



Recurring Patterns in Crypto Liquidity

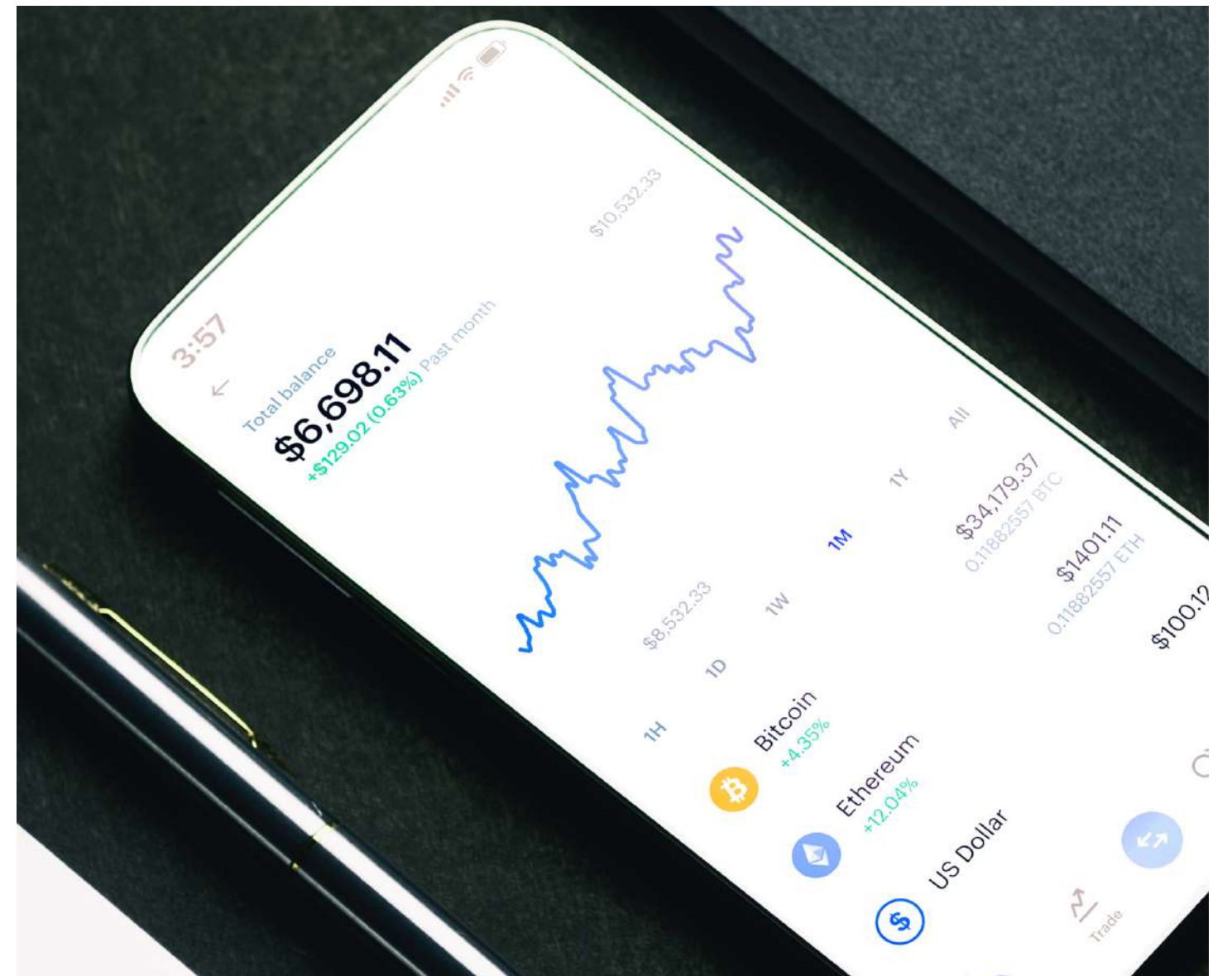
December 2021



Weekly Volumes by Exchange YTD 2021

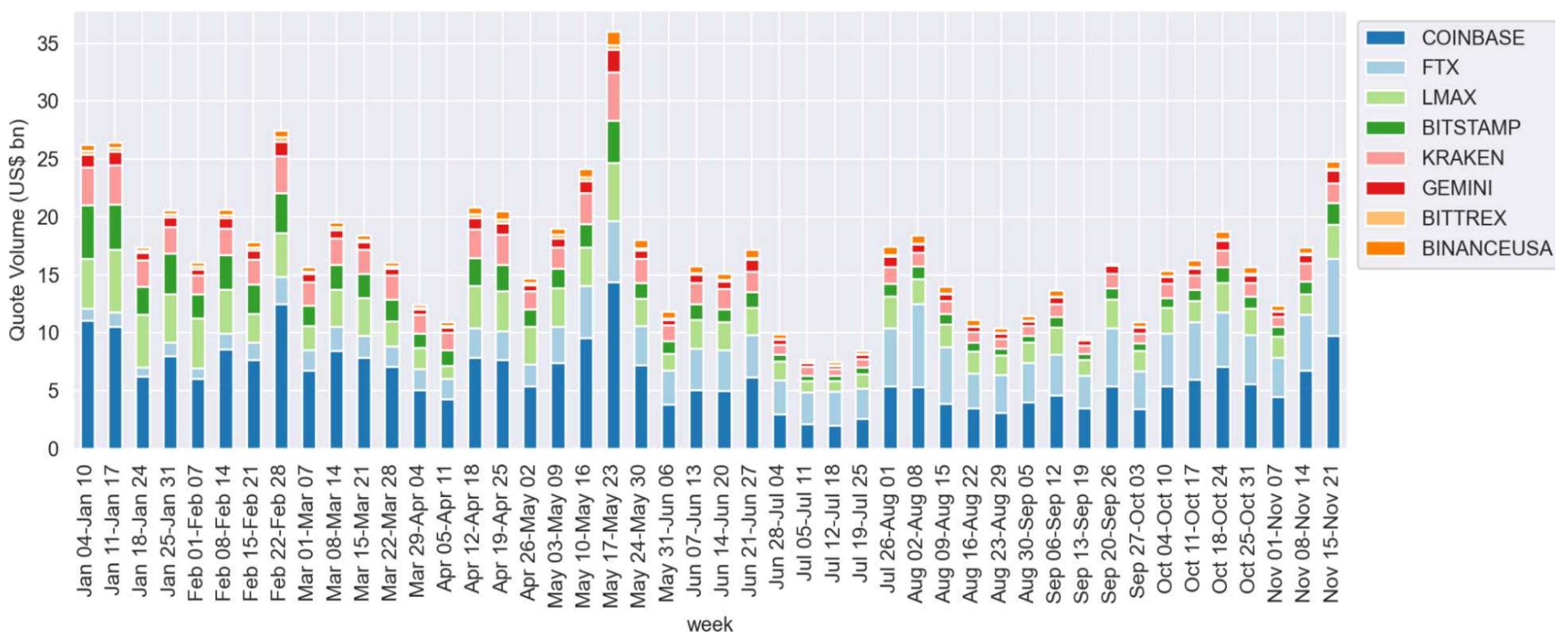
To better understand how liquidity is distributed among major exchanges, we show the weekly spot trading volumes across eight crypto exchanges for which we can see that:

- **Coinbase, FTX, and LMAX** execute the lion's share of the weekly trading volumes
- From November 15-21, BTC/USD volumes increased to around \$25bn/week, and ETH/USD trading rose to about \$19bn/week
- Note that crypto liquidity was affected by the slower summer trading months in late June to August



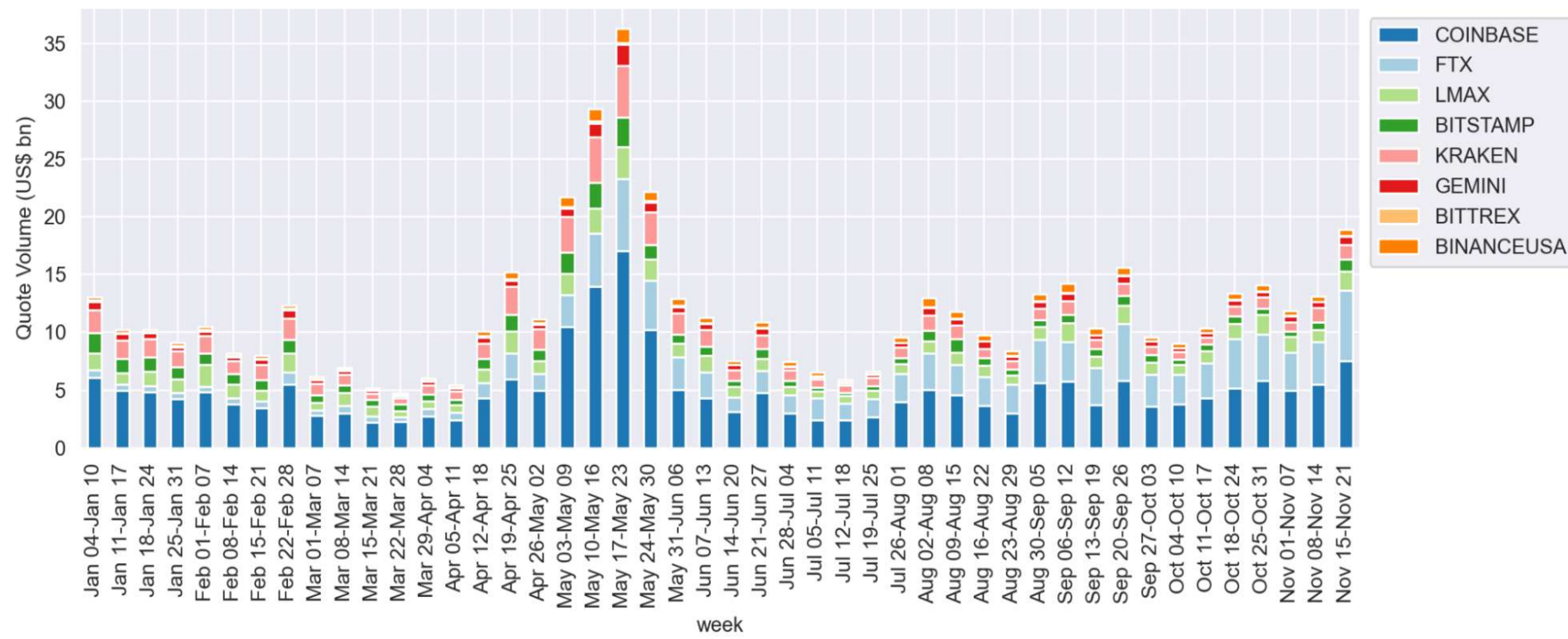
BTC/USD

BTC-USD: Weekly Quote Volumes by Exchange



ETH-USD

ETH-USD: Weekly Quote Volumes by Exchange



Daily Patterns: How different are business days from weekends?

Combining all eight exchange volumes into one composite feed, we aggregate them by hour and by weekday to inspect for any noticeable patterns. We observe that:

- Daily trading volumes from Monday to Friday are almost twice as high as on Saturday or Sunday, this is worth noting when trading over the weekends where liquidity is thinner
- Weekday peak volumes overlap with the US equity trading & CME fixing windows (x-axis: 12-20h UTC), concentrated heavily in the 14-16h UTC time frame, capturing the market opening hours in NY

BTC/USD

BTC-USD: Median Volume by Hour/ Weekday (period: 2021-06-01 to 2021-11-21)

		Hours (UTC)																								
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Day Total
MON		\$86m	\$75m	\$67m	\$67m	\$63m	\$48m	\$50m	\$68m	\$63m	\$58m	\$61m	\$63m	\$75m	\$102m	\$116m	\$105m	\$100m	\$76m	\$71m	\$88m	\$83m	\$66m	\$55m	\$78m	\$1,784m
TUE		\$115m	\$66m	\$60m	\$59m	\$49m	\$53m	\$52m	\$52m	\$69m	\$67m	\$68m	\$64m	\$90m	\$115m	\$138m	\$116m	\$113m	\$83m	\$86m	\$98m	\$85m	\$64m	\$80m	\$71m	\$1,914m
WED		\$87m	\$74m	\$57m	\$56m	\$54m	\$57m	\$52m	\$54m	\$60m	\$61m	\$76m	\$70m	\$88m	\$109m	\$112m	\$116m	\$112m	\$84m	\$91m	\$100m	\$82m	\$50m	\$62m	\$73m	\$1,837m
THU		\$85m	\$72m	\$58m	\$72m	\$56m	\$48m	\$58m	\$57m	\$70m	\$61m	\$58m	\$73m	\$100m	\$85m	\$105m	\$100m	\$93m	\$81m	\$88m	\$69m	\$60m	\$43m	\$44m	\$46m	\$1,682m
FRI		\$66m	\$64m	\$51m	\$57m	\$49m	\$48m	\$48m	\$80m	\$75m	\$62m	\$57m	\$65m	\$75m	\$95m	\$159m	\$121m	\$82m	\$67m	\$82m	\$66m	\$80m	\$59m	\$56m	\$59m	\$1,721m
SAT		\$59m	\$45m	\$39m	\$38m	\$34m	\$34m	\$35m	\$30m	\$42m	\$37m	\$41m	\$45m	\$49m	\$40m	\$50m	\$48m	\$46m	\$42m	\$36m	\$39m	\$45m	\$33m	\$38m	\$38m	\$981m
SUN		\$52m	\$46m	\$35m	\$34m	\$32m	\$31m	\$36m	\$32m	\$43m	\$35m	\$35m	\$39m	\$37m	\$39m	\$50m	\$41m	\$46m	\$40m	\$48m	\$35m	\$47m	\$52m	\$71m	\$71m	\$1,028m
Hour Avg		\$78m	\$63m	\$53m	\$55m	\$48m	\$46m	\$47m	\$53m	\$60m	\$54m	\$57m	\$60m	\$73m	\$84m	\$104m	\$93m	\$84m	\$68m	\$72m	\$71m	\$69m	\$53m	\$58m	\$62m	

ETH/USD

ETH-USD: Median Volume by Hour/ Weekday (period: 2021-06-01 to 2021-11-21)

		Hours (UTC)																								Day Total
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
MON		\$74m	\$59m	\$47m	\$51m	\$50m	\$34m	\$37m	\$49m	\$56m	\$43m	\$40m	\$45m	\$57m	\$79m	\$80m	\$77m	\$101m	\$68m	\$55m	\$71m	\$83m	\$46m	\$49m	\$45m	\$1,395m
TUE		\$81m	\$65m	\$43m	\$48m	\$43m	\$38m	\$42m	\$35m	\$44m	\$59m	\$52m	\$48m	\$77m	\$94m	\$113m	\$81m	\$89m	\$63m	\$76m	\$73m	\$77m	\$52m	\$75m	\$60m	\$1,529m
WED		\$67m	\$59m	\$55m	\$54m	\$49m	\$44m	\$38m	\$41m	\$46m	\$37m	\$44m	\$48m	\$64m	\$79m	\$91m	\$97m	\$112m	\$72m	\$85m	\$68m	\$77m	\$43m	\$62m	\$62m	\$1,493m
THU		\$81m	\$56m	\$48m	\$62m	\$49m	\$39m	\$39m	\$49m	\$54m	\$38m	\$49m	\$40m	\$74m	\$70m	\$84m	\$79m	\$77m	\$66m	\$72m	\$58m	\$54m	\$42m	\$49m	\$48m	\$1,375m
FRI		\$66m	\$59m	\$51m	\$46m	\$41m	\$36m	\$35m	\$50m	\$57m	\$45m	\$51m	\$57m	\$68m	\$74m	\$100m	\$87m	\$77m	\$64m	\$62m	\$54m	\$73m	\$52m	\$43m	\$45m	\$1,391m
SAT		\$58m	\$44m	\$36m	\$30m	\$33m	\$32m	\$25m	\$27m	\$31m	\$35m	\$33m	\$36m	\$39m	\$35m	\$42m	\$37m	\$49m	\$40m	\$34m	\$37m	\$35m	\$25m	\$35m	\$34m	\$862m
SUN		\$56m	\$39m	\$33m	\$34m	\$29m	\$24m	\$29m	\$24m	\$27m	\$28m	\$26m	\$28m	\$36m	\$36m	\$40m	\$43m	\$44m	\$35m	\$33m	\$34m	\$45m	\$51m	\$56m	\$57m	\$1,028m
Hour Avg		\$69m	\$54m	\$45m	\$46m	\$42m	\$35m	\$35m	\$39m	\$45m	\$40m	\$42m	\$43m	\$59m	\$67m	\$78m	\$72m	\$78m	\$58m	\$60m	\$57m	\$63m	\$45m	\$53m	\$50m	

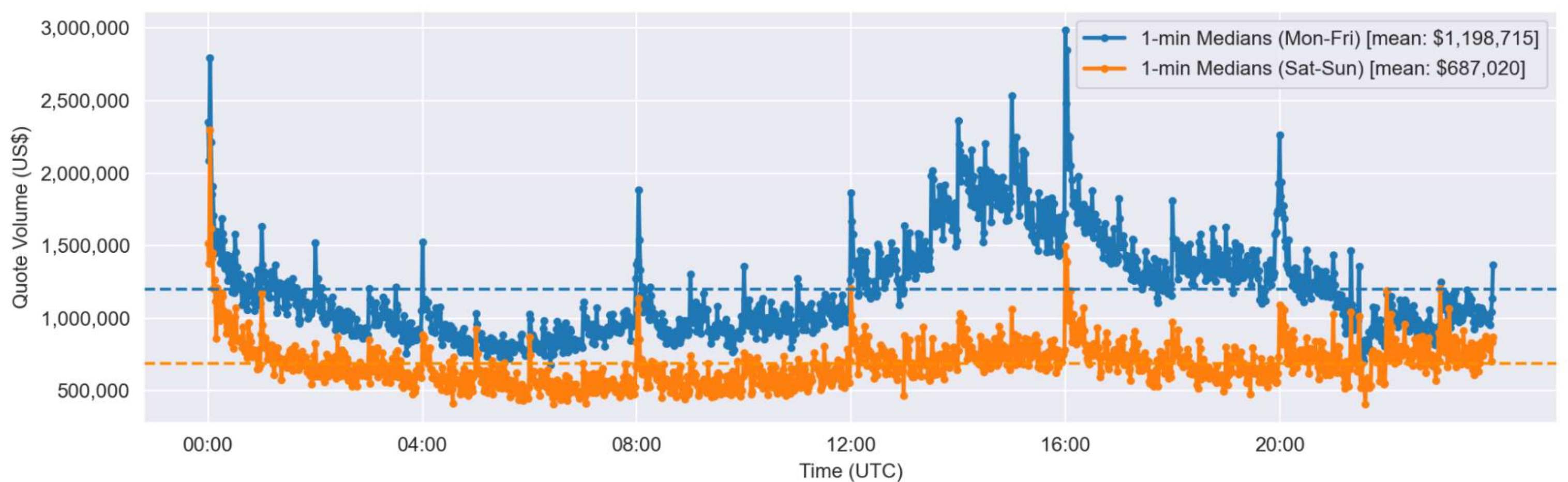
Intraday Patterns

As we further break down liquidity into smaller time intervals, we can observe that there is a strong seasonality within a 24 hour period every day, and also within each hour.

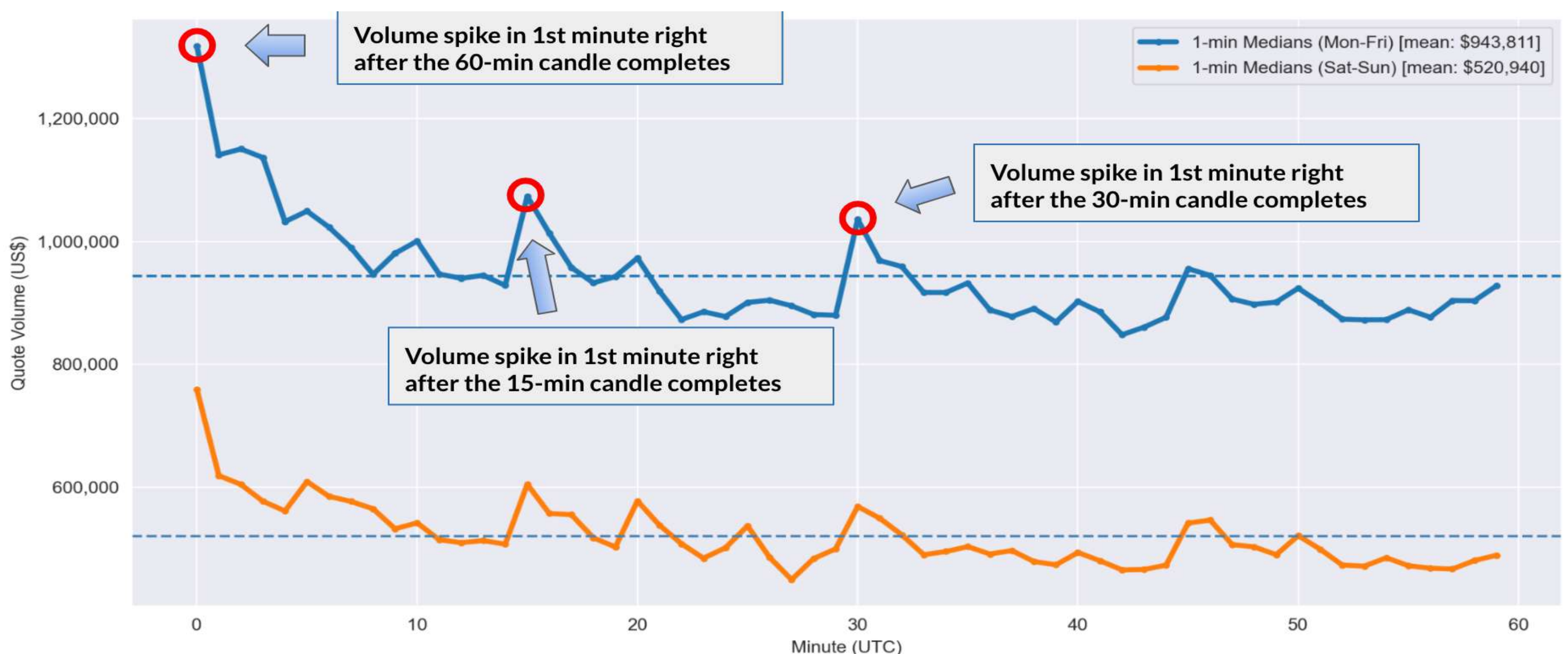
- Top chart shows noticeable volume spikes in the 1st minute right after each 4h candle bar
- On every 4th hour (UTC) increased trading occurs around funding payments of perpetual swaps
- Bottom chart shows that even within the hour, volumes spike right after the completion of certain multiples of the 15-minute candle bar

BTC/USD

BTC-USD: 24h Volume Profile (period: 2021-06-01 to 2021-11-21)



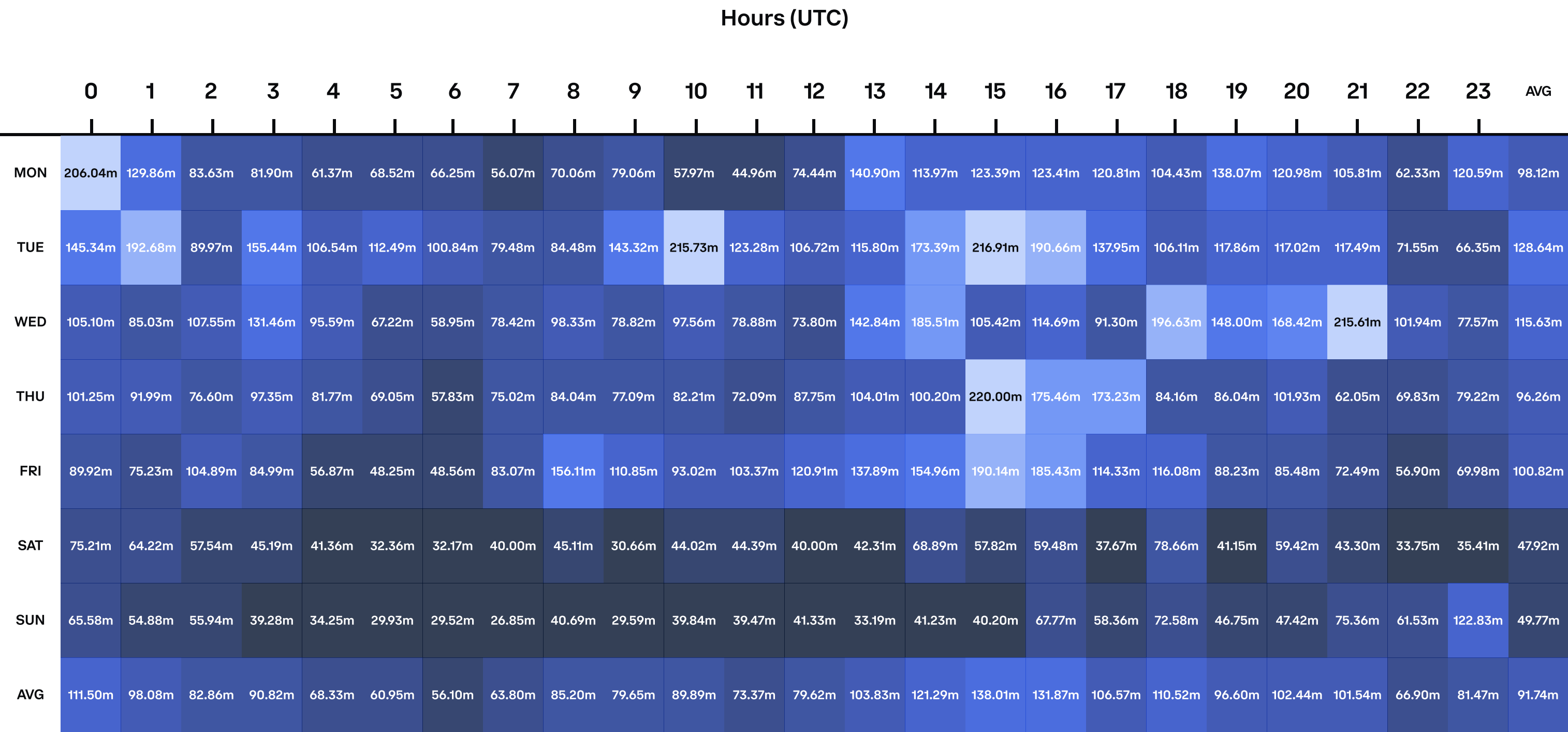
BTC-USD: 1-Min Volume Profile (period: 2021-06-01 to 2021-11-21)



CB Prime Analytics

The daily pattern heatmap as shown above is also available for a more recent lookback window of 30 days via our Coinbase Prime Analytics UI:

Volume Heatmap in last 30 days



As of 12/03/2021

Volumes in this study constitute liquidity from eight exchanges (best effort based on available data). Data is provided for informational purposes only:

1. COINBASE
2. FTX
3. LMAX
4. BITSTAMP
5. KRAKEN
6. GEMINI
7. BITTREX
8. BINANCEUSA

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