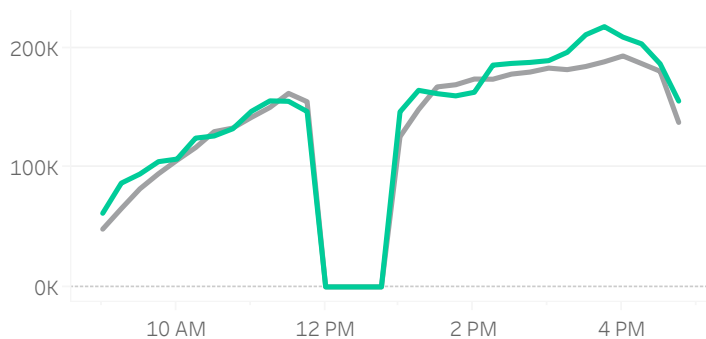
Volume Curve



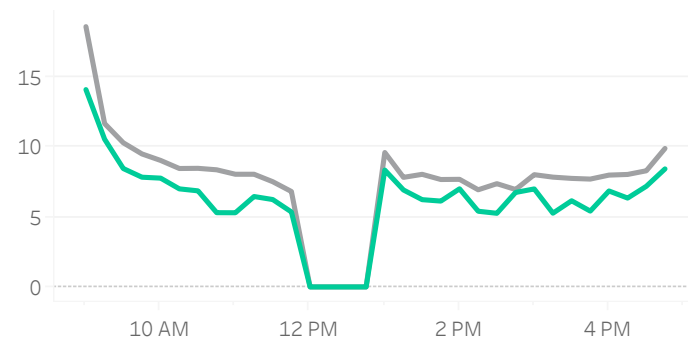
Intraday Spread (bps)



Intraday Quotesize (Shares)



Intraday Volatility (bps)



Rolling 12 Months Avg November 2021

Spread Bps

	21 Q1			21 Q2			21 Q3			21 Q4	
	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21	Oct 21	Nov 21
firstHalfHour	23.4	24.7	22.2	21.8	24.1	23.0	22.9	21.6	23.3	22.7	21.6
midday	24.4	25.3	22.6	22.5	24.5	22.5	22.7	22.4	24.1	22.8	22.2
lastHalfHour	24.3	24.0	22.2	21.0	23.3	21.4	22.3	22.5	23.1	22.0	22.1

One Minute Volatility Bps

firstHalfHour	7.1	7.7	6.1	5.1	7.2	6.7	6.6	7.7	6.6	7.3	6.4
midday	5.4	5.7	4.5	5.6	6.6	4.1	4.5	3.9	3.3	3.3	5.5
lastHalfHour	5.7	3.9	5.2	5.3	6.6	3.8	4.9	1.6	3.4	4.8	4.0

Quotesize in Shares

firstHalfHour	59,630	65,948	58,395	76,129	61,752	55,719	51,982	58,984	61,969	54,873	78,883
midday	161,583	189,564	171,200	197,195	181,346	141,942	122,557	127,510	145,217	150,127	165,639
lastHalfHour	180,964	195,173	162,162	180,880	165,147	134,075	118,307	142,612	146,413	158,656	183,894

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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