

LM Funding America, Inc. (NASDAQ:LMFA)

Special Situation

Binary Option

Security Description

LM Funding America, Inc. operates two segments: bitcoin mining and specialty lending.



LMFUNDING

Investment Thesis

1. Bitcoin's price has risen sharply over 5- and 15-year periods. Increasing price, albeit a binary outcome, increases margin from bitcoin mining, all else equal.
2. LM Funding America faces, like many small businesses, and especially bitcoin miners, energy cost and margin risk. Still, it possesses advantageous computing power and modest economies of scale. If the company perseveres through volatility and adverse digital market events, it may retain competitive advantages and some barriers to entry.

Catalysts

- There are no fundamentally driven catalysts for this company. LM Funding America's equity provides an allocable derivative for bitcoin. The return from the security – in 5- to 15-year windows – may be a binary phenomenon. The binary events are (1) 100% loss or (2) 100 – 1000%+ gain. In the positive event, bitcoin spot price must rapidly appreciate over long periods of time.

Price Target

- Our model is binary. In our opinion, an adverse event is more likely than a positive because the latter relies on the spot price of an extremely volatile underlying asset; therefore, the expected return may be exponential and must be exponential to compensate investors taking on this risk.
- We do not make forecasts for spot prices; there are no tangible cash flows or operations for the underlying asset. However, the only empirical evidence – albeit academically unfounded – is the total return of bitcoin from inception and in 1-year, 5-year, and all-time intervals.
- On page 7 and 8 we delineate (1) our binomial tree and (2) what this means for LM Funding America's stock using a hypothetical dividend discount model on page 6: our price target is \$16 or 500% return, the probability of this event is under 2% and the reciprocal may mean total principal loss.

Risk

The company is exposed to substantial risk. Ultimately, we believe the results are binary; both our microeconomic, LM Funding America-specific findings and macroeconomic and academic statistical approaches delineate **adverse binary events are more likely than positive events**. Hence, the potential upside may be exponential.

- Bitcoin halving events routinely cut margins.
- Spot price must continue rising rapidly; halving events diminish mining operations and LM Funding America is currently unprofitable.
- Operating losses may render the company defunct before price-related revenue growth and margin provide cash flow. Time may run out.
- Operating costs (notably electricity) may be too burdensome for the company if spot price volatility is adverse for too long.
- Halving events and electricity costs bring pressure to small digital asset miners when compared with larger miners.
- Competitors possess more computing power.
- Competition may retain cost advantages.
- Bitcoin is extremely volatile. Volatility may lead to LM Funding America's and peers' deaths even if spot prices eventually recover and rise.
- Heavy capital expenditure is likely (computers).
- Bitcoin spot price volatility, and specifically drawdown, may render LM Funding America's capital expenditures futile for long periods.
- The company may turn to dilution for short- and medium-term survival, adversely affecting shareholders who may otherwise earn a return.
- Our model delineates spot price may need to appreciate 7x and 28x for 10- and 15-year success, respectively, for the company's success.

Risk, cont. and Financial Modeling Considerations

In this report, we delineate a probabilistic financial model. We believe the fundamentals of LM Funding America represent a binomial tree. The company faces challenges – some unique to itself and some applicable to all cryptocurrency mining companies – and we believe the fundamentals present a binary event. We quantify these findings on page 7 and 8.

- If the price of bitcoin were to crash, this would strain the entire mining industry. Companies will lose margin, and those with large, expensive operations will incur steep losses. However, those with large and costly operations are more likely to have built up relatively large cash and/or digital asset reserves. Therefore, unless the price of bitcoin subsequently rises and recovers in ample time for each respective industry constituent, the largest constituents are better suited to survive extreme market volatility (this is an extremely volatile market).
- If the price of bitcoin continues to rise, miners may be more likely to invest and spend from operating cash flow or short-term investments. These expenditures will tighten the financial flexibility of the operations. LM Funding America has little flexibility. Beyond short-term investments and short-term receivables, LM Funding America has less than \$200,000 (and an incoming \$2.6 million from the Q3 2024 private placement) in cash.
- Energy costs are another consideration for miners. Servers/computers must be stored and turned on. Economies of scale are advantageous; LM Funding America's competitors are many times larger than it. However, LM Funding America still retains some of these economies of scale advantages compared to brand new mining operations.
- Bitcoin halving events are universally problematic for cryptocurrency miners. Without evidence, proponents of cryptocurrency (those who believe in investing directly in bitcoin) believe halving events indirectly – or perhaps directly – increase the price of the underlying digital asset over time. Nonetheless, halving events explicitly and materially show up on miners' income statements; they reduce margins by increasing operating costs. Therefore, **miners face additional risk; the probabilities of adverse events increase and the hurdle for a positive event becomes more challenging.**
- For reference, we estimate LM Funding America's bitcoin mining capacity per machine per month fell from 28 to 14 per month.
- For reference, according to Terawulf, one of the largest bitcoin miners, "power cost per bitcoin self-mined increased year-over-year, to \$22,954 per bitcoin in Q2 2024 from \$6,688 per bitcoin in Q2 2023, due to an approximate doubling in network difficulty and the bitcoin reward halving in April 2024."
- Bitcoin is a difficult underlying asset to value. It is a new asset class and a currency (or at least a budding one). The only available data is price (and number of coins). One of the approaches is simple linear regression, modeling the spot price to continue appreciating in either equal speed/proportion or diminishing speed/proportion. Although this is not a strong argument, we believe this is the only argument. More importantly, since rapid bitcoin price appreciation is the basis of LM Funding America's and most miners' success or failure, with a higher bar for success because moderate success or periods of adverse events may mean company death, we believe LM Funding and miners' valuations are indeed binary (larger competitors have more protection in the downside), just like security prices. We delineate bitcoin's historical performance on page 9 as a consideration for selecting our valuation methodology and the binomial tree (shown on pages 7-8).

Bitcoin Mining

- Bitcoin mining is the process through which transactions on the bitcoin network are permanently recorded on the blockchain. It is also how new bitcoins are minted into circulation.
- A blockchain is a public distributed ledger where all transactions are recorded chronologically. Once a record is added to the blockchain, it cannot be altered or modified, which keeps transactions safe from hacking.
- Bitcoin mining uses the proof of work algorithm, where miners deploy computers/machines to solve complex equations (in the form of cryptographic hashes). A hash is a part of an equation, and it must be completed/solved. A computer will attempt all possible values until solved.
- Hash rate is a measure of the number of guesses a computer makes per second before solving an equation.
- Hashes are generated during a bitcoin transaction; the first miner that solves the hash adds a block to the bitcoin ledger and receives a reward in bitcoin. Every block inside the chain relies on a hash function to reference the previous block, which creates an unbroken record of blocks in a chain that can be traced back to the first block.
- This sequential record makes it possible to verify if a given block is valid and if the miner that validated the block properly solved the hash to get its bitcoin reward.
- Mining is done using computers. Any computer may mine bitcoin and solve equations, but only powerful computers typically mine bitcoin. The more speed – or higher hash rate – the faster a computer may mine bitcoin.
- A data center with 5900 computers mining bitcoin at 600 petahash per second (like LM Funding America) may mine 28 bitcoin in a month (before the April 2024 halving event). A regular laptop or computer may take decades to mine one bitcoin.
- Typically, a up-to-standard mining machine costs between \$4,000 and \$10,000.
- Bitcoin may be held as a store of value or it may be sold for spot price.
- Bitcoin halving refers to an event where the bitcoin mining reward is reduced by 50%. Halving increases the cost per bitcoin. Halving events are approximately every four years or until 21 million bitcoins are mined.
- With time, as miners use machines with more computing power to solve the proof of work, the difficulty of the equation rises. The competition amongst miners also rises, which increases the scarcity of bitcoin.
- In theory, according to cryptocurrency proponents, a major upside of bitcoin halving on miners is it increases bitcoin scarcity. This scarcity should increase demand, which should theoretically increase profits for miners. However, halving events increase operating costs for miners and cut margin. This happens routinely every (approx.) 4 years. This hurts small miners with smaller operations more than large miners with larger operations.

LM Funding America, Inc.

- Reported \$4.7 million Q2 2024 revenue and we estimate \$(2.4) million EBITDA. Older periods become less important due to halving events and operating changes (# of machines). Even this period is less significant due to a halving event and asset transit; the company is moving machinery to a new facility. Data requires adjustment.
- \$8.3 million worth of bitcoin held on the balance sheet.
- \$1.9 million receivables from investments due in 2025.
- 5900 machines
 - In our estimation, the company's mining capacity is 138 bitcoin annually (for 3 to 4 years before the next expected halving event).
- Approximately 639 petahash/s hash rate.
- In Q3 2024, LM Funding America announced a \$2.6 million private placement.
- The company also has a specialty lending division, but we believe the success or failure of the lending business may only have a marginal effect on the stock.

Recently, in Q2 2024, the company began moving some operations/hardware to Oklahoma, where the new facility is expected to reduce energy costs. Hence, results are adversely affected in Q2 and through Q3. Data below are operational results for these months; these do not reflect total operations. We estimate some key metrics using the company's data to delineate what operations truly reflect (shaded in green). Recall: data below was also subject to a halving phenomenon in April 2024, requiring adjustment to reflect current mining capability (which we partially use in model considerations). Shaded in green are our adjustments (shaded in white are data directly from the company).

Metrics * <i>unaudited</i>	Three Months 1st Qtr. 2024	One Month April 30, 2024	One Month May 31, 2024	One Month June 30, 2024	One Month July 31, 2024	One Month August 31, 2024	Eight Months Ended August 31, 2024
Bitcoin Mined, net	86.4	24.7	14	5.4	4.6	7.2	142.3
Est. Revenue	\$ 4,924,800	\$ 1,580,800	\$ 980,000	\$ 345,600	\$ 289,800	\$ 417,600	\$ 8,538,000
Est. Spot Price	\$ 57,000	\$ 64,000	\$ 70,000	\$ 64,000	\$ 63,000	\$ 58,000	\$ 60,000
Revenue Per Machines Deployed <i>per month</i>	\$ 276	\$ 269	\$ 178	\$ 184	\$ 76	\$ 113	
Approximate Miners Deployed at Month End	5,940	5,880	5,510	1,878	3,800	3,700	
Approximate Miners In-Transit at Month End			370	4,002	2,080	2,200	
Approximate Potential Hash Rate at Month End (PH/s)	614	639	639	639	639	639	
Assumed Margin	67%	67%	67%	67%	67%	67%	
Est. Coin Profit	\$ 1,629,616	\$ 523,087	\$ 324,282	\$ 114,359	\$ 95,895	\$ 138,184	
Est. Profit per Coin	\$ 18,861	\$ 21,178	\$ 23,163	\$ 21,178	\$ 20,847	\$ 19,192	
Bitcoin Beginning Balance	95.1	163.4	155.1	163.1	160.5	132.5	95.1
Bitcoin Sold	18	33	6	8	32.5	4	101.5
Service Fee	0.1	-	-	-	0.1	-	0.2
Bitcoin Holdings at Month End	163.4	155.1	163.1	160.5	132.5	135.7	135.7

- In the above, revenue per machine deployed per month quantitatively delineates the affects of bitcoin halving events. Below is another illustration of this phenomenon; but again, this is incomplete as the phenomenon occurred during the reported period.

Cost of Revenues - Analysis of costs to mine one Bitcoin (per Bitcoin amounts are actual)	Six Months Ended June 30,	
	2024	2023
Digital mining revenues	\$ 7,490,981	\$ 5,059,173
Average revenue of each Bitcoin mined (1)	\$ 57,446	\$ 25,513
Cost of mining - hosted facilities	\$ 5,012,057	\$ 4,029,498
Hosting fees expense per one Bitcoin	\$ 38,436	\$ 20,320
Bitcoin Mined	130.40	198.30
Cost of mining one Bitcoin as % of average Bitcoin mining revenue	66.91 %	79.65 %

unaudited

We forecast an annual schedule (right).

We do not use a discounted cash flow valuation. We do, however, delineate a 15-year pro forma with 5-year intervals in combination with our primary model (bottom of page).

We believe investment in LM Funding America closely resembles a binary option. Hence, we use a probabilistic model. A probabilistic model is a stochastic model/process, often used for pricing derivatives, where probability is assigned to each event; in the case of asset prices, there are two events in each step: up event or down event.

Est. Annualized	2025
Machines	5,900
# of BTC Mined	138
Spot Price	\$ 60,000
Revenue	\$ 8,753,096
Mining Revenue	\$ 8,280,000
Other Revenue (Specialty Lending and other)	\$ 473,096
Mining Cost	\$ 5,856,697
Gross Profit	\$ 2,896,399
Loss (Gain) on Fair Value of BTC	\$ -
Depreciation & Ammortization	\$ 9,358,808
Selling General & Administrative	\$ 782,724
Payroll	\$ 3,351,552
Other Costs	\$ 3,035,840
Operating Income	\$ (13,632,525)
EBITDA	\$ (4,273,717)

Asset prices have infinite possibilities of price and price movements. In probabilistic models, these are combinations (milliseconds of constant up and down events) of infinite up and down events. If binary options are held to expiry, then the value is less infinite and less constant. For example, buying a call option and holding to expiry pays out either (1) a payoff (ideally a big payoff, compensating for risk) or (2) total principal loss.

Bitcoin is not an option itself; bitcoin prices can be up or down $> 0\%$ with a lower limit of -100% and an upper limit of infinity. However, we believe LM Funding America's valuation is best represented by a call option with outcomes determined by bitcoin price (the underlying).

As we discussed, the price of bitcoin must continue rapidly increasing for LM Funding America's success and must not decline over a 5-year period relative to today; if it were to decline, it likely means a total loss on investment. Further, substantial price appreciation must happen again in the next 5-year period. It must happen once more in the final 5-year period. In each period, anything less than fantastic price appreciation means a total principal loss. Spot price may be volatile, and although volatility is potentially disastrously problematic for LM Funding America, it does not mean imminent loss the same way as overall price decline and extended periods of decline.

Thus, we present a binomial tree (on page 7-8) and a pro forma below.

- Phase 1 (2025 – 2030): Spot price must rise 83% to \$110,000 from \$60,000 (positive event) or else the investment is dead (adverse event, -100%).
- Phase 2 (2030 – 2035): Spot price must rise 355% to \$500,000 from \$110,000 (positive event) or else the investment is dead (adverse event, -100%).
- Phase 3 (2035 – 2040): Spot price must rise 250% to \$1,750,000 from \$500,000 (positive event) or else the investment is dead (adverse event, -100%).

Est. Annualized	2025	2030	2035	2040
Machines	5,900	5,900	5,900	5,900
# of BTC Mined	138	138	69	34.5
Spot Price	\$ 60,000	\$ 110,000	\$ 500,000	\$ 1,750,000
Revenue	\$ 8,753,096	\$ 15,580,000	\$ 34,900,000	\$ 60,775,000
Mining Revenue	\$ 8,280,000	\$ 15,180,000	\$ 34,500,000	\$ 60,375,000
Other Revenue (Specialty Lending and other)	\$ 473,096	\$ 400,000	\$ 400,000	\$ 400,000
Mining Cost	\$ 5,856,697	\$ 10,424,578	\$ 23,351,590	\$ 40,664,553
Gross Profit	\$ 2,896,399	\$ 5,155,422	\$ 11,548,410	\$ 20,110,448
Loss (Gain) on Fair Value of BTC	\$ -	\$ -	\$ -	\$ -
Depreciation & Ammortization	\$ 9,358,808	\$ 9,358,808	\$ -	\$ -
Selling General & Administrative	\$ 782,724	\$ 782,724	\$ 782,724	\$ 782,724
Payroll	\$ 3,351,552	\$ 3,351,552	\$ 5,027,328	\$ 6,535,526
Other Costs	\$ 3,035,840	\$ 3,035,840	\$ 4,553,760	\$ 5,919,888
Operating Income	\$ (13,632,525)	\$ (11,373,502)	\$ 1,184,598	\$ 6,872,309
EBITDA	\$ (4,273,717)	\$ (2,014,694)	\$ 1,184,598	\$ 6,872,309

- We may now arrive at cash flow in 2040. We model the company paying out a 90% dividend to account for cash flow growth in this scenario, rather than a discounted cash flow model. In 2040, in the positive outcome, **annual cash flow is \$5.5 million or 77% of the market cap today** (before discounting to present value). To value this in return, we present a dividend discount model using 4% constant growth, 100 basis point higher than the higher end of modest-to-high constant growth rates referencing GDP and/or mature businesses). We arrive at a price target of \$16 or 537% return.

		Return	Price Target
Market Value of Equity	\$ 7,185,554		
Stock Price	\$ 2.56		
Risk Free Rate	4%		
EBITDA, Year 15	\$ 6,872,309		
Cash Flow (NOPAT), Year 15	\$ 5,497,847		
Pay Out 90% as Dividend	\$ 4,948,063		
Discount to Present Value Using Risk Free Rate	\$ 2,747,483		
Required Return Cost of Equity 1	10%		
Required Return Cost of Equity 2	15%		
Required Return Cost of Equity 3	25%		
Dividend Discount Model 1	\$ 45,791,392	537%	\$ 16.31
Dividend Discount Model 2	\$ 24,977,123	248%	\$ 8.90
Dividend Discount Model 3	\$ 13,083,255	82%	\$ 4.66

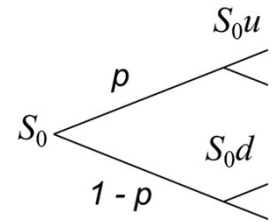
- We believe a higher required return of 25% may satisfy investors' required compensation because of bitcoin's extreme volatility and LM Funding America's size and risk profile. Hence, we delineate a \$4.66 price target for the equity or 82% upside.
- In a more modest required return approach using 15%, the equity delineates almost 250% upside. These modest required return rates are still reasonable model inputs because this is a 15-year investment model.

We delineate this in a binomial tree using spot price of bitcoin as the underlying asset.

Binomial Model

We believe spot price of bitcoin must appreciate to \$110,000 by 2030 for LM Funding America to continue operating as a company. We set the initial price of bitcoin at \$60,000 on January 1, 2025. This, therefore, represents an 83% increase in price. In any situation where spot price is less than \$110,000, we qualify and quantify this as an adverse event and total principal loss.

- μ = upward movement factor/size of an up-move
- d = downward movement factor/size of a down-move
- $d = \frac{1}{\mu}$ i.e. the downward movement factor is the reciprocal of the upward movement factor
- π_μ = risk-neutral probability of an up move
- π_d = risk-neutral probability of a down move
- $\pi_\mu = \frac{1+R_f-d}{\mu-d}$
- $\pi_\mu + \pi_d = 1$ thus $\pi_d = 1 - \pi_\mu$
- R_f = risk-free rate = 4% or 0.04
- K = strike price of a call option = \$60,000 and expiry is 15 years



First, we use our spot price targets. The downward movement factor d_1 is defined by the reciprocal of the upward factor.

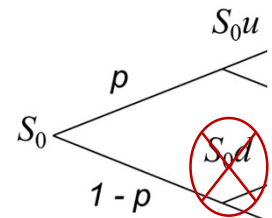
$$\mu_1 = \frac{110,000}{60,000} = 1.8333$$

$$\text{Thus, } d_1 = \frac{1}{\mu_1} = \frac{1}{1.8333} = 0.5455$$

This means that in the first period, the price either goes up by a factor of 1.8333 or down by a factor of 0.5455. Thus, the strike price in the up state is $\$60,000 \times 1.8333 = \$110,000$ and the strike price in the down state is $\$32,727$. Again, in our real-world application of this model, the state situation is total principal loss. With our inputs (risk-free rate of 4%), we can calculate the probability of these events.

$$\pi_\mu = \frac{1+R_f-d}{\mu-d} = \frac{1+0.04-0.5455}{1.8333-0.5455} = 0.3840$$

$$\pi_d = 1 - \pi_\mu = 1 - 0.3840 = 0.6160$$



Now, we may proceed to the next stage, or years 2030-2035. We believe bitcoin must return 335% in these 5 years from \$110,000 to \$500,000 for LM Funding America to sustain operations.

The upward movement factor μ_2 can be calculated as:

$$\mu_2 = \frac{500,000}{110,000} = 4.5455$$

The downward movement factor is given by:-

$$d_2 = \frac{1}{\mu_2} = \frac{1}{4.5455} = 0.2200$$

In this second period, the price either goes up by a factor of 4.5455 or down by 0.2200.

Thus, the strike price in the up state is $\$110,000 \times 4.5455 = \$500,000$ and the strike price in the down state is $\$110,000 \times 0.2200 = \$24,200$. Again, the down state means, in our real-world application, principal loss.

$$\pi_\mu = \frac{1+R_f-d}{\mu-d} = \frac{1+0.04-0.2200}{4.5455-0.2200} = 0.1896$$

$$\pi_d = 1 - \pi_\mu = 1 - 0.1896 = 0.8104$$

Now, we may proceed to the final stage or years 2035-2040. We believe bitcoin must return 250% in these 5 years from \$500,000 to \$1,750,000 for LM Funding America to sustain operations. **Here, we believe, as our pro forma on page 5 (and 6) delineates, enormous value may be found.**

The upward movement factor is μ_3 is:

$$\mu_3 = \frac{1,750,000}{500,000} = 3.5$$

This represents a 250 % increase over 5 years.

The downward movement factor d_3 is:

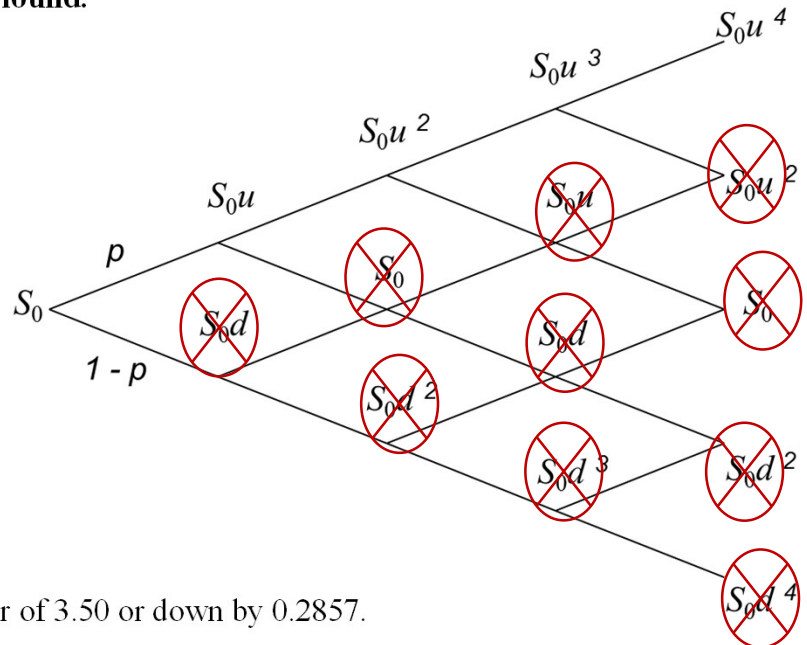
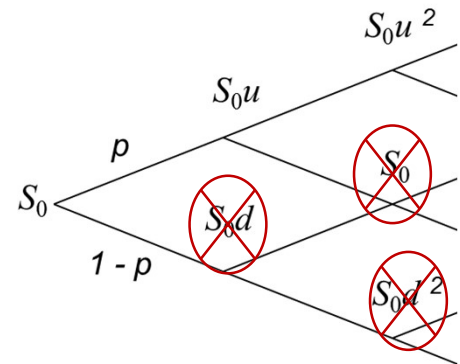
$$d_3 = \frac{1}{\mu_3} = \frac{1}{3.5} = 0.2857$$

In the third period, the price either goes up by a factor of 3.50 or down by 0.2857.

Thus, the strike price in the up state is $\$500,000 \times 3.50 = \$1,750,000$ and the strike price in the down state is $\$500,000 \times 0.2857 = \$142,857$.

$$\pi_\mu = \frac{1+R_f-d}{\mu-d} = \frac{1+0.04-0.2857}{3.5000-0.2857} = 0.2347$$

$$\pi_d = 1 - \pi_\mu = 1 - 0.2347 = 0.7653$$



The likelihood of earning 500% on any investment is low. We may take the product of each up-move probability and arrive at 1.71% probability ($0.3840 \times 0.1896 \times 0.2347$).

Of course, an investor must be comfortable with this risk. An astute investor must support this with evidence. As we explained, the empirical evidence for bitcoin price appreciating 28x from 2025 to 2040 is the past performance of bitcoin. This is not strong, scientific evidence; however, as we stated, it is the only evidence.

- Since inception, bitcoin has returned millions of percent; the price at inception was near zero. We reference 2014.
- Since 2009, bitcoin has returned over 1,000,000%
- Since 2014, bitcoin has returned over 850%
- Since 2019, bitcoin has returned over 600%
- Since 2023, bitcoin has returned over 125%
- The maximum drawdown since inception is 82%
- The standard deviation is between 150 and 350% for most periods; bitcoin is extremely volatile.
- Compound annual growth rate is over 100% for almost all periods longer than one year.

Time	Q1	Q2	Q3	Q4
2024	+68.68%	-11.92%	+0.96%	-2.25%
2023	+71.77%	+7.19%	-11.54%	+56.9%
2022	-1.46%	-56.2%	-2.57%	-14.75%
2021	+103.17%	-40.36%	+25.01%	+5.45%
2020	-10.83%	+42.33%	+17.97%	+168.02%
2019	+8.74%	+159.36%	-22.86%	-13.54%
2018	-49.7%	-7.71%	+3.61%	-42.16%
2017	+11.89%	+123.86%	+80.41%	+215.07%
2016	-3.06%	+62.06%	-9.41%	+58.17%
2015	-24.14%	+7.57%	-10.05%	+81.24%
2014	-37.42%	+40.43%	-39.74%	-16.7%
2013	+539.96%	-3.97%	+40.6%	+479.59%
Average	+56.47%	+26.89%	+6.03%	+81.25%
Median	+3.64%	+7.38%	-0.80%	+31.18%

Source: Coinglass

Competition

There are many large competitors in the space. Their main competitive advantages are fleet size, computing power, short-term assets, and, for international competition in advantageous geographies or competition with economies of scale, energy cost.

Comparables	Est. Bitcoin Mined per Month	Market Capitalization	Hash Rate (petahash, PH/s)	Est. Annualized Bitcoin Revenue	Est. Sales Multiple	Est. # Bitcoin on Balance Sheet	Est. Bitcoin Value	Cash
MARA	705	\$ 4,800	37,000	\$ 533	0.11x	27,000	\$ 1,701	\$ 256
RIOT	412	\$ 2,380	28,000	\$ 311	0.13x	27,000	\$ 1,701	\$ 481
WULF	195	\$ 1,680	8,200	\$ 147	0.09x	14	\$ 1	\$ 104
BTBT	52	\$ 500	2,430	\$ 39	0.08x	731	\$ 46	\$ 104
LMFA	14	\$ 7	639	\$ 11	1.51x	143	\$ 9	\$ 2

- LM Funding America is one of the smallest bitcoin miners in the industry. There is extensive risk in investing in its equity; however, the upside is much higher, in our opinion. In our binomial model, the adverse events are universally adverse, albeit the large competitors have more margin for avoiding company failure. The positive event, in our opinion, may yield more return for LM Funding America shareholders than for competitors, who compensate with a slightly lower risk profiles.
- LM Funding America is trading at a premium to competition. The comparables trade at an average of 1/10th of estimated annualized revenue (calculation excludes LM Funding America). All 2 phases/steps/intervals of our binomial model are crucial (short-term, long-term, and 15-year term). Any failure (adverse event) may likely lead to principal loss. Principle loss is certain in most adverse events but is further certain if the company cannot proceed to binomial step 2 (years 5-10 in our model) and again to step 3. Positive events following an adverse event may set shareholders back far too much to recoup losses. Further, the company may fail before phase 2 arrives. If it survives, the gains may not make up for the initial losses. Moreover, the company may not survive the first 5 years without a positive event; it may only survive without a positive event by diluting shareholders.
- LM Funding America has almost no cash on the balance sheet. It has less than \$10 million in short-term investments (bitcoin held on balance sheet). It also has some short-term receivables (less than \$2 million) from its lending business. Liquidity is constrained, it may not proceed to phase 2 of our binomial tree without dilution (which is, for shareholders, practically equal to an adverse event) or a positive event.
- We believe there is potential for a buyout, but this changes in every medium-term period. Machines depreciate and new machines get faster, new models arise, etc. The current machinery asset value the company reports is \$19.7, down \$9.9 million YoY after reducing the amount by accumulated depreciation. We do not rely on asset or book value to determine appropriate valuation.

Appendix.

Definitions

- The smallest unit of a blockchain is a block, and it holds all the details of a group of transactions. Each block contains the following parts:
 - Previous hash: This attribute contains the value of the hash of the previous block, which is how blocks link to each other.
 - Data: This is a set of transactions in the block that have been mined and verified.
 - Nonce: This is a random value that is used to vary the hash value output. Every block generates a hash value, and a nonce is the parameter used to generate this hash value.
 - Hash: The hash is the value that is generated when a miner passes the previous hash value, data, and nonce, using the SHA-256 algorithm. It acts as the permanent digital signature of a block.
- Hash rate is measured in hashes per second that are generated. Common hash rate measures are:
 - Kilohash per second is 1000 hashes per second, which is very low
 - Megahash per second is 1 million hashes per second and can be generated using a GPU or CPU, and is considered very slow
 - Gigahash per second is 1 billion hashes per second and can be generated using a single mining rig
 - Terahash per second is 1 trillion hashes per second and can be generated using a single ASIC or a small mining pool
 - Petahash per second is 1 quadrillion hashes per second, and it is generated by a small to medium-sized mining pool
 - Exahash per second is 1 quintillion hashes per second and is generated by a large or major mining pool
 - Zettahash per second is 1 sextillion hashes per second and has not been reached yet by the Bitcoin network
 - Bitcoin mining is done using software and hardware that generates a cryptographic number, which is equal or less than the number set by the network's difficulty algorithm. The first machine to find a solution to the problem is rewarded in new Bitcoin, and the process starts again.
 - The Bitcoin reward is used to incentivize miners to help record new transactions on the blockchain for the network to verify them.
 - As of April 19, 2024, the reward for mining Bitcoin was cut to 3.125 per block solved every ten minutes. The halving occurs roughly once every four years, and in 2028, another halving event will occur, with the reward being halved to 1.5625 BTC.
 - In the early days of Bitcoin, miners would use their computer's CPU. However, as more miners joined the network, it became necessary to upgrade to specialized processors used in gaming called Graphical Processing Units (GPUs) and later ASICs.
 - A typical GPU can cost up to \$2000, with ASICs costing even more. Each year, more powerful, and energy efficient ASICs are produced, with some costing over \$11,000.
 - Bitcoin mining pools are third party groups of miners that work together to mine new Bitcoin, and share the payouts. By working together, mining pools increase the chances of solving the cryptographic equation compared to working alone.

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