OVERVIEW

• Who is ARK?

• What drew ARK to bitcoin?

• What is the current state of bitcoin ETFs?

• What is next for cryptoassets at large?

*Bitcoin held in the portfolios through GBTC – Bitcoin Investment Trust*
WHO IS ARK INVESTMENT MANAGEMENT?

• Registered Investment Adviser founded in January 2014, with $560 million in AUM as of 4/30/17

• Focused solely on disruptive innovation, including autonomous vehicles, deep learning, 3D printing, genomics and blockchain technology

• Open source research ethos augments a variety of investment vehicles

• First public fund manager to have invested in bitcoin*, including two ETFs that have bitcoin exposure: ARKW & ARKK

*Bitcoin held in the portfolios through GBTC – Bitcoin Investment Trust
WHY WAS ARK INTERESTED IN BITCOIN?

BITCOIN: RINGING THE BELL FOR A NEW ASSET CLASS

Update: January 2017
A BLOCKCHAIN IS LIKE A PERSONAL COMPUTER

- Computers in a Distributed Network running blockchain software (e.g., Bitcoin, Ethereum, Corda, etc)
- Blockchain Software maintained by Developers (open source vs proprietary)
- Companies building applications on top of the hardware and operating system stack provided by the computers & developers
- Users interfacing with applications
The Investment Opportunity of Bitcoin & Cryptoassets

A DISTRIBUTED LEDGER

GLOBAL BITCOIN NODES DISTRIBUTION
Reachable nodes as of Fri May 05 2017 09:51:27 GMT-0400 (EDT).

6953 NODES
24-hour charts »

Top 10 countries with their respective number of reachable nodes are as follows.

<table>
<thead>
<tr>
<th>RANK</th>
<th>COUNTRY</th>
<th>NODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>United States</td>
<td>1932</td>
</tr>
<tr>
<td>2</td>
<td>Germany</td>
<td>1361</td>
</tr>
<tr>
<td>3</td>
<td>France</td>
<td>479</td>
</tr>
<tr>
<td>4</td>
<td>Netherlands</td>
<td>400</td>
</tr>
<tr>
<td>5</td>
<td>Canada</td>
<td>302</td>
</tr>
<tr>
<td>6</td>
<td>United Kingdom</td>
<td>277</td>
</tr>
<tr>
<td>7</td>
<td>n/a</td>
<td>253</td>
</tr>
<tr>
<td>8</td>
<td>China</td>
<td>215</td>
</tr>
<tr>
<td>9</td>
<td>Russian Federation</td>
<td>190</td>
</tr>
<tr>
<td>10</td>
<td>Sweden</td>
<td>107</td>
</tr>
</tbody>
</table>

More (90) »

Map shows concentration of reachable Bitcoin nodes found in countries around the world.

Source: https://bitnodes.21.co/
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BLOCKS OF TRANSACTIONS

Source: https://tradeblock.com/bitcoin/
BITCOIN MARKET (as of 4/30/2017)

- 16.3 million bitcoin outstanding
- Currently ~4% supply inflation/year
- Market capitalization >$20 billion USD
- Trading $100-500 million USD on a daily basis

Source: https://blockchain.info/, https://www.cryptocompare.com/
US DOLLAR & GOLD: SUPPLY SCHEDULES

1. **US Monetary Base**
   Annual Rate of Supply Increase
   - Graph showing the rate of supply increase over years.

2. **US Monetary Base**
   - Graph showing the increase in US Monetary Base over time.

3. **Gold Supply**
   Annual Rate of Supply Increase
   - Graph showing the rate of gold supply increase over years.

4. **Gold Outstanding**
   - Graph showing the stock of gold outstanding over time.

[1] Source: ARK Invest Research, Federal Reserve Bank of St. Louis,
[2] Source: ARK Invest Research, Federal Reserve Bank of St. Louis,
[3] Source: ARK Invest Research, Number Sleuth,
[4] Source: ARK Invest Research, Number Sleuth
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BITCOIN: SUPPLY SCHEDULE

1. The Investment Opportunity of Bitcoin & Cryptoassets


   ![Bitcoin Average Annual Rate of Supply Increase](chart1)

   ![Bitcoin Outstanding](chart2)
The Investment Opportunity of Bitcoin & Cryptoassets

BITCOIN CORRELATION TO OTHER ASSETS

Average One Year Rolling Correlation
Since the Start of 2011

- Bitcoin’s Average Correlation with all Assets Herein

Note: Data as of November 25, 2016
Source: ARK Investment Management LLC & Coinbase, data sourced from Bloomberg & CoinDesk
BITCOIN VOLATILITY

Bitcoin Daily Volatility Over the Trailing Year

Note: Data as of April 30, 2017
Source: ARK Investment Management LLC, data sourced from CoinDesk
BITCOIN ABSOLUTE PERFORMANCE (LOG)

Source: Bloomberg
The Investment Opportunity of Bitcoin & Cryptoassets

BITCOIN ABSOLUTE PERFORMANCE

Source: Bloomberg
BITCOIN RISK-REWARD PROFILE

Sharpe Ratio

Note: Data as of November 25, 2016
Source: ARK Investment Management LLC & Coinbase, data sourced from Bloomberg & CoinDesk
BITCOIN VALUATION

Bitcoin's "P/E Ratio"
= Market Capitalization Divided by Transaction Volume

Note: Data as of May 4, 2017
Source: ARK Investment Management LLC, data sourced from Blockchain.info
BITCOIN ETF SCORECARD

• Winklevoss Bitcoin Trust ✗ (under review)

• SolidX Bitcoin Trust ✗

• Grayscale Bitcoin Investment Trust ⚫ ♂ (decision pending)
SEC REJECTION OF WINKLEVOSS BITCOIN ETF

As discussed further below, the Commission is disapproving this proposed rule change because it does not find the proposal to be consistent with Section 6(b)(5) of the Exchange Act, which requires, among other things, that the rules of a national securities exchange be designed to prevent fraudulent and manipulative acts and practices and to protect investors and the public interest. The Commission believes that, in order to meet this standard, an exchange that lists and trades shares of commodity-trust exchange-traded products (“ETPs”) must, in addition to other applicable requirements, satisfy two requirements that are dispositive in this matter. First, the exchange must have surveillance-sharing agreements with significant markets for trading the underlying commodity or derivatives on that commodity. And second, those markets must be regulated.

BITCOIN’S GROWING FAST, BUT NOT FAST ENOUGH?

Source: https://coinmarketcap.com/
WHAT’S GROWING FASTER THAN BITCOIN?

Source: https://coinmarketcap.com/
The Investment Opportunity of Bitcoin & Cryptoassets

The World of Cryptoassets

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Symbol</th>
<th>Market Cap</th>
<th>Price</th>
<th>Circulating Supply</th>
<th>Volume (24h)</th>
<th>% 1h</th>
<th>% 24h</th>
<th>% 7d</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bitcoin</td>
<td>BTC</td>
<td>$23,716,391,760</td>
<td>$1454.40</td>
<td>16,306,650</td>
<td>$540,405,000</td>
<td>0.00%</td>
<td>1.90%</td>
<td>15.05%</td>
</tr>
<tr>
<td>2</td>
<td>Ethereum</td>
<td>ETH</td>
<td>$7,092,128,201</td>
<td>$777.72</td>
<td>91,250,297</td>
<td>$229,246,000</td>
<td>0.16%</td>
<td>2.08%</td>
<td>55.32%</td>
</tr>
<tr>
<td>3</td>
<td>Ripple</td>
<td>XRP</td>
<td>$2,091,261,746</td>
<td>$0.055200</td>
<td>37,884,902,021 *</td>
<td>$39,944,200</td>
<td>2.70%</td>
<td>4.90%</td>
<td>70.03%</td>
</tr>
<tr>
<td>4</td>
<td>Litecoin</td>
<td>LTC</td>
<td>$799,212,646</td>
<td>$15.70</td>
<td>50,908,182</td>
<td>$47,934,200</td>
<td>-0.12%</td>
<td>1.62%</td>
<td>8.13%</td>
</tr>
<tr>
<td>5</td>
<td>Dash</td>
<td>DASH</td>
<td>$634,310,356</td>
<td>$87.30</td>
<td>7,266,169</td>
<td>$16,510,000</td>
<td>2.07%</td>
<td>-1.40%</td>
<td>20.53%</td>
</tr>
<tr>
<td>6</td>
<td>Ethereum Classic</td>
<td>ETC</td>
<td>$596,995,592</td>
<td>$6.54</td>
<td>91,242,015</td>
<td>$62,312,600</td>
<td>1.32%</td>
<td>-0.30%</td>
<td>65.65%</td>
</tr>
<tr>
<td>7</td>
<td>NEM</td>
<td>XEM</td>
<td>$463,746,600</td>
<td>$0.051527</td>
<td>8,999,999,999 *</td>
<td>$6,465,280</td>
<td>2.63%</td>
<td>2.04%</td>
<td>37.59%</td>
</tr>
<tr>
<td>8</td>
<td>Monero</td>
<td>XMR</td>
<td>$330,256,227</td>
<td>$22.94</td>
<td>14,393,699</td>
<td>$8,651,680</td>
<td>0.00%</td>
<td>-0.31%</td>
<td>16.31%</td>
</tr>
<tr>
<td>9</td>
<td>Zcash</td>
<td>ZEC</td>
<td>$113,391,201</td>
<td>$93.35</td>
<td>1,214,719</td>
<td>$12,206,400</td>
<td>0.26%</td>
<td>5.92%</td>
<td>35.20%</td>
</tr>
<tr>
<td>10</td>
<td>PIVX</td>
<td>PIVX</td>
<td>$90,384,263</td>
<td>$1.70</td>
<td>53,218,240 *</td>
<td>$1,154,700</td>
<td>1.24%</td>
<td>3.25%</td>
<td>32.95%</td>
</tr>
<tr>
<td>11</td>
<td>Stratis</td>
<td>STRAT</td>
<td>$76,881,403</td>
<td>$0.781562</td>
<td>98,368,911 *</td>
<td>$1,443,320</td>
<td>2.04%</td>
<td>3.90%</td>
<td>29.05%</td>
</tr>
<tr>
<td>12</td>
<td>Dogecoin</td>
<td>DOGE</td>
<td>$68,140,528</td>
<td>$0.000624</td>
<td>109,203,239,306</td>
<td>$5,648,390</td>
<td>0.97%</td>
<td>-5.31%</td>
<td>17.17%</td>
</tr>
<tr>
<td>13</td>
<td>Decred</td>
<td>DCR</td>
<td>$66,421,840</td>
<td>$13.83</td>
<td>4,802,354</td>
<td>$1,832,290</td>
<td>0.77%</td>
<td>-5.33%</td>
<td>-16.26%</td>
</tr>
<tr>
<td>14</td>
<td>Factom</td>
<td>FCT</td>
<td>$66,404,895</td>
<td>$7.59</td>
<td>8,753,219 *</td>
<td>$4,195,350</td>
<td>4.88%</td>
<td>-4.21%</td>
<td>13.10%</td>
</tr>
<tr>
<td>15</td>
<td>Steem</td>
<td>STEEM</td>
<td>$62,163,962</td>
<td>$0.264561</td>
<td>234,970,241</td>
<td>$774,608</td>
<td>0.15%</td>
<td>-1.52%</td>
<td>17.56%</td>
</tr>
</tbody>
</table>

Note: Data as of May 2, 2017
Source: https://coinmarketcap.com/
THREE VERTICALS OF CRYPTOASSETS

• Cryptocurrencies (e.g., Bitcoin)
• Cryptocommodities (e.g., Ethereum)
• Cryptotokens (e.g., Augur)
CRYPTOCOMMODITY: CLOUD STORAGE

Sia is the Decentralized Cloud as your Storage Backend

Get started

Distributed Cloud Storage

Blockchain-based, end-to-end encrypted, distributed object storage, where only you have access to your data.

Sign Up for Free

Filecoin

Filecoin is a data storage network and electronic currency based on Bitcoin.

WHAT’S NEXT?

• Union Square Ventures → Fat protocols, Thin applications

Source: http://www.usv.com/blog/fat-protocols
Index Descriptions: The S&P 500® Index is a widely recognized capitalization-weighted index that measures the performance of the large-capitalization sector of the U.S. stock market. The MSCI World Index represents large and mid-cap equity performance across 23 developed markets countries. You cannot invest directly in an index and securities in an ETF will not match those in an index. The Russell 3000® Growth Index measures the performance of those Russell 3000® Index companies (the top 3,000 U.S. stocks by market capitalization covering 98% of the U.S. equity investable universe) with lower composite value scores. The Dow Jones Industrial Average is a price-weighted average of 30 large publicly owned companies based in the United States. You cannot invest directly in an index.

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It should not be assumed that recommendations made in the future will be profitable or will equal the performance of the securities in this list. For full disclosures http://ark-invest.com/terms-of-use.
THREE FEATURES OF A BLOCKCHAIN

• Distributed
  • Permissionless (i.e., public) vs Permissioned (i.e., private)

• Cryptographically secured

• Immutable

A blockchain is a transaction machine, and everything can be a transaction