



# The Weekly Hash, 1/10/22

## Miner Economics Normalizing, While Speculative Net Length of 93 Lots Continues Improvement

BitOoda published our updated target Hashrate analysis last week for our subscribers, calling for 327EH/s by the end of 2022. This estimate is back-end loaded and depends in part on whether Bitcoin price and economics are supportive of this Hashrate.

Bitcoin dropped 11.5% week-on-week (WoW), settling at \$41,886 as of midnight UTC on 1/9. The prospect of rising rates has weighed on equities and on risk assets in general, contributing to the overall crypto and crypto equity selloff.

The CME Futures curve is flat at the front but shows higher Contango beyond April, outside the liquidity window. Open interest rose 6.7% WoW to 11,297 lots, almost entirely in the active contract. The Commitment of Traders data from 1/4 shows that net length continues to improve from a 729 lot short in November, and is now long 93 lots.

Total BTC earnings per PH/s are ~5.2 mBTC, down from ~5.23 mBTC / PH/s last week on Saturday's 0.4% difficulty reset (1mBTC or milliBTC = 1/1000 BTC). Transaction fees dropped 7 bps WoW to 0.8% of miner rewards, or 0.05 BTC per block. The "Mempool" shows low congestion levels, with 4,317 pending transactions. We continue to assess congestion will stay low for awhile.

Bitcoin mining revenue fell to \$218 / PH/s per day and \$238/MWh, owing to the lower BTC price, low Tx fees and slight increase in target Hashrate to 174.4 EH/s. Block pace remains at par, around 144 blocks per day, suggesting that either most capacity is back

online in Kazakhstan, or that other capacity coming online was sufficient to mostly offset any Kazakh disruptions – which would indicate Kazakh Hashrate was lower than expected, or that it was not all impacted by the unrest and especially the internet shutdown in Kazakhstan.

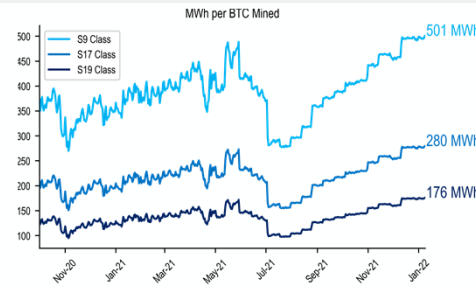
The BitOoda North American Hash Spread™ fell 13.5% from \$238 to \$207.

We define the BitOoda Hash Spread™ as the difference between the cost of power per MWh and the Bitcoin mining revenue per MWh. This gives miners a quick sense of the surplus generated by their business to cover personnel, overhead, depreciation, and profit. The weighted average around the clock U.S. wholesale industrial power price (5 markets) of \$31.02 / MWh leads to an aggregate spread of \$207.

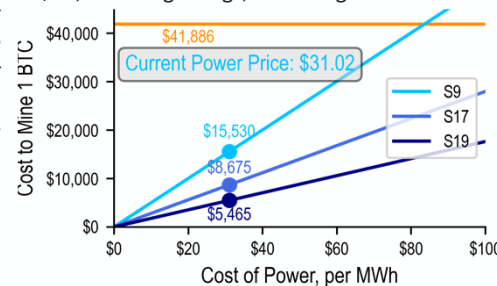
	S9 Class	S17 Class	S19 Class
Hash Spread	\$53	\$119	\$207
Week on Week	-17.7%	-14.6%	-13.5%

Older-gen S9-class devices saw their Hash Spread™ down ~18% to \$53/MWh. S17-class devices, the bulk of the installed base, saw a hash spread of about \$119/MWh.

It now takes 176 MWh to mine 1 BTC using S19-class rigs, while S17-class machines consume 280 MWh, and S9-class, 501 MWh.



This translates into \$5,465 in power expense to mine 1 BTC with S19-class rigs, and \$15,530 using S9 rigs, excluding labor.



### Takeaways

- Mining margins are steadily mean reverting
- Our YE 2022 Hashrate estimate of 327 EH/s needs to be considered when evaluating investment opportunities in the space
- Unsurprisingly, as a leveraged play on Bitcoin, most miners continue to underperform Bitcoin
- CME Futures net length improved to long 93 lots
- Overall, the excess returns miners enjoyed over the past few months continue to normalize

## Research

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BTC Price \$40,756  
(1/10 at 10am EDT)

Obs Hashrate 173 EH/s

### Bitcoin Miners 7 Day Performance

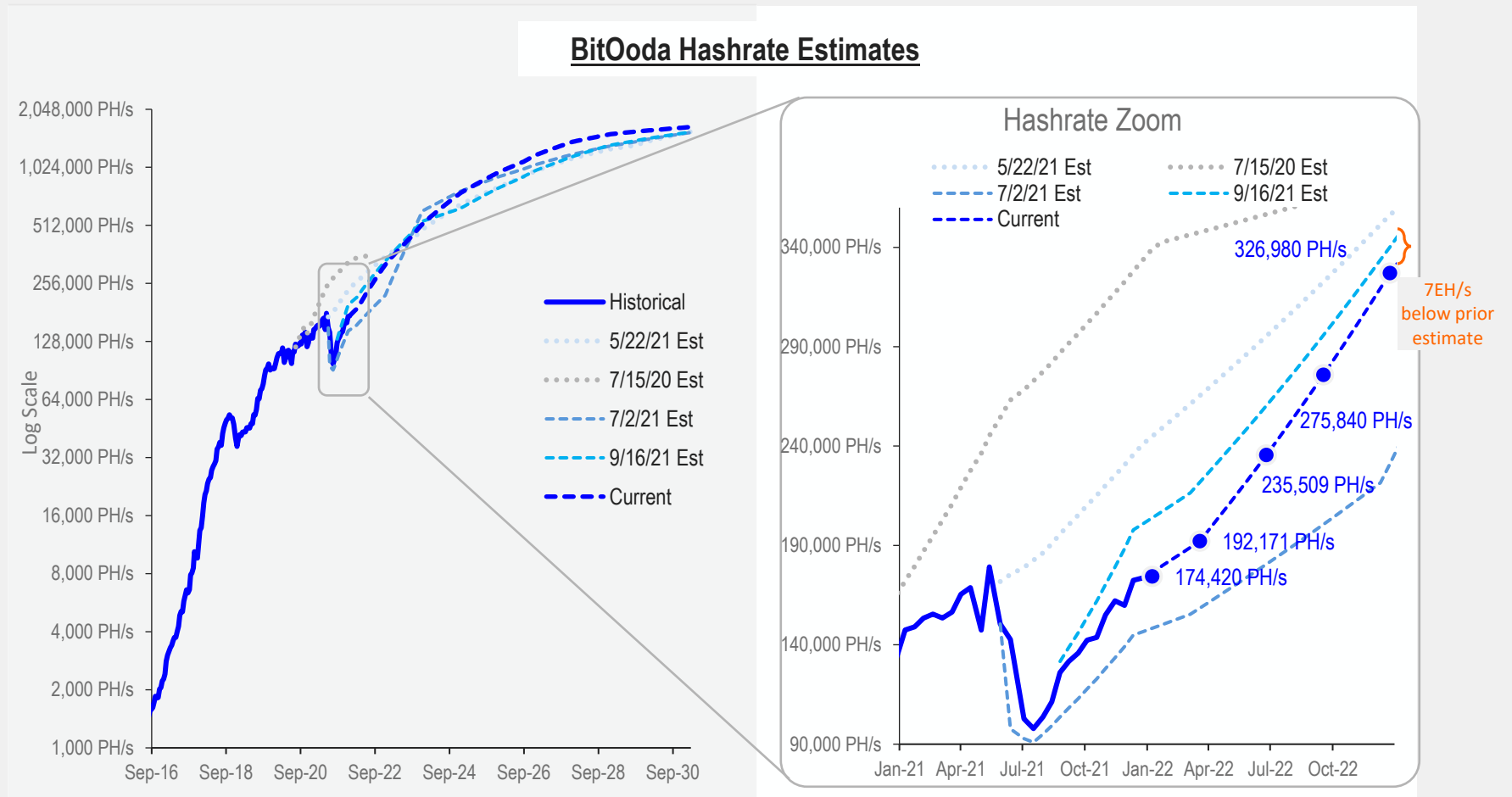
Company	Performance
S&P	-4.4%
Bitcoin	-11.2%
Stronghold	-11.5%
Greenidge	-11.5%
Ebang	-12.3%
Canaan	-14.1%
Cathedrala	-15.0%
Bit Digital	-15.5%
Terawulf	-15.8%
Marathon	-16.1%
Riot	-16.2%
Argo	-16.9%
Cipher	-17.8%
Northern Data	-18.1%
Hive	-18.2%
Bitfarms	-18.6%
Hut8	-19.4%
Digihost	-21.7%
Iris Energy	-25.7%
Mawson	-28.6%



# BitOoda 2022 Hash Estimates

## ~327 EH/s by Year End

- Our projections call for a target Hashrate of ~327EH/s by year end 2022
- This is slightly below our most recent prior estimate of 334EH/s and represents 88% year-on-year growth vs. December 2021
- We expect power infrastructure to be the gating factor in mining expansion earlier in the year, but to start easing later in the year
- **The Hashrate growth pace averages 12.8 EH/s per month, but we suspect deployments will be somewhat back end loaded: 51EH/s in Q4 2022 vs. 18-20 EH/s in Q1 2022**



**Figure:** Historical and Estimated Target Hashrate 2017-2030  
 Historical as of 1/8/21; Estimates as of current, 9/16/21, 7/2/21, 5/22/21, and 7/15/20

Source: BitOoda estimates, CoinMetrics

# Bitcoin Miners: Performance Map

- Most public Bitcoin miners have underperformed the asset over the past month, seven days and YTD
- Bitcoin fell 16.3% over the past 30 days and 11.2% over the past week

Year to Date    Quarter to Date    Month to Date    30 Day    7 Day    1 Day

S&P, (3.8%)	S&P, (3.8%)	S&P, (3.8%)			S&P, (2.0%)
Greenidge, (4.6%)	Greenidge, (4.6%)	Greenidge, (4.6%)	S&P, (2.7%)		Bit Digital, (2.8%)
Stronghold, (9.3%)	Stronghold, (9.3%)	Stronghold, (9.3%)	Greenidge, (11.6%)		Marathon, (3.2%)
Ebang, (9.7%)	Ebang, (9.7%)	Ebang, (9.7%)	Digihost, (12.2%)	S&P, (4.4%)	Canaan, (3.4%)
Bitcoin, (11.9%)	Bitcoin, (11.9%)	Bitcoin, (11.9%)	Bitcoin, (16.3%)	Bitcoin, (11.2%)	Bitcoin, (3.5%)
Canaan, (12.4%)	Canaan, (12.4%)	Canaan, (12.4%)	Argo, (20.0%)	Stronghold, (11.5%)	Cathedral, (3.6%)
Argo, (13.2%)	Argo, (13.2%)	Argo, (13.2%)	Iris Energy, (21.5%)	Greenidge, (11.5%)	Greenidge, (3.7%)
Riot, (14.6%)	Riot, (14.6%)	Riot, (14.6%)	Cathedral, (22.2%)	Ebang, (12.3%)	Digihost, (4.0%)
Cathedral, (15.0%)	Cathedral, (15.0%)	Cathedral, (15.0%)	Canaan, (22.4%)	Canaan, (14.1%)	Bitfarms, (4.2%)
Bit Digital, (15.5%)	Bit Digital, (15.5%)	Bit Digital, (15.5%)	Hive, (24.5%)	Cathedral, (15.0%)	Cipher, (4.8%)
Marathon, (16.1%)	Marathon, (16.1%)	Marathon, (16.1%)	Mawson, (24.6%)	Bit Digital, (15.5%)	Hive, (5.0%)
Hive, (17.6%)	Hive, (17.6%)	Hive, (17.6%)	Bitfarms, (26.3%)	Terawulf, (15.8%)	Hut8, (5.3%)
Northern Data, (18.1%)	Northern Data, (18.1%)	Northern Data, (18.1%)	Riot, (26.7%)	Marathon, (16.1%)	Iris Energy, (5.7%)
Cipher, (18.1%)	Cipher, (18.1%)	Cipher, (18.1%)	Hut8, (28.7%)	Riot, (16.2%)	Terawulf, (5.8%)
Bitfarms, (18.6%)	Bitfarms, (18.6%)	Bitfarms, (18.6%)	Northern Data, (30.0%)	Argo, (16.9%)	Argo, (5.9%)
Terawulf, (19.2%)	Terawulf, (19.2%)	Terawulf, (19.2%)	Ebang, (30.1%)	Cipher, (17.8%)	Riot, (6.4%)
Hut8, (20.2%)	Hut8, (20.2%)	Hut8, (20.2%)	Stronghold, (30.3%)	Northern Data, (18.1%)	Northern Data, (6.5%)
Digihost, (22.2%)	Digihost, (22.2%)	Digihost, (22.2%)	Bit Digital, (30.7%)	Hive, (18.2%)	Stronghold, (7.1%)
Mawson, (28.8%)	Mawson, (28.8%)	Mawson, (28.8%)	Cipher, (31.0%)	Bitfarms, (18.6%)	Ebang, (9.7%)
Iris Energy, (30.1%)	Iris Energy, (30.1%)	Iris Energy, (30.1%)	Marathon, (31.8%)	Hut8, (19.4%)	Mawson, (10.1%)
			Terawulf, (64.2%)	Digihost, (21.7%)	
				Iris Energy, (25.7%)	
				Mawson, (28.6%)	

Source: BitOoda, Bloomberg



# Futures Curve Flat Open Interest Climbed 6.7% WoW

- The futures curve is essentially flat through April, with slight backwardation for the active contract
- Liquidity is limited to the front two months, and dries up rapidly thereafter
- CME open interest rose 6.75% vs. last week and fell 13.5% vs. two weeks ago to 11,297 lots
- Open interest for January is up over 660 lots vs. December OI two weeks ago, pre-roll. February OI is just 2,083 lots, up slightly vs. the 2049 lot OI last week



Figure: Bitcoin futures metrics

Source: BitOoda, CME, Bloomberg



# CME Open Interest Down to Pre-BITO Level

- CME Bitcoin Futures open interest increased significantly ahead of the launch of the ProShares Bitcoin Futures ETF BITO
- It fell back recently to the pre-ETF launch levels, although we expect OI to climb again
- Interestingly, all of the OI interest expansion on the past week is in the active contract

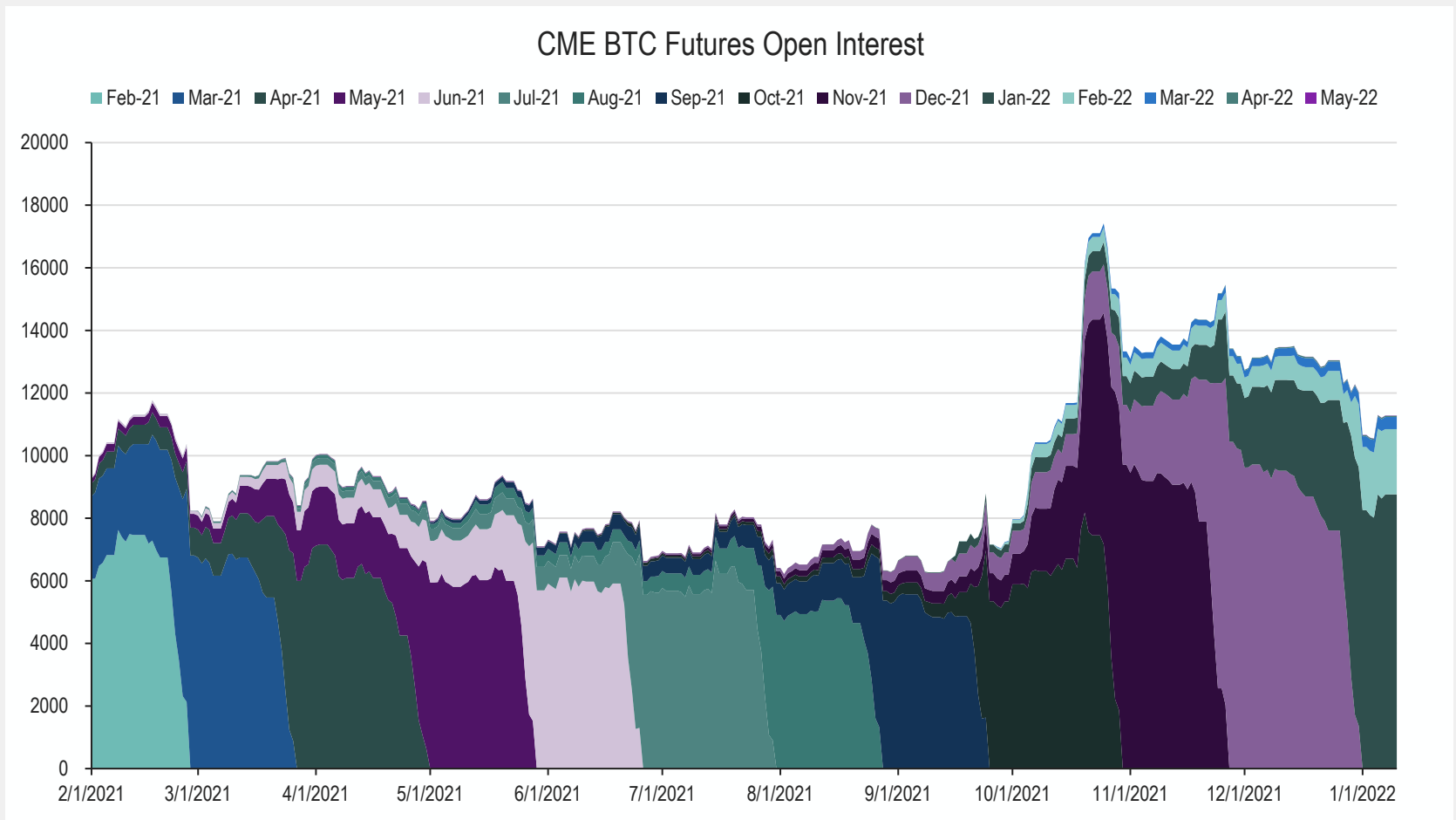


Figure: CME BTC Futures Open Interest history

Source: BitOoda, Bloomberg



# ProShares Futures ETF BITO Slightly Below BTC

- The ProShares ETF BITO currently has a market cap of \$1.0 billion
- Share count has been fairly stable at just over 40mm shares, indicating no significant fund flows
- The ETF has underperformed Bitcoin by 2.5%, declining by 38.8% since launch vs. a 36.3% decline in the price of BTC in the same timeframe

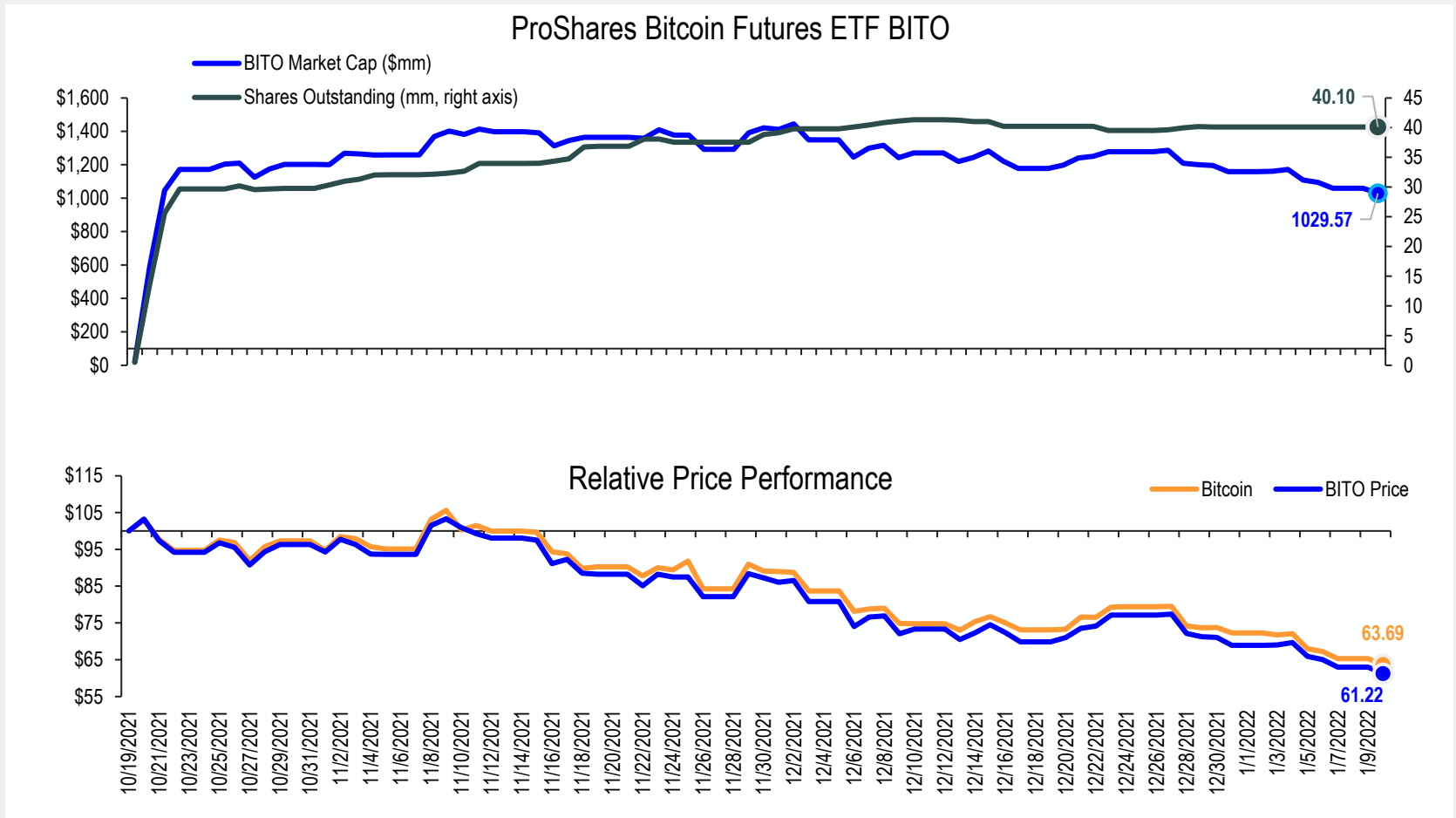


Figure: ProShares Bitcoin Strategy Futures ETF market cap and price performance compared to Bitcoin

Source: BitOoda, Bloomberg



# CME Commitment of Traders 1/4 Open Interest Fell With Large Decline in Spreading Positions

- The CME Bitcoin Commitment of Traders report shows that open interest decreased to 1/4/22
- Data shows 10,563 lots on 1/4, compared with 12,468 lots on 12/28
- Spreading positions decreased to just 861 lots vs 1,699 lots the week prior
- Commercial players and dealers had net short covering, while other reportable players increased their short positions
- Leveraged players covered both short and long positions, but more so their shorts

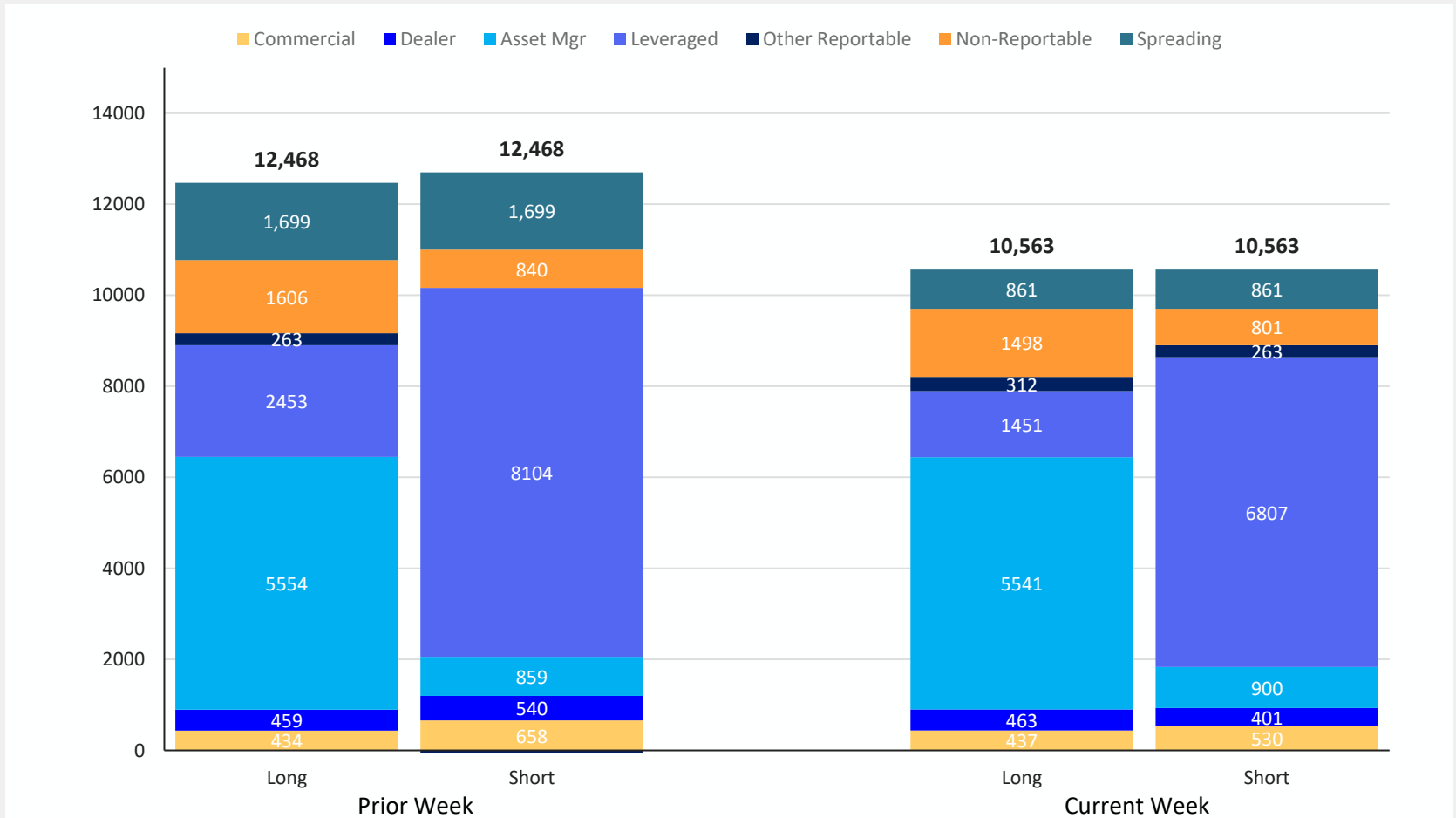


Figure: CME Bitcoin Commitment of Traders, 1/4/2022 and 12/28/2021

Source: BitOoda, Bloomberg, CME





# Non-Commercial Net Length Long 93 Lots

- Commercial Bitcoin players are not very active in the options space, participating mainly in the futures arena
- Commercial positioning has been largely long futures, but recently switched to short
- As a result, the net position for non-commercial market participants has been largely short and is now long for the first time since September
- The net length for non-commercial participants is now long 93, a significant increase in net length that has been extending from about a 729 lot net short at the end of November

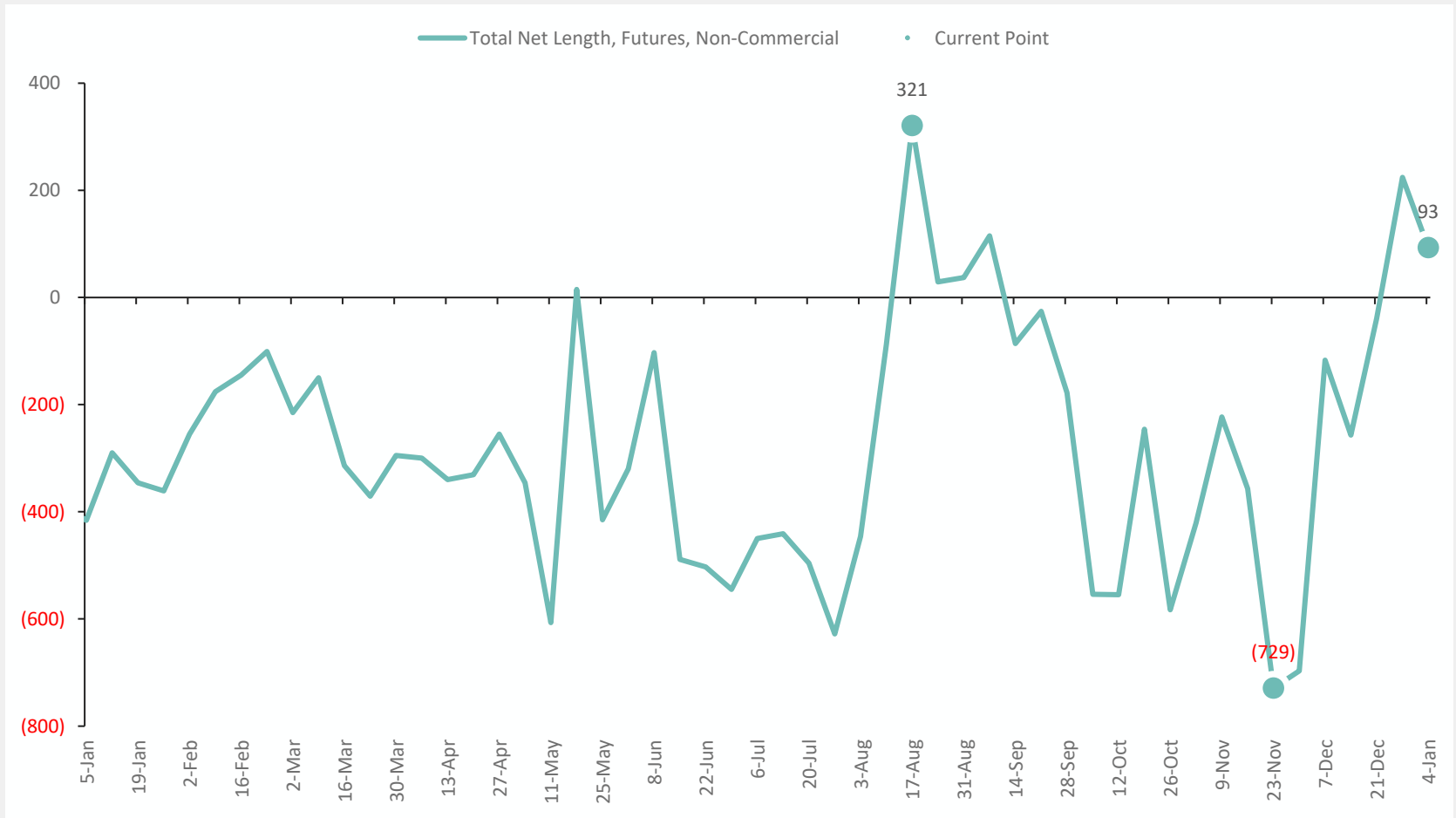


Figure: CME Bitcoin Future Non-Commercial Net Length, YTD

Source: Bloomberg



# BitOoda Hash™ Dashboard

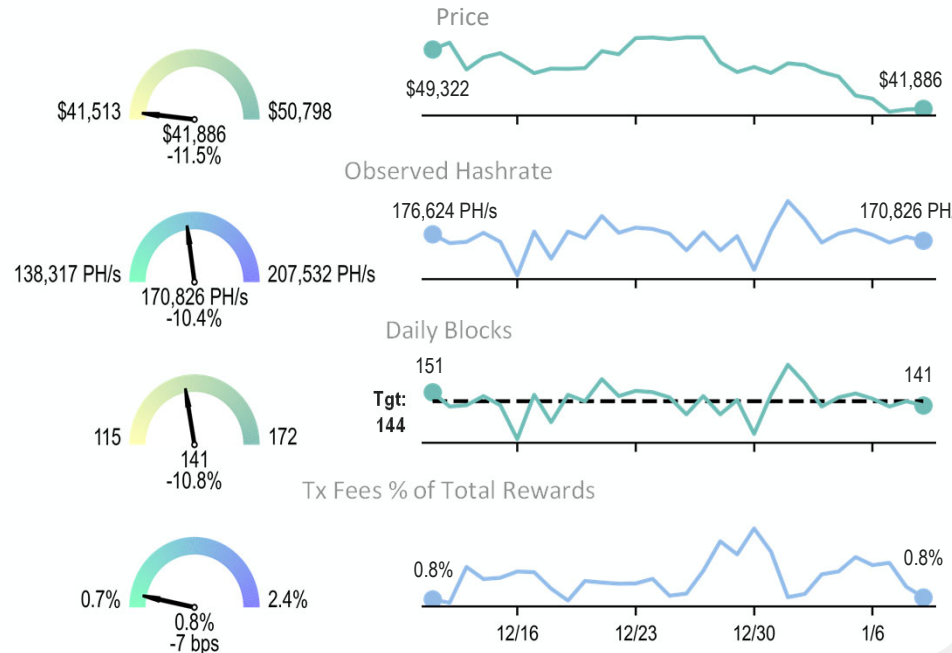
January 10, 2022

### Definitions

**Hash Spread:** the difference between the revenue per MWh from mining BTC and the weighted average cost of peak and off-peak power across 8 US zones. It is a quick measure of the profitability of US-based latest-generation mining rigs.

**MWh:** Megawatt hour  
**PH/s:** Petahash per second  
**Tx Fees:** Fees for BTC transactions

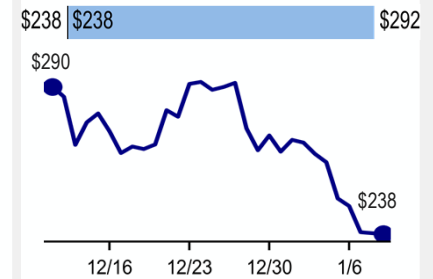
### 30 Day Range and 7-day % change



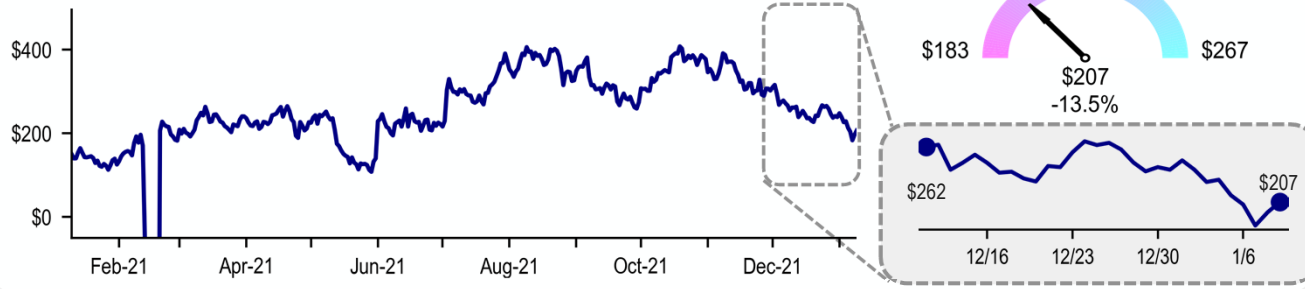
### Daily Revenue per PH/s



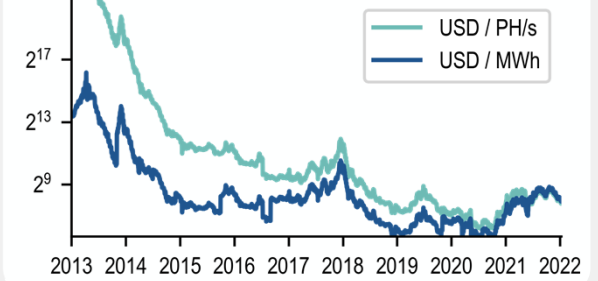
### Revenue per MWh (\$19 Class)



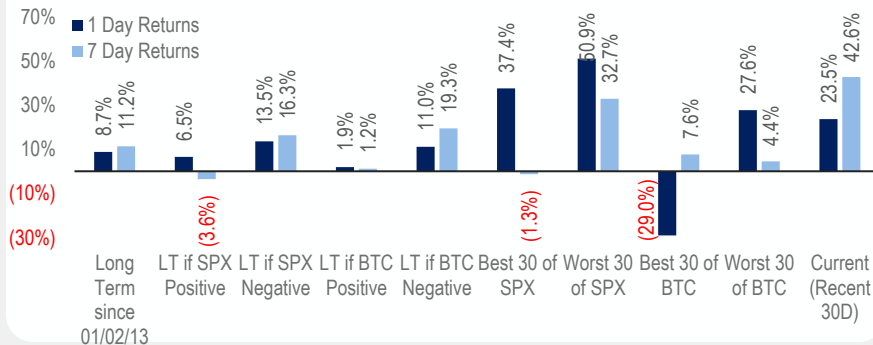
### BitOoda North American Hash Spread™



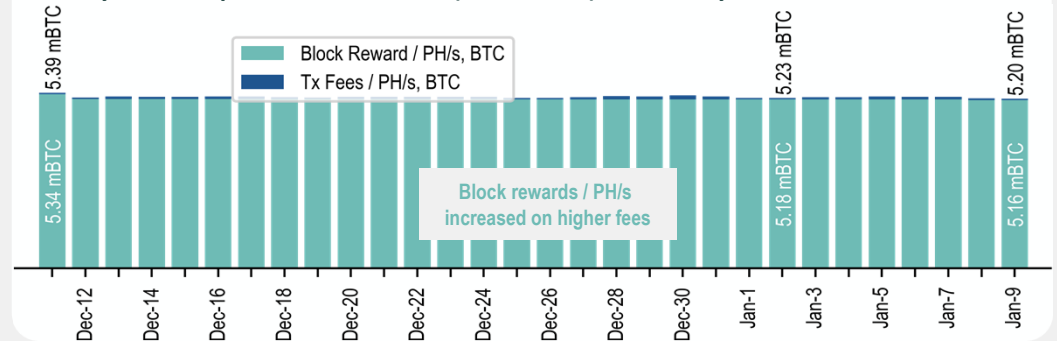
### Revenue, since 2013



### Historical BTC Correlation to S&P500



### Daily Rewards per PH/s, in milliBTC (1/1000 BTC), last 30 days





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