

March 17, 2021

Bitcoin Mining: The Modern Age Digital Gold Rush

As coined by Mark Twain, “During the gold rush it’s a good time to be in the pick and shovel business.” Bitcoin and the wider crypto market are the modern age digital gold rush. As investors rush to gain exposure to scarce digital assets rapidly appreciating in value, critical infrastructure and service providers have positioned themselves to capitalize on the growing market. Even more fundamental than the crypto exchanges, custodians, market makers, and prime brokers, Bitcoin miners and mining companies are among the most important core infrastructure required to ensure the public network operates as designed.

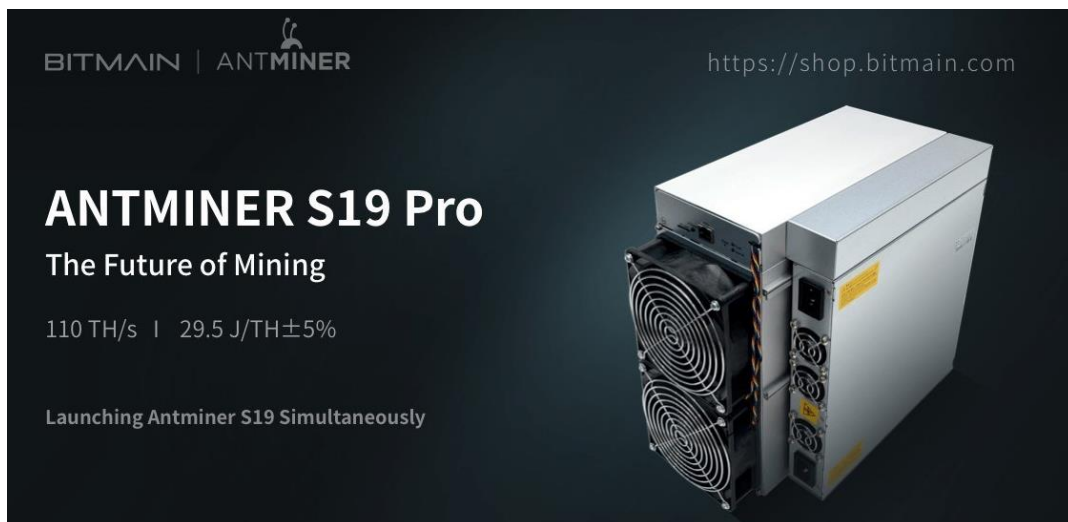
Bitcoin miners form the core backbone of Bitcoin’s blockchain. In order to secure the Bitcoin ledger of transactions, miners burn electricity to computer-generate guesses aiming to solve cryptographic puzzles. The first miner to solve the puzzle receives the right to mine the next block and collect the associated block reward (6.25 Bitcoin subsidy and transaction fees) every ~10 minutes. Through this proof-of-work consensus mechanism, globally distributed nodes can come to agreement on the state of the ledger and ensure the system’s integrity.

Since miners play such a critical role in ensuring the Bitcoin network functions properly, investors have sought opportunities to gain exposure to mining companies. Some companies such as MineSpot in Siberia act as a dedicated data center hosting their clients’ mining machines and charging them for electricity, rack space, and tech support. Others manufacture the hardware or processors such as Bitmain, Canaan, and Nvidia.

However, the purest way to gain exposure to mining is to invest directly in mining farms. Although they may offer additional services, these mining companies primarily generate revenue in the form of mined Bitcoin. As the Bitcoin is mined, the miners sell the assets to cover their expenses. Many choose to also hold a portion of their mined Bitcoin on their corporate balance sheet. The North American mining company, Marathon Digital Holdings, recently announced it had purchased an additional \$150 million worth of Bitcoin to hold on its balance sheet.

Bitcoin mining is a notoriously competitive industry, and to have any prospect of profitability, mining companies need two things: cheap electricity and specialized mining hardware. Miners’ capital expenses consist of the mining hardware, racks, property (if purchased), etc. Their operational expenses consist of the cost of electricity (price per kilowatt hour), rent, etc. Depending on how they structure their operations, mining companies may decide to include these costs as either opex or capex. For example, companies may purchase mining hardware as a depreciating asset (capex) or lease the hardware (opex). Most use some combination of the two business structures.

Two of the leading mining machines are MicroBT’s Whatsminer M30S+, available for \$1,580 and Bitmain’s Antminer S19 Pro, with a listing price of \$2,407 per machine. Prior to the release of the Antminer S19 in May 2020, the Antminer S9 was the mining machine of choice. With hashrate of 110 TH/s and power consumption of 3.25 kilowatts, the S19 is approximately 8x more profitable than the 13.5 TH/s S9. The Antminer S9 was released in September 2017, suggesting mining hardware may have a lifecycle of approximately three years.



BITMAIN | ANTMINER <https://shop.bitmain.com>

ANTMINER S19 Pro

The Future of Mining

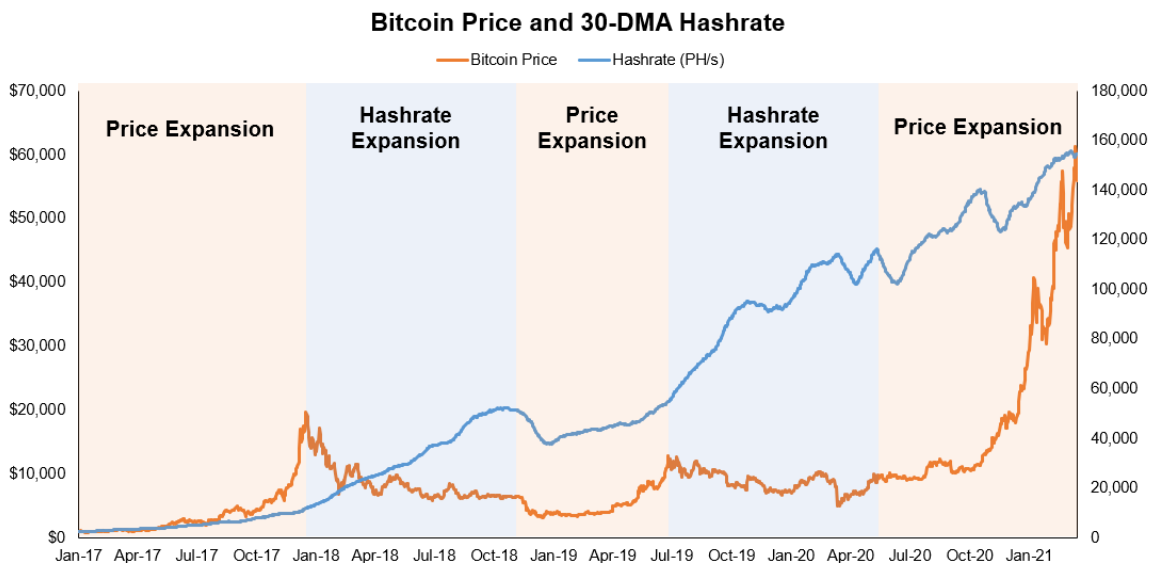
110 TH/s | 29.5 J/TH ±5%

Launching Antminer S19 Simultaneously

Source: <https://www.prnewswire.com/news-releases/bitmain-announces-specs-for-next-gen-antminer-s19-and-s19-pro-coming-soon-301012293.html>

Industry leaders are quickly upgrading to these “next-gen” mining machines to remain competitive. Marathon has agreed to purchase 70,000 S-19 ASIC miners from Bitmain for \$170 million. Delivery and deployment of the machines is expected to occur later this year, which will increase the company’s total miner count to 103,000 machines and hashrate production to 10.36 EH/s. An exahash (EH) represents a quintillion computations, an unfathomably large number as these computers compete to solve each new block’s cryptographic puzzle.

As Bitcoin’s price increases, hashrate tends to follow. Naturally, as the price increases, miners spin up new rigs or upgrade their hardware with more powerful and efficient machines to pursue the increasingly valuable block reward. In the chart below, we can see the lagging relationship of Bitcoin’s price and hashrate.



Source: Fundstrat, CoinMetrics, Glassnode

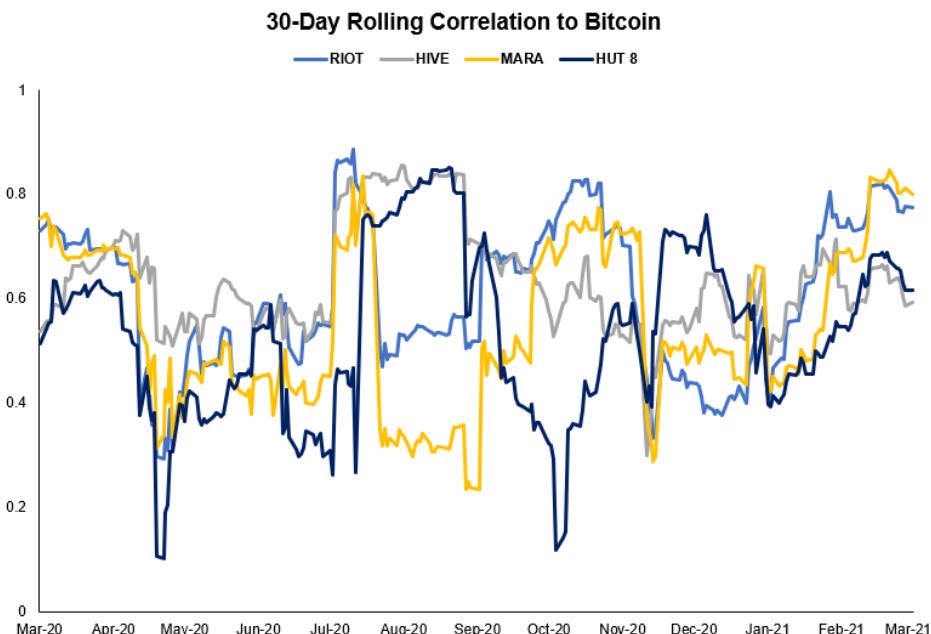
The largest publicly listed mining companies available to investors include Riot Blockchain (NASDAQ:RIOT), Hive Blockchain (OTCMKTS:HVBTF), Marathon Digital Holdings (NASDAQ:MARA), and Hut 8 (OTCMKTS:HUTMF). As the market leaders with public market liquidity, we focused our analysis on these four names.

Over the last twelve months, the largest public mining companies have outperformed Bitcoin. Although there is not enough historical data to confirm, mining company equities may serve as a high-beta play on Bitcoin. This would magnify performance to the upside and downside for these types of stocks. Clearly their performance is tied to the price of Bitcoin, but they may deliver amplified returns during a bull market. We are seeing this play out in the current market cycle. When Bitcoin enters a bear cycle, we would expect mining equities to have greater downside volatility than Bitcoin.



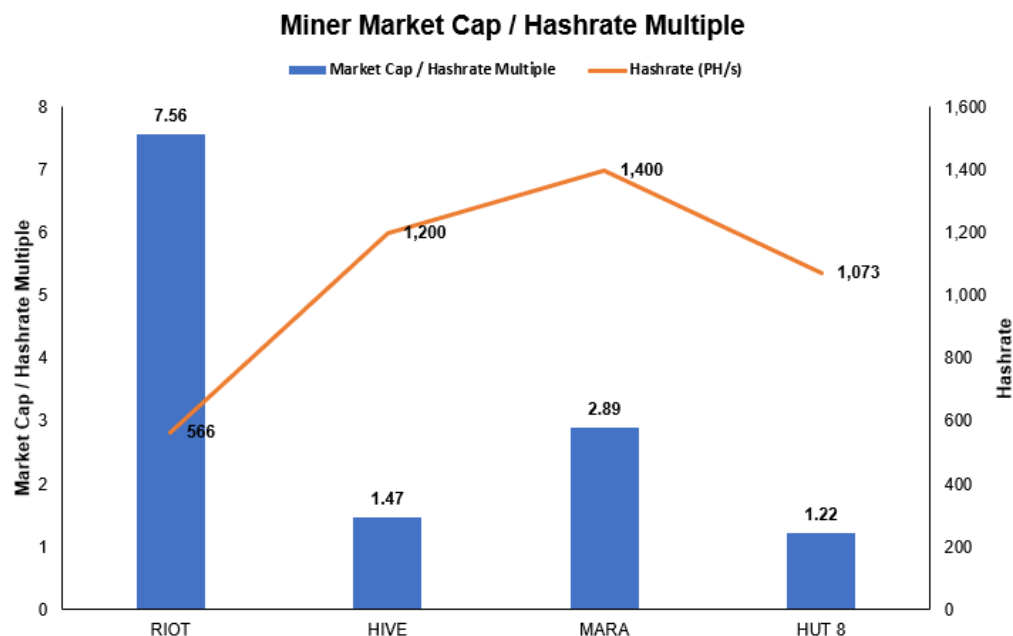
Source: Fundstrat, Bloomberg

LTM correlation between miner performance and Bitcoin performance has been high with an average correlation of 0.55 over the period.



Source: Fundstrat, Bloomberg

Dividing the equity market cap by their hashrate production may provide insight into comparative valuations, analogous to a P/E multiple. Out of the miners analyzed, MARA has the highest aggregate hashrate at ~1,400 PH/s. However, HUT 8 has the lowest market cap / hashrate multiple, suggesting it may be undervalued compared to its peers. Please note, this is a simplistic metric that does not account for important factors such as electricity cost, mix of mining hardware, operating leverage and other variables affecting the bottom line.



Date: 3/15/2021

Source: Fundstrat, Yahoo Finance, CoinDesk, Riot, Hut 8

Amongst these companies, we can see high capital expenditures leading to low or negative free cash flow and muted earnings. In preparation for the current bull market, these mining companies made significant capex investments for new mining hardware and operational capacity. This should provide incumbents economies of scale and shield them from newer entrants that join later in the cycle.

	HIVE	MARA	RIOT	HUT 8
In Millions of USD 12 Months Ending	Current/LTM 12/31/2020	Current/LTM 12/31/2020	Current/LTM 09/30/2020	Current/LTM 09/30/2020
Market Capitalization	1,186.7	3,587.1	3,954.9	904.9
- Cash & Equivalents	1.3	141.3	30.1	1.8
+ Preferred & Other	0.0	0.0	0.0	0.0
+ Total Debt	7.0	0.2	0.0	21.6
Enterprise Value	1,192.4	3,446.0	3,924.8	924.6
Revenue, Adj	39.0	4.4	8.0	31.7
<i>Growth %, YoY</i>	13.7	267.6	8.0	-47.5
Gross Profit, Adj	16.9	-2.6	2.3	-24.3
<i>Margin %</i>	43.3	-60.7	28.5	
EBITDA, Adj	35.7	-5.8	-5.7	25.2
<i>Margin %</i>	91.6	-132.9	-71.8	26.5
Net Income, Adj	29.1	-9.8	-10.8	-22.5
<i>Margin %</i>	74.7	-224.3	-135.3	69.5
EPS, Adj	0.08	-0.41	-0.37	
<i>Growth %, YoY</i>		14.2	78.2	
Cash from Operations	22.3	-7.8	-12.8	2.2
Capital Expenditures	-21.6	-17.7	-22.6	-11.1
Free Cash Flow	0.3	-25.5	-35.3	-8.9

Source: Fundstrat, Bloomberg

Although LTM earnings and free cash flow may look less than stellar, we believe these mining companies have taken the necessary steps to capture the growth of the current Bitcoin bull cycle. By making the right investments to increase their operating leverage and hashrate capacity over the last couple of years, public miners we analyzed successfully positioned themselves to benefit from Bitcoin's appreciation. This is apparent in their relative LTM price performance compared to Bitcoin. Over the past year, they greatly outperformed Bitcoin, which accelerated when the \$20,000 all-time high was breached. We expect this dynamic to continue as the bull market plays out.

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