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Digital assets and related technologies can be extremely complicated. Crypto-currencies can be extremely volatile and subject to rapid fluctuations in price, positively or negatively. Crypto-currencies are loosely regulated and there is no central marketplace for currency exchange. Supply is determined by a computer code, not by a central bank, and prices can be extremely volatile. The digital sector has spawned concepts and nomenclature much of which is novel and can be difficult for even technically savvy individuals to thoroughly comprehend. The sector also evolves rapidly.

With increasing media attention on digital assets and related technologies, many of the concepts associated therewith (and the terms used to encapsulate them) are more likely to be encountered outside of the digital space. Although a term may become relatively well-known and in a relatively short timeframe, there is a danger that misunderstandings and misconceptions can take root relating to precisely what the concept behind the given term is.

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Crypto assets are a highly volatile asset class. Your capital is at risk. The value of crypto assets can go down as well as up and you can lose your entire investment. Crypto assets are not covered by financial compensation schemes.

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ABOUT COINSHARES

The CoinShares Group manages nearly $700 million\(^1\) of assets on behalf of a global investor base, with a team of 40 professionals in London, Jersey, and New York.

Our product lines offer eligible institutional and accredited investors a variety of ways to access the digital asset landscape.

Notes: (1) AUM amounts as of 11 November 2019.

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Learn more at coinsharesgroup.com
MELTEM DEMIRORS
Chief Investment Officer
@Melt_Dem

- Built Digital Currency Group, managed portfolio of 130+ investments and oversaw group growth
- Angel investor in 20+ crypto companies and 10+ protocols, active speaker & writer
- Lecture at Oxford and MIT, founding member of WEF Blockchain Council

MARTY STENSON
Associate
@marty_stenson

- Focused on investments and portfolio management at CoinShares
- 2+ years capital markets and investment management experience at UBS
- B.S. in Finance at Penn State University (Magna Cum Laude)
Knowledge is best when shared. Thanks to all of the firms, companies, and individuals who aggregate, analyze, and share their intelligence and insights with the broader crypto industry.
At CoinShares, we regularly publish new research and share resources for investors to cut through the noise and focus on key insights from this emerging ecosystem.
SETTING THE SCENE

Why We Produce This Report
Following the seizure of Mt. Gox and arrest of Ross Ulbricht in October 2013, bitcoin went on a short-lived price run, becoming a billion dollar market.
"Crypto" market cap hits $835B
Jan. 7, 2018

Following a rapid run up in Bitcoin and Ethereum prices, as well as a wave of hundreds of ICOs, the crypto market cap nearly reached one trillion dollars

Source: CNBC
While the bitcoin “big bang” of 2018 was relatively large – resulting in a 20x price increase in one year – the value created (and destroyed) is dwarfed by other asset bubbles.
The internet did not kill companies. It enabled new types of companies to grow and made existing ones more agile and efficient.

Bitcoin and open financial systems will not kill financial institutions. It will enable new types of companies to grow and make existing ones more resilient.
SETTING THE SCENE (1/2)

Today, the number of bitcoin users around the world are estimated to be anywhere between 35 and 140M\(^1\), or between 0.5% and 1.8% of the world’s population. Over the last five years, we have spent a lot of time explaining exactly what it is bitcoin is, how it works, and what impact it might have on our world as we know it today.

It took the world 15 years to go from less than 1 million PC users to 150 million\(^2\), but the spread of the internet has been much faster, and much more disruptive. Technology adoption doesn’t happen in a linear fashion, and bitcoin is no exception.

Today, 4.3B people, or 57% of the world has access to the internet\(^3\) and 42% have access to a smart phone\(^4\), and while many are participating in online communities, many users are still cut of from the global economy and financial access outside of the local areas where they reside.

In the words of Mary Meeker, “history has taught us that changes in the distribution of goods and services create substantial business opportunities for deft companies.”

The internet helped local businesses become global players, unlocking a truly global market for ideas, goods, and services. However, money, finance, and commerce have stayed localized due to the complexity of regulations and the monopoly on money and payments systems. For the first time, bitcoin and digital currencies challenge this paradigm and create a open, global market for money and finance. The potential of this shift cannot be understated.

Sources:
1. Statista, United States Census Bureau, Cambridge Centre for Alternative Finance.
3. Statista
4. Statista
For the last ten years, the bitcoin community has thrived on shared memes, shared identity, and shared stories.

At CoinShares, we believe that in order for the “crypto industry” to continue to grow and thrive, participants and outside analysts have to be able to identify, gather, and analyze data to tell the story of why this industry matters and how it might impact technology, markets, politics, society, and our broader world.

As investors, we take this one step further and use the unique data, insights, and relevant context and expertise we have to identify where and when some of these changes might happen, and who will be poised to benefit, not just financially, but also socially and politically. We try to use data to tell stories about trends.

In this report, we focus on understanding and learning from the past, analyzing what is happening today, and predicting what might happen in the future. We don’t just look at the crypto ecosystem, but rather, attempt to bridge between the global macro landscape and crypto landscape to provide meaningful insights and starting points for more in-depth analysis.

It is our hope that people will take these slides and the associated data and use them, improve on them, and share them. It is up to our industry to create a path towards the future we want.
WHAT HAVE WE LIVED THROUGH

Forces That Have Shaped Our World
## MACRO TRENDS THAT LED US HERE

<table>
<thead>
<tr>
<th></th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Technological Forces</td>
</tr>
<tr>
<td>2</td>
<td>Economic Forces</td>
</tr>
<tr>
<td>3</td>
<td>Political Forces</td>
</tr>
<tr>
<td>4</td>
<td>Social Forces</td>
</tr>
</tbody>
</table>
New technologies are blurring the lines between the physical, digital, and biological worlds, impacting all industries, and challenging ideas about what it means to be human.
As robotics and artificial intelligence begin to permeate the workplace, the labor done in economies is shifting from humans to machines.

Job displacement through automation is especially concerning in emerging economies where this trend will have a far larger impact, especially on low skill labor.

Source: McKinsey
The future is already here—It's just not very evenly distributed.

- William Gibson, Sci-Fi Author
The world is making huge strides in overcoming global poverty, and today, less than 10 percent of the world lives in extreme poverty.

Source: Google Images, The World Bank
**ECONOMIC FORCES**

**GROWING WEALTH INEQUALITY**

- **Top 3 Individuals**
  - Warren Buffett, $88
  - Bill Gates, $97
  - Jeff Bezos, $160

**U.S. WEALTH SHARE BY INCOME GROUP**

- **Middle Class**
- **Top 1 Percent**

<table>
<thead>
<tr>
<th>Year</th>
<th>Middle Class</th>
<th>Top 1 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Three men own more than the bottom half of Americans** *(two of them own tech companies)*

**The middle class now holds less wealth than top 1 percent**

*Source: Institute for Policy Studies, Forbes. Note: Bottom 50% data from 2016, Top 3 from 2018. Source: Brookings Institute*
ECONOMIC FORCES

BOOMERS RETIRING,
HUGE SHIFT IN LABOR FORCE

$68.4 trillion (or 3.6x US GDP) is set to be inherited over the next 25 years

$68.4 trillion (or 3.6x US GDP) is set to be inherited over the next 25 years

UNDERFUNDED PENSION LIABILITIES

U.S. pensions lost ground on long-term liabilities since 2000, and are underfunded

Who pays?

Source: Bloomberg, Boston College Center for Retirement Research
ECONOMIC FORCES

MILLENNIAL’S FAVORITE INVESTMENT SECTORS

- Technology
- Healthcare
- Energy
- Real Estate
- Financial Services
- Consumer Staples
- Consumer Discretionary
- Utilities
- Industrials
- Telecommunications
- Materials

49.7%

MILLENNIALS WOULD RATHER OWN BITCOIN THAN OWN...

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Percent of Millennials who prefer bitcoin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Bonds</td>
<td>30%</td>
</tr>
<tr>
<td>Stocks</td>
<td>15%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>15%</td>
</tr>
<tr>
<td>Gold</td>
<td>30%</td>
</tr>
</tbody>
</table>

Millennials want to invest in tech...

...not real estate, gold, or other traditional assets

Source: Visual Capitalist. Forecasting the Investing Habits of the Millennial Generation
Source: Blockchain Capital Survey
The curious task of economics is to demonstrate to men how little they really know about what they imagine they can design.

- Friedrich Hayek, Austrian Economist (and OG Bitcoiner)
Around the world, tensions are rising as citizens raise basic questions about what they can expect from their governments in a constantly changing world.
POLITICAL FORCES

PERCEIVED CORRUPTION AROUND THE WORLD

- Extremely Corrupt
- Moderately Corrupt
- Slightly Corrupt
- Not Corrupt

With over 90% of people perceiving their government to be corrupt to some degree, we are seeing the rise of global dissent as people challenge governments and the nature of power.

Note: Extremely corrupt = 76-100; Moderately corrupt = 51-75; Slightly corrupt = 26-50; Not corrupt = 1-25
The world will not be destroyed by those who do evil, but by those who watch them without doing anything.

- Albert Einstein, Scientist
Rising unemployment, inequality, and a lack of trust in governments and institutions has fueled a rise in social unrest that continues to intensify and balkanize societies.
Trust in US banks and financial institutions has dropped sharply over the last forty years.
Financial scandals continue to dominate headlines as institutions of all types come under fire for systemic abuses of trust and power.
Trust in tech companies is not immune either – the trend towards “surveillance capitalism” has led to increased mistrust of tech platforms.
Over the last ten years, the number of people opting out of religion has doubled. All-time low in U.S. religious giving: shift to humanitarian and health organizations.

Source: Pew Research Center, Evangelical Council for Financial Accountability
Over the next 15 years, living conditions will...

More than half of people around the world expect stagnation or that living conditions will get worse.
As technical, economic, political, and social forces continue to shape our world, a clear narrative is emerging around bitcoin.

Source: Cryptograffiti
WHERE ARE WE NOW

An Assessment of the Current State of Crypto
THE CURRENT STATE OF CRYPTO MARKETS

1. Ten Years of Bitcoin
2. Experiments with Decentralization
3. Fat Protocols not so Fat
4. An Explosion of Stablecoins
5. The Institutions are Coming... Maybe
6. Blockchain Blockchain Blockchain Blockchain
7. Sovereign Coins or “Initial Country Offering”
The internet unlocked a global market for many industries, except financial services, which stayed mired in local networks. Bitcoin unlocks a global, open market for financial services.

**Source:** Meltem Demirors personal blog
1 TEN YEARS OF BITCOIN: A SLOW EVOLUTION

BITCOIN AS A TECHNOLOGICAL REVOLUTION

INSTALLATION PERIOD

- Big bang
- Intense funding
- Decoupling of paper value and real value

DEPLOYMENT PERIOD

- FRENZY
  - Rampant speculation
- Synergy
  - Focus on production
- Recoupling of paper value and real value
- Institutional adjustment

Maturity

- Next big bang
- Decreasing growth opportunities

Source: Carlota Perez, Technological Revolutions and Financial Capital. Bitcoin price sourced from Coinmetrics.io
Each wave of bitcoin adoption sees the rise of category leaders, some of whom may go on to lead the charge into a new wave of adoption.

Source: Meltem Demirors personal blog
While bitcoin has defined the market for cryptocurrencies, digital finance has rapidly expanded across a broad range of technologies, use cases, and markets.
## NOTHING IS DECENTRALIZED

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>APPLICATION</th>
<th>NETWORK</th>
<th>PROTOCOL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEASURE</strong></td>
<td>APPLICATION</td>
<td>NETWORK</td>
<td>PROTOCOL</td>
</tr>
<tr>
<td><strong>Applications</strong></td>
<td>User adoption of various applications</td>
<td>1000s</td>
<td>100s</td>
</tr>
<tr>
<td>&quot;Ecosystem&quot;</td>
<td>Amount of capital dedicated to ecosystem?</td>
<td>$B</td>
<td>$B</td>
</tr>
<tr>
<td><strong>Network Cost</strong></td>
<td>Annual &quot;mining&quot; reward or cost to maintain network</td>
<td>~$6B</td>
<td>~$1B</td>
</tr>
<tr>
<td><strong>Nodes in Network</strong></td>
<td># public nodes in network</td>
<td>100K+</td>
<td>10K</td>
</tr>
<tr>
<td><strong>Node Concentration</strong></td>
<td># entities with &gt;50% of network power in consensus</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><strong>Distribution of Tokens</strong></td>
<td>% supply held by top 100 accounts</td>
<td>19%</td>
<td>34%</td>
</tr>
<tr>
<td><strong>Development</strong></td>
<td># client codebases that account for &gt;90% of nodes</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

The pursuit of “decentralization” has largely been performance theater

Source: arewedeцentralizedyet.com, OnChainFX, BitInfoCharts.com, BlockDaemon research
2018 market a peak for d’app development, but 2019 has seen fewer new launches.

User numbers have stayed flat, and the most used are exchanges and wallets.

Source: State of the Dapps, November 2019 Stats
While many firms are attempting to build the various layers of the open finance stack, regulatory challenges continue to challenge their growth and adoption.

Source: Andrew Wong, Macro Narratives in Blockchain, published Feb 2019
While decentralized finance (DeFi) is a growing area of interest, centralized finance (CeFi) managed by intermediaries is currently far larger.
## CRYPTO INVERTS THE INTERNET INVESTING STACK

### BREAKING DOWN FUNDING

<table>
<thead>
<tr>
<th>The Internet</th>
<th>The Blockchain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Innovation in Information Transfer</strong></td>
<td><strong>Innovation in Value Transfer</strong></td>
</tr>
</tbody>
</table>

#### Application Universe:

**The Internet**
- Data storage and distribution, streaming video and music, cloud computing, and information processing

**The Blockchain**
- Store of value, smart contracts, asset digitization, distributed computing, verification, and data management

#### Capital Deployed from 1995 to 2000

<table>
<thead>
<tr>
<th>The Internet</th>
<th>The Blockchain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Storage and Distribution</strong></td>
<td><strong>Store of Value</strong></td>
</tr>
<tr>
<td><strong>Streaming Video and Music</strong></td>
<td><strong>Smart Contracts</strong></td>
</tr>
<tr>
<td><strong>Cloud Computing</strong></td>
<td><strong>Asset Digitization</strong></td>
</tr>
<tr>
<td><strong>Information Processing</strong></td>
<td><strong>Distributed Computing</strong></td>
</tr>
</tbody>
</table>

- **$180 BILLION**
  - $10B Invest
- **<1 BILLION**
  - $10B Invest

#### Capital Deployed from 2013 to July 2019

<table>
<thead>
<tr>
<th>The Internet</th>
<th>The Blockchain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TCP/IP, HTTP, DNS, FTP</strong></td>
<td><strong>Bitcoin, Ethereum, many others</strong></td>
</tr>
</tbody>
</table>

- **$6.2 BILLION**
  - $10B Invest
- **$30 BILLION**
  - $10B Invest

### Source:
- CoinShares Research
While ICOs have subsided, investors continue to chase returns via token investments, and many industry investors are now fundamentally “long” new protocol tokens.

Source: teQatlas
ICO’S ARE NOT THE NEXT IPO

While ICOs were briefly poised to disrupt capital formation, the frenzy did not last; 2019 has seen a return to private market investing via new token contracts like SAFTs.

Source: IPO data from SIFMA and EY, VC data from PwC Money Tree Explorer, ICO data from LongHash, and ICObench. Note 2019 data is extrapolated using Q1-Q3 data to obtain FY 2019 projections.
### The Largest ICO’s Did Not Live Up to Expectations

The top 10 ICOs raised $8.3 billion, but over half have not launched or no longer exist.

#### Top ICOs by Amount of Capital Raised During Offering Phase

<table>
<thead>
<tr>
<th>ICO</th>
<th>Fundraise (USD millions)</th>
<th>Current Market Cap (USD millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EOS</td>
<td>4,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Telegram</td>
<td>1,000</td>
<td>900</td>
</tr>
<tr>
<td>TaTaTu</td>
<td>500</td>
<td>350</td>
</tr>
<tr>
<td>Dragon</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
<td>Huobi</td>
<td>300</td>
<td>150</td>
</tr>
<tr>
<td>Hdac</td>
<td>300</td>
<td>150</td>
</tr>
<tr>
<td>Filecoin</td>
<td>300</td>
<td>150</td>
</tr>
<tr>
<td>Tezos</td>
<td>300</td>
<td>150</td>
</tr>
<tr>
<td>Sirin Labs</td>
<td>300</td>
<td>150</td>
</tr>
<tr>
<td>Bancor</td>
<td>300</td>
<td>150</td>
</tr>
</tbody>
</table>

*Source: CoinShares Research, Bloomberg, CoinMarketCap, CoinGecko*
BUT THEN AGAIN, IPO’S AREN’T MUCH BETTER

Generally, pure software enterprise-tech stocks have performed much better than consumer-tech stocks with stake in the physical world.

Source: Yahoo! Finance as of November 11, 2019 Note: WeWork IPO was pulled, peak market cap represents peak pre-IPO valuation.
Stablecoins enable rapid settlement of trades on the same *settlement medium* as the assets being traded, effectively enabling the blockchain to act as a settlement network.

Source: Meltem Demirors personal blog
While the overall stablecoin market doubled in value, Tether maintained its proportional market share of ~80%.

Source: Messari as of November 11, 2018
## US Financial Institutions Making Crypto Moves

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>CRYPTO MOVE</th>
<th>MARKET CAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square</td>
<td>Buy and sell bitcoin in $cash app</td>
<td>$27B</td>
</tr>
<tr>
<td>CME Group</td>
<td>Cash settled bitcoin futures contracts</td>
<td>$71B</td>
</tr>
<tr>
<td>Fidelity</td>
<td>Bitcoin custody, bitcoin trading, investing in companies, and mining facilities</td>
<td>Privately owned, $1.4T AUM</td>
</tr>
<tr>
<td>NYSE ICE</td>
<td>Subsidiary for digitally settled bitcoin futures, trading, custody, and payments</td>
<td>$51B</td>
</tr>
<tr>
<td>Bloomberg</td>
<td>Providing crypto coverage and crypto market data feeds</td>
<td>Privately owned</td>
</tr>
<tr>
<td>TD Ameritrade</td>
<td>Working with ErisX to bring crypto trading to customer base</td>
<td>$22B</td>
</tr>
</tbody>
</table>

Source: CoinShares Research, Yahoo! Finance
WE’RE STILL AT THE EARLY STAGES

The market needs more robust infrastructure to manage the lifecycle of a crypto asset.

Source: CoinShares Research
# BLOCKCHAIN – HYPE OR HERE TO STAY?

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>DESCRIPTION</th>
<th>TOTAL RAISED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R3</strong></td>
<td>R3 leads an “ecosystem” of 300+ firms building distributed applications on top of Corda within industries such as financial services, insurance, healthcare, trade finance, and digital assets</td>
<td>$112M</td>
</tr>
<tr>
<td></td>
<td><strong>Digital Asset Holdings</strong> provides tools that use distributed ledgers to track and settle digital and mainstream financial assets</td>
<td>$107M</td>
</tr>
<tr>
<td><strong>Chain</strong></td>
<td>Chain built enterprise-grade blockchain infrastructure that enables organizations to build better financial services from the ground up (and was acquired by Stellar in 2018)</td>
<td>$44M</td>
</tr>
</tbody>
</table>

Blockchain hype has mostly died down, and many of the best known (and best capitalized) companies have pivoted into cryptocurrencies.

*Source: Bloomberg, Crunchbase*
SHOULD YOU USE A BLOCKCHAIN?

Are you making a cryptocurrency?

Yes?

Please Stop

No?

No

It is still unclear precisely what problems a blockchain solves outside of bitcoin

BLOCKCHAIN PLANS

The majority of enterprises have no plans or no interest in blockchain technology

Source: CoinShares Research
Source: Gartner, Inc.
### INITIAL COUNTRY OFFERING

#### VENEZUELAN PETRO (PTR)
- Backed by oil reserves
- Issued on NEM blockchain (we think?)
- Unclear how much was raised. Really – most things about the Petro are quite unclear?
- According to Maduro, the presale generated 735 million USD
- US investors were barred from participating due to sanctions
- Apparently the government is considering paying people in Petros
- Can’t confirm or deny whether or not Petros are actually used, traded, or available

The Petro may or may not actually be a thing?

#### MARSHALESE SOVEREIGN (SOV)
- SOV coin + SOV blockchain
- 24 million SOV will be issued in first block, then 4% inflation rate
- 40% of supply will be available for sale to people around the world
- Small island nation of 75,000 is currently using US dollars, now issuing a sovereign digital currency called the SOV
- Supply will be auctioned daily, 10% of proceeds will be paid back to citizens
- Israeli startup Neema was to take 50% of proceeds for developing tech, but all mention of them has been removed from recent press

The SOV “sale” was announced in September 2019 at an industry conference.

Source: Eduardo Prospero via Hackernoon.
Every major government has digital currency advocates.

*We Sent a Man to the Moon. We Can Send the Dollar to Cyberspace*

Washington should edge out rivals with a regulated platform for trading greenbacks via blockchain.

Turkey to introduce national blockchain currency

Carney defends Facebook's Libra in call for digital payments revolution

No topic has been more polarizing than central bank issued digital currencies.
Satoshi or these guys - who do you want to go with?
WHAT ARE WE SEEING

Looking for Signal in a Sea of Noise
FINDING MEANINGFUL INDUSTRY DATA

Temperatures are high, opinions are strong and thousands of voices are shouting at the top of their lungs to be heard. Add Bitcoin to this and you get the dual dynamite of hand-wavy confidence and statistical creativity prescribed in strong doses according to the general state of the market.

One of the consistent challenges in analyzing bitcoin is gathering accurate, meaningful data and using it to make informed investment decisions (concerning one’s time, energy, and yes, financial capital).

Current estimates place the number of bitcoin users around the world anywhere between 35 and 140M\(^1\), or between 0.5% and 1.8% of the world’s population. There are few reliable projections of how this number may grow in the future, largely because there are a wide range of end markets that bitcoin and other offshoots of this technology could impact in the future.

In addition, the majority of data points needed to effectively analyze the industry are non-public, off-chain data proprietary to the companies who provide products and services to end-users. Since few of these companies are public, our access to this data is limited by their willingness to share this information. However, most firms are unwilling to disclose any information in the public domain.

In this section, we map the various ways in which industry analysts can track the growth of bitcoin, and summarize key data that can be gathered and analyzed, largely using on-chain data from the bitcoin network, as well as empirical data gathered from reputable research firms both inside and outside the industry.

---

**Sources:**
1. Statista, United States Census Bureau, Cambridge Centre for Alternative Finance.
# BITCOIN IS BOTH RELIGION AND SCIENCE

<table>
<thead>
<tr>
<th>Religion</th>
<th>Pseudo-Science</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed ideas, often incongruous</td>
<td>Fixed ideas</td>
<td>Willingness to change with new evidence</td>
</tr>
<tr>
<td>Unfalsifiable</td>
<td>No peer review</td>
<td>Ruthless peer review</td>
</tr>
<tr>
<td>Selects only favorable discoveries, blames the rest on “evil”</td>
<td>Selects only favorable discoveries</td>
<td>Takes account of all new discoveries</td>
</tr>
<tr>
<td>Blasphemy!</td>
<td>Sees criticisms as conspiracy</td>
<td>Invites criticism</td>
</tr>
<tr>
<td>Results same as random chance</td>
<td>Non-repeatable results</td>
<td>Verifiable results</td>
</tr>
<tr>
<td>Complete &amp; exclusive usefulness</td>
<td>Claims of widespread usefulness</td>
<td>Limit claims of usefulness</td>
</tr>
<tr>
<td>Blind faith</td>
<td>“Ball-park” measurement</td>
<td>Accurate measurement</td>
</tr>
</tbody>
</table>

In order for crypto to become more widely accepted, it must move beyond religious overtones and pseudo-science into more formalized fields of inquiry

Source: Meltem Demirors personal blog
THE INTELLECTUAL DOMAIN OF BITCOIN

A BROAD, INTERDISCIPLINARY FIELD

ETYMOLOGY

SOCIOLOGY

PHILOSOPHY

POLITICS

PSYCHOLOGY

HISTORY

SCIENCE

OBSERVABLE PHENOMENA

MATHEMATICS

ECONOMICS

“GAME THEORY”

THEOLOGY

Source: Meltem Demirors personal blog
HOW WE THINK ABOUT DATA GATHERING

<table>
<thead>
<tr>
<th>EVALUATING GROWTH</th>
<th>IMPERFECT METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application Universe:</strong>&lt;br&gt;Time stamped data, payments, distributed compute, data storage, and more</td>
<td><strong>Application Layer</strong>&lt;br&gt;- Number of active users&lt;br&gt;- Revenue / profit per user&lt;br&gt;- On-chain transaction value and volume&lt;br&gt;- Capital raised</td>
</tr>
<tr>
<td><strong>Killer App</strong>&lt;br&gt;Store of Value</td>
<td><strong>Store of Value (Bitcoin)</strong>&lt;br&gt;- Bitcoin price&lt;br&gt;- % of supply mined&lt;br&gt;- On-chain transaction value and volume</td>
</tr>
<tr>
<td><strong>Network</strong>&lt;br&gt;Miners and Full Nodes</td>
<td><strong>Network Layer</strong>&lt;br&gt;- Total hash rate&lt;br&gt;- Number of full nodes&lt;br&gt;- Miner concentration&lt;br&gt;- Mining profitability</td>
</tr>
<tr>
<td><strong>Protocol</strong>&lt;br&gt;Bitcoin</td>
<td><strong>Protocol</strong>&lt;br&gt;- Number of developers&lt;br&gt;- Number of pull requests&lt;br&gt;- Number of commits&lt;br&gt;- Number of Git participants / core devs</td>
</tr>
</tbody>
</table>

Our ability to measure and analyze the bitcoin ecosystem is limited to observable data gathered from the public ledger (the bitcoin blockchain) and data compiled by research firms.

*Source: CoinShares Research*
## ANALYZING EMPIRICAL DATA ABOUT BITCOIN

<table>
<thead>
<tr>
<th>LAYER</th>
<th>METRIC</th>
<th>ANALOG</th>
<th>WHERE TO SOURCE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>Number of accounts</td>
<td>Users</td>
<td>Exchanges &amp; wallet</td>
</tr>
<tr>
<td>Application</td>
<td>Search interest</td>
<td>Public sentiment</td>
<td>Google</td>
</tr>
<tr>
<td>Application</td>
<td>Funding</td>
<td>Investor sentiment</td>
<td>PwC, EY, LongHash</td>
</tr>
<tr>
<td>Asset / Bitcoin</td>
<td>Market Cap</td>
<td>Network value</td>
<td>CoinMarketCap, Messari</td>
</tr>
<tr>
<td>Network</td>
<td>Hash rate</td>
<td>Network security</td>
<td>Blockchain.info</td>
</tr>
<tr>
<td>Protocol</td>
<td>Transaction volume</td>
<td>Throughput</td>
<td>Coin Metrics</td>
</tr>
<tr>
<td>Protocol</td>
<td>Number of developers</td>
<td>Developer activity</td>
<td>Github</td>
</tr>
</tbody>
</table>

A brief review of empirical data available for various components of the bitcoin ecosystem highlights some of the challenges in sourcing and analyzing data.
At least 139 million user accounts have been created at crypto service providers, representing an estimated minimum of 35 million ID-verified users.
Google search interest in ‘bitcoin’ far outranks other search terms, and seems to follow price action, peaking around the time bitcoin’s price peaked.
Reported funding varies by publication, and there is no standard industry resource for tracking financing and funding rounds.

Source: CB Insights, Tokendata.io, ICOdata.io
MEASURING ADOPTION: MARKET CAP

While the overall crypto market cap is down nearly 70% from its 2018 highs, bitcoin dominance has stayed steady at 60% or more throughout all of 2019.

Source: BitcoinVisuals node (bitcoind), Coin Metrics
The computational resources dedicated to the bitcoin network continue to grow despite price volatility, indicating significant investment in the network infrastructure.

Source: Blockchain.info, Jameson Lopp
USD value of on-chain transactions has increased over 150% to $2 billion per day.
According to research by Electric Capital, full-time developers increased 13% YoY while infrequent contributors left.
MAKING DATA RELIABILITY AN INDUSTRY PRIORITY

While some data points about the crypto landscape are objective, some are subjective and rely on surveying and other informal data gathering methods which are difficult to validate. Fortunately, there are a growing number of research and analytics focused companies working with various types of data to paint a picture of the ever-changing bitcoin ecosystem.

However, we would caution consumers of data to interrogate data sources and data quality carefully. While what we are measuring is important, of equal importance is how we are measuring and the context in which we evaluate this data.

It is tempting to take bitcoin’s growth to date and extrapolate in a linear fashion, but trended data causes over-weight assumptions and skews logic.

Past performance does not imply future performance. Just because bitcoin has grown exponentially thus far does not mean it will continue to do so. Extrapolating curves into the future reveals some pretty absurd results and leads to theses that cannot possibly be correct long-term, which in turn raises the question of short-term validity of these analyses.

Trend lines are only valuable if there is some causal relationship which can be inferred – and preferably modeled – between the two variables.

Robust analysis of this industry requires quality data sources coupled with sound analysis in order to produce meaningful insights.
WHERE ARE WE GOING

Macro Trends Shaping the Future
MORE INDEBTED THAN EVER

BAD BUDGETING: WHAT WE SPEND EXCEEDS WHAT WE PRODUCE

Global debt has trebled over the last 20 years and private sector losses are increasingly socialized through seignorage, as evidenced by the 2008 financial crisis.

Note*: GDP numbers are in nominal terms; 2019 GDP is a projection. 
GLOBAL BOND YIELDS NEARING RECORD LOWS

Bond yields around the world are declining as investors become increasingly concerned about backdrop of political, economic, and social turmoil.

Source: Blackrock, as of August 16 2019
Negative-yielding debt topped $17T earlier this year, more than 25% of all global sovereign debt, and almost 20% of global GDP.

Source: Bloomberg, as of November 10, 2019
WE CAN’T STOP PRINTING MONEY

WE PAY FOR DEFICITS BY PRINTING MORE MONEY

Following the 2008 recession, the US money supply grew 4x while interest rates declined rapidly and have stayed at historic lows.

Source: Federal Reserve Bank of St. Louis
BITCOIN’S SUPPLY CURVE IS LOOKING SEXY

While central banks print more money to cover budget shortfalls, bitcoin has a fixed supply schedule and a hard cap at 21 million BTC.

Source: Bitcoin Visuals
While the narrative around bitcoin as a “safe haven” asset in markets experiencing currency devaluation is appealing, research indicates activity is largely driven by speculation.
ADDING BITCOIN EXPOSURE CAN TAKE MANY FORMS

A BALANCED PORTFOLIO

- Bonds, MM 15%
- Equities 20%
- Real Estate 28%
- BITCOIN 5%
- Private Equity 9%
- Hedge Fund 18%
- Venture 5%

EXPOSURE STRATEGIES

<table>
<thead>
<tr>
<th>EXPOSURE STRATEGY</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange Traded Product (passive beta)</td>
<td>CoinShares</td>
</tr>
<tr>
<td>Venture Fund</td>
<td></td>
</tr>
<tr>
<td>“Crypto Fund”</td>
<td></td>
</tr>
<tr>
<td>Direct Investing</td>
<td>coinbase</td>
</tr>
<tr>
<td>IPOs</td>
<td></td>
</tr>
<tr>
<td>Equities</td>
<td></td>
</tr>
</tbody>
</table>

Investors looking to add bitcoin exposure have many options including structured products, funds, direct investments into late stage companies, and public market investments.

Source: CoinShares research
The value of corporations has increased significantly faster than gross domestic product, meaning returns to capital outpace returns to labor.

Corporate Equities as a % of GDP
1981: 44%
2019: 144%

Source: Federal Reserve Bank of St Louis
VALUE SHIFT FROM PHYSICAL TO DIGITAL

LARGEST COMPANIES 2009

- ExxonMobil
- PetroChina
- ICBC
- Microsoft
- HSBC
- China Mobile
- Walmart
- Petrobras
- China Construction Bank
- Shell

LARGEST COMPANIES 2019

- Microsoft
- Apple
- Amazon
- Alphabet
- Berkshire Hathaway Inc.
- Facebook
- Alibaba Group
- Tencent
- Visa
- JPMorgan Chase

Combined Market Cap 2009: $2.3T
Combined Market Cap 2019: $6.4T

The top 10 companies by market cap no longer own physical infrastructure nor sell physical goods.

Source: Financial Times Global 500 (Q3 of each year)
Our digital world is controlled by a small group of companies who own our data, monetize our behavior, and seek growth at any expense.
A SMALL GROUP OF COMPANIES CAPTURE MOST VALUE

GROWTH OF THE U.S. DIGITAL ECONOMY

PERCENT OF S&P 500 BY MARKET CAP

While the digital economy is growing...

...its growth is disproportionally captured by a select few companies

Source: National Bureau of Economic Analysis, Yahoo Finance
As more asset classes become digitized and trade electronically, markets become dependent on intermediaries and trading venues.

Source: CoinShares Research
As bitcoin companies become more focused on institutional adoption, more bitcoins will be custodied by regulated entities who are subject to oversight.
The US government created a special regulatory designation for institutions of systemic importance (holding a lot of $) – these banks are now deemed “too big to fail”
When the 15% of all Ethereum in circulation was drained from the DAO smart contract, the community coordinated a bailout by rolling back the blockchain via a hard fork.
BANKS ARE MAKING MORE MONEY THAN EVER

In the last ten years, the global banking industry has cashed in over $8.5 trillion in after-tax profit

Source: McKinsey
Every tech company wants to be a bank and, eventually, a central bank.

Source: CoinShares Research
## Moving to Open Finance

### The Evolution of the Digitization of Finance

<table>
<thead>
<tr>
<th>FINTECH</th>
<th>TECHFIN</th>
<th>OPEN BANKING</th>
<th>PERMISSIONED BLOCKCHAINS</th>
<th>OPEN FINANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009 -</td>
<td>2011 -</td>
<td>2016 -</td>
<td>2017 -</td>
<td>2018 -</td>
</tr>
<tr>
<td>Start-ups building new financial services applications, often targeting a slice of the value chain</td>
<td>Social network platforms and ecosystems leveraging consumer data to offer or distribute financial services products</td>
<td>Bank-led opening of customer data to internal or 3rd party developers to either co-create new offerings, or improve customer UI/UX</td>
<td>Consortia-led efforts to re-platform existing FS “plumbing” onto distributed ledger technology (DLT) and use smart contracts</td>
<td>Using open financial protocols like bitcoin, value can be transmitted in new ways not constrained by physical borders</td>
</tr>
</tbody>
</table>

The next phase of financial innovation will be in open finance, which builds off the innovations of public blockchains, but fits within the existing regulatory landscape.

Source: Andrew Wong, Macro Narratives in Blockchain, published Feb 2019
PAYMENTS ARE THE FRONTIER FOR OPEN FINANCE

GLOBAL SHARE OF POINT OF SALE PAYMENT METHODS

ASIA-PACIFIC POINT OF SALE PAYMENT METHODS

Mobile payments forecast to surpass cash and credit cards by 2021

In Asia, mobile payment growth will likely come from non-banks

Source: WorldPay Global Payments Report, 2018
THE DIGITAL PAYMENTS CHARGE WON’T BE LED BY BANKS

PLASTIC WILL BE REPLACED BY SILICON

**Digital Payments will be Delivered via Device**

Source: Statista

Note: Next-gen payment tech includes EMV chip, QR code, and NFC/contactless payment systems. Data after 2018 are projections.

Banks don’t have the global reach or infrastructure to lead the payments charge – hardware manufacturers are the biggest distribution channel via native install.
### USING DEVICES & TELCO CARRIERS FOR DISTRIBUTION

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>CRYPTO MOVE</th>
<th>DISTRIBUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung</td>
<td>Galaxy S10 will include a secure storage system for cryptocurrency private keys</td>
<td>292M phones shipped in 2018</td>
</tr>
<tr>
<td>Apple</td>
<td>Apple rolled out “CryptoKit” containing developer tools and APIs in iOS 13 release</td>
<td>217M phones shipped in 2018</td>
</tr>
<tr>
<td>HTC</td>
<td>EXODUS 1s is a “Cryptophone” - first ever mobile device with Bitcoin Full Node support.</td>
<td>~1M phones shipped in 2018</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>AT&amp;T partners with BitPay to begin accepting crypto payments for services</td>
<td>150M wireless accounts</td>
</tr>
</tbody>
</table>

The most promising distribution channel for crypto wallets and payments is via devices and telco carriers

Source: CoinShares Research
SOCIAL NETWORKS ARE THE NEW PAYMENT NETWORKS

WORLD’S LARGEST MOBILE PAYMENT PLATFORMS

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>ACTIVE USERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook / Libra*</td>
<td>2.7 billion+</td>
</tr>
<tr>
<td>WeChat</td>
<td>1 billion+</td>
</tr>
<tr>
<td>Alipay</td>
<td>1 billion+</td>
</tr>
<tr>
<td>Samsung Pay</td>
<td>1 billion+</td>
</tr>
<tr>
<td>Apple Pay</td>
<td>383 million</td>
</tr>
<tr>
<td>PayPal</td>
<td>250 million</td>
</tr>
<tr>
<td>Amazon Pay</td>
<td>50 million</td>
</tr>
<tr>
<td>Google Pay</td>
<td>24 million</td>
</tr>
</tbody>
</table>

INTERNET USERS THAT PREFER MOBILE PAYMENTS (2017)

Global mobile payment transactions will be worth more than 3.5 trillion by 2023, will be delivered primarily outside of the United States, and largely by social networking players.

Note: *This assumes Facebook launches Libra across all platforms,
Source: Allied Market Research, WorldPay Global Payments Report, 2018
WHAT THIS MEANS FOR CRYPTO

Where We’re Looking
## WHAT WE’RE FOCUSED ON

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Secular Bitcoin Trend is Your Friend</td>
</tr>
<tr>
<td>2</td>
<td>Finance Fundamentals Still Apply</td>
</tr>
<tr>
<td>3</td>
<td>Focus on “Category Kings” in Both Existing and Emergent Categories</td>
</tr>
<tr>
<td>4</td>
<td>Expect the Next Big Bang to Drive Corporate M&amp;A and IPOs</td>
</tr>
<tr>
<td>5</td>
<td>Brace for an Explosion of Derivatives and Debt</td>
</tr>
<tr>
<td>6</td>
<td>Watch for (Poorly Implemented) Global Coordination on Regulation</td>
</tr>
<tr>
<td>7</td>
<td>And Expect Panopticon Money and Tools for the Resistance</td>
</tr>
</tbody>
</table>
If we remove noise, the trend for bitcoin is up and to the right year after year.

Source: Bloomberg
SECULAR INVESTMENTS REQUIRE CONVICTION

As a useful analogy, tech stocks post 2000 crash took seven (AMZN) to seventeen years (MSFT) to recover to all time highs, and we expect bitcoin to follow a similar trend.

Source: Bloomberg Amazon daily ticker data. Logos sourced from Google images.
Comparatively, bitcoin has been volatile, but on an absolute basis, it’s outperformed every other asset class over a comparable time scale.

Source: Yahoo! Finance
# Placing Bitcoin in Context

## US Investment Returns over the Last Five Years

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Annualized Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt</td>
<td>6%</td>
</tr>
<tr>
<td>Fund of Funds</td>
<td>11%</td>
</tr>
<tr>
<td>Hedge Fund</td>
<td>11%</td>
</tr>
<tr>
<td>Real Assets</td>
<td>11%</td>
</tr>
<tr>
<td>Secondaries</td>
<td>13%</td>
</tr>
<tr>
<td>VC</td>
<td>16%</td>
</tr>
<tr>
<td>PE</td>
<td>18%</td>
</tr>
<tr>
<td>IPO</td>
<td>21%</td>
</tr>
<tr>
<td>Bitcoin</td>
<td>115%</td>
</tr>
</tbody>
</table>

On an aggregate basis, Bitcoin has outperformed all other investments.

## Changing Investor Sentiment

- Global macro uncertainty and sky-high valuations across asset classes
- Venture investors increasingly concerned with valuations, exit environment, and performance
- Hedge fund performance has been subpar – in 2017, 43% of funds fell short of performance expectations
- Exits less frequent – IPO valuation premium is low, staying private often better for juicing valuation
- Despite outperformance, investors who missed bitcoin’s 1,000x returns are concerned about long term growth

But in the current macro climate, investors have little appetite for risk.

We have limited analogies to explain the market potential for bitcoin and crypto asset, and anchoring to existing asset classes can provide helpful context.
While cryptocurrencies may be a new innovation, companies still need to make money and manage their cash flows carefully to grow equity value for investors.

Source: CoinShares Research
Recent IPO performance has not fared well for companies who have negative unit economics, despite their impressive user growth metrics and “network” value.

Negative unit economics don’t work... if expenses consistently exceed revenues – you **LOSE** money

Source: Yahoo! Finance as of October 31, 2019
Even STONKS guy can’t turn a negative into a positive. Fundamentals of finance!
## Tokens Raise Assets but Where's the Offset?

### Assets
- Cash or cash equivalents (BTC, ETH)
- Inventory (tokens held by project)
- Accounts receivable
- Investments
  - Ecosystem fund investments
- Property Plan & Equipment (PP&E)
- Goodwill

### Liabilities + Equity
- Liabilities
  - Notes Payable (ST or LT)
  - Accounts Payable
  - Wages Payable
  - Interest Payable
  - Taxes (current + deferred)
  - Legal and Regulatory
- Community Debt
  - Network Delivery
- Company Equity
  - Preferred Stock
  - Common Stock

**DISCLAIMER:** Tokens do not have any rights, uses, purpose, attributes, functionalities or features, express or implied, including, without limitation, any uses, purpose, attributes, functionalities or features on the “decentralized blockchain computing network” platform.

Adding billions of dollars to assets side of the balance sheet without accruing some form of liability defies the laws of finance.
## IS TOKEN FINANCING A BOON FOR OPEN SOURCE?

<table>
<thead>
<tr>
<th>ERA</th>
<th>MOVEMENT</th>
<th>PHILOSOPHICAL ORIENTATION</th>
<th>RELATIONSHIP TO PROPRIETARY SOFTWARE (PS)</th>
<th>ECONOMIC IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983-1998</td>
<td>Free Software (FS)</td>
<td>Liberalism</td>
<td>&quot;PS is evil&quot;</td>
<td>Billions</td>
</tr>
<tr>
<td>1998-2013</td>
<td>“Open Source” Software (OSS)</td>
<td>Utilitarianism</td>
<td>&quot;PS is not necessarily evil&quot;</td>
<td>Hundreds of billions</td>
</tr>
<tr>
<td>2013-2028+</td>
<td>Commercial OSS (COSS)</td>
<td>Commercialization</td>
<td>&quot;PS is complementary&quot;</td>
<td>Trillions</td>
</tr>
<tr>
<td>2017 - ?</td>
<td>Utility Tokens aka (TOSS)</td>
<td>Crypto Chad-ism</td>
<td>“YOLO!”</td>
<td>Tens of trillions</td>
</tr>
</tbody>
</table>

While utility tokens were seen as an appealing approach to financing protocol development, most projects financed in this manner have failed to deliver any usable software.
OPEN SOURCE IS ALREADY AN INVESTABLE CATEGORY

OSS FOCUSED COMPANIES GENERATING $100M IN ANNUAL REVENUE

40 open source companies generating $100M or more in annual revenue – no token needed!
6 years ago, that number was exactly 2: Red Hat and Mozilla

Source: OSS Capital
The proliferation of venture arms and fund investments made by token foundation indicates returns to investment capital exceed those from innovation via protocol R&D.
Category design is the discipline of creating and developing a new market category, and conditioning the market so it will demand your solution and your company as its leader aka “category king”

Crypto has yet to see high value categories emerge outside of the exchange / banking business where firms have been protected by a “risk moat” incumbents don’t want to cross – questionable whether this moat stays intact when legacy finance players or digital finance players begin to compete

Category creation requires not only technology or product, but a combination of marketing, public relations, and advertising all focused on conditioning the market. Arguably crypto incumbents are poorly positioned here – expect threats from FI’s and FinTechs

According to research, “category kings” in tech earn 76 percent of the market capitalization (aka total value created) in their space! So the stakes are BIG

Exchanges are increasingly leveraging their “primary position” as aggregators of coins to become multi-product platforms offering lending, staking, custody, insurance, and other high value services that increase customer lifetime value and increase brand loyalty

If eyeballs and clicks were the only metrics that mattered for the early internet, arguably volume and spread are the only metrics that matter for crypto today

Source: CoinShares Research
### CATEGORIES BY BUSINESS MODEL

#### PRODUCTS (Margin & marketing driven)

<table>
<thead>
<tr>
<th>Consumer</th>
<th>Payments</th>
<th>Hardware</th>
<th>Research &amp; Analytics</th>
<th>Professional Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOLD</td>
<td>BitPesa</td>
<td>Casa</td>
<td>Coinfirm</td>
<td>CoinTracker</td>
</tr>
<tr>
<td>lolli</td>
<td>veem</td>
<td>helium</td>
<td>MESSARI</td>
<td>zenledger</td>
</tr>
<tr>
<td>VOYAGER</td>
<td>argent</td>
<td>Coinmine</td>
<td>CHAINALYSIS</td>
<td>OPENLAW</td>
</tr>
<tr>
<td>ABRA</td>
<td>flexa</td>
<td>cryptosteel</td>
<td>ELLIPTIC</td>
<td></td>
</tr>
<tr>
<td>ALTO</td>
<td>wyre</td>
<td>yubico</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLOCKCHAIN</td>
<td>MoonPay</td>
<td>TREZOR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PLATFORMS (Volume & distribution driven)

<table>
<thead>
<tr>
<th>Custody &amp; Security</th>
<th>Marketplaces</th>
<th>Exchanges</th>
<th>Enterprise</th>
<th>Trading &amp; Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>BitGo, GKB Fireblocks</td>
<td>particl, OpenSea, SECURITIZE</td>
<td>BINANCE, Huobi, BitMEX, Kraken</td>
<td>circulor, FILAMENT, ARWEN, Omnionex</td>
<td>TradeBlock, Paradigm</td>
</tr>
<tr>
<td>Anchorage, Ledger, Dacs</td>
<td>OpenBazaar, COINLIST</td>
<td>coinbase, BITFINEX, GEMINI, ErisX</td>
<td>PROVENANCE, TIERION, INFURA</td>
<td>everledger</td>
</tr>
</tbody>
</table>

#### INFRASTRUCTURE (Licensing & SaaS sales driven)

<table>
<thead>
<tr>
<th>Capital Markets</th>
<th>Enterprise BaaS</th>
<th>Networking</th>
<th>Developer Tools</th>
<th>Protocols / OSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXONI, symbiont</td>
<td>Digital Asset</td>
<td>BITFURY</td>
<td>zabo, 3 BOX</td>
<td>bitcoin, ethereum</td>
</tr>
<tr>
<td>PAXOS, claramtics</td>
<td>Monax, c-rda</td>
<td>Blockstream, BITMAIN</td>
<td>BlockApps</td>
<td>Algorand</td>
</tr>
<tr>
<td></td>
<td>HYPERLEDGER</td>
<td>Nodle.io</td>
<td></td>
<td>INFURA</td>
</tr>
</tbody>
</table>
THE FLAVORS OF CRYPTO BUSINESS MODEL

SCALABLE REVENUE MODELS THAT ACCRUE EQUITY VALUE

**PRODUCT**
- Strong focus on margin and unit economics
- Short sales cycles
- Growth via partners and distribution channels
- Marketing and brand driven – voice matters

**PLATFORM**
- Volume and usage driven
- Leverage primary product to cross-sell secondary products
- Scale via distribution
- Earn customer trust by solving several problems – improve LTV, reduce churn

**INFRASTRUCTURE**
- Recurring revenue / licensing focused, high cost of service
- Longer SaaS sales cycles
- Build “connective tissue” to monetize network effect
- Market penetration critical, become “industry” standard

REVENUE MODELS THAT GENERATE CASH BUT LITTLE EQUITY VALUE

**CONSULTING**
- Common during 2017 “blockchain” craze
- Difficult to scale without scaling costs linearly

**PROFESSIONAL SERVICES**
- Focused on client relationships and sales
- No IP to underlying tech to drive margins

**?**
- The creativity never ceases to amaze me

Source: CoinShares Research
While the early internet was all about monetizing eyeballs via advertising, crypto companies today monetize their role as financial intermediaries.
BUSINESS MODEL INNOVATION TAKES TIME

Evolution
Early adoption fits the existing regulated structure

Revolution
Experimentation phase takes time...

*The Kübler-Ross grief model serves as a good index of how incumbents and stakeholders alike will react as we progress through the parallel paths

While current business models are largely centralized and mirror existing financial services, we hope to see new business models emerge as the industry matures.

Source: CoinShares Research
**INDUSTRY M&A HAS BEEN MOSTLY INTERNAL**

<table>
<thead>
<tr>
<th>Acquirer</th>
<th>Target</th>
<th>Founded</th>
<th>Date Acq.</th>
<th>Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIRCLE</td>
<td><strong>POLONIEX</strong></td>
<td>2014</td>
<td>Sep '17</td>
<td>$400 M</td>
</tr>
<tr>
<td></td>
<td>seedInvest</td>
<td>2012</td>
<td>Oct '17</td>
<td>Not disclosed</td>
</tr>
<tr>
<td></td>
<td>trigger</td>
<td>2015</td>
<td>Oct '18</td>
<td>Not disclosed</td>
</tr>
<tr>
<td>coinbase</td>
<td>Earn</td>
<td>2013</td>
<td>Apr '18</td>
<td>$120 M</td>
</tr>
<tr>
<td></td>
<td>Distributed Systems</td>
<td>2015</td>
<td>Aug '18</td>
<td>Not disclosed</td>
</tr>
<tr>
<td></td>
<td>venovate</td>
<td>2013</td>
<td>2018</td>
<td>Not disclosed</td>
</tr>
<tr>
<td></td>
<td>bithumb</td>
<td>2013</td>
<td>Oct '18</td>
<td>$353 M</td>
</tr>
<tr>
<td></td>
<td>Bitstamp</td>
<td>2011</td>
<td>Oct '18</td>
<td>Not disclosed</td>
</tr>
<tr>
<td></td>
<td>Huobi</td>
<td>1983</td>
<td>Aug '18</td>
<td>$70 M</td>
</tr>
<tr>
<td></td>
<td>gojek</td>
<td>2014</td>
<td>Jan '19</td>
<td>$72 M</td>
</tr>
<tr>
<td></td>
<td>coins.ph</td>
<td>2014</td>
<td>Sep '18</td>
<td>$200 M+</td>
</tr>
<tr>
<td></td>
<td>Chain</td>
<td>2014</td>
<td>Jan '19</td>
<td>$100 M+</td>
</tr>
<tr>
<td></td>
<td>crypto</td>
<td></td>
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</tbody>
</table>

M&A activity to date has been focused on consolidation amongst existing industry players, with minimal external participation.
# NEXT BIG BANG WILL SEE BUILD, BUY, AND PARTNER

During phases of rapid industry growth, existing firms will need to speed time to market through buying via M&A or partnering with existing firms.

<table>
<thead>
<tr>
<th></th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Build</strong></td>
<td>• Greatest degree of control&lt;br&gt;• Own the IP&lt;br&gt;• Own the profitability</td>
<td>• Long time to market&lt;br&gt;• Risk in market shifts&lt;br&gt;• High development costs / opportunity cost&lt;br&gt;• High switching costs / sunk costs</td>
</tr>
<tr>
<td><strong>Buy</strong></td>
<td>• Speed time to market&lt;br&gt;• Own the IP</td>
<td>• Acquisition costs&lt;br&gt;• Integration costs and risks&lt;br&gt;• Loss of key people</td>
</tr>
<tr>
<td><strong>Partner</strong></td>
<td>• Shortest time to market&lt;br&gt;• Least resource intensive&lt;br&gt;• “Try before you Buy”&lt;br&gt;• Lowest opportunity cost</td>
<td>• Very little control&lt;br&gt;• Integration costs and timelines can get out of control&lt;br&gt;• Share margin&lt;br&gt;• Share profitability</td>
</tr>
</tbody>
</table>

Source: CoinShares Research
Corporate engagement with the industry has been focused on “blockchain” but is shifting to “bitcoin and digital assets” as teams learn and innovate.

The dominance of e-commerce and SaaS in both online and offline businesses is driving traditional corporates to seek digital growth via acquisition and partnership.

Source: CoinShares Research
The M&A cycle is in full swing, with FinTech transaction values rising thanks to increasing consumer and enterprise acceptance of digital banking, payments and financial data services.
Despite significant M&A potential, crypto business models need more definition and demonstrable proof before we can expect significant valuations and exit multiples.

Companies need to demonstrate:

- Ability to generate recurring revenue and stable cash flow
- Consistent delivery on growth metrics
- Above-average margins and low margin volatility (predictable FCF)
- Low revenue concentrations and significant revenue diversification by channel
- Low founder involvement (see WeWork debacle), strong internal and external teams, established corporate governance, and streamlined operations
- Little regulatory or legal overhang that could cause unexpected business model risk

Investors, especially PE firms and funds, are looking for businesses with strong brands, teams in place and strong customer retention metrics.

We anticipate a more robust M&A market could materialize but significant industry consolidation will likely come first to clean up market fragmentation.
Futures and options are popular with traders of all types, and have grown materially over the last 20 years.

Source: Futures Industry Association
$622 trillion (97%) of the OTC derivatives market is linked to foreign exchange or interest rates; used by traders and investors to hedge investment risk.
The gold market grew exponentially once cash-settled (paper) futures were introduced – the futures market is now 30x the physical gold market.

Source: CoinShares Research
### 24h BTC Futures Trading Volume on Nov. 11 2019

<table>
<thead>
<tr>
<th>Exchange</th>
<th>USD, millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>$-</td>
<td>$750</td>
</tr>
<tr>
<td>Huobi DM</td>
<td>$1,500</td>
</tr>
<tr>
<td>OKEx (Futures)</td>
<td></td>
</tr>
<tr>
<td>CoinFLEX (Futures)</td>
<td></td>
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<tr>
<td>Bitmex</td>
<td></td>
</tr>
<tr>
<td>Deribit</td>
<td></td>
</tr>
<tr>
<td>Kumex</td>
<td></td>
</tr>
<tr>
<td>CME Bitcoin Futures</td>
<td></td>
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<tr>
<td>Bakkt</td>
<td></td>
</tr>
<tr>
<td>FTX</td>
<td></td>
</tr>
<tr>
<td>BTSE (Futures)</td>
<td></td>
</tr>
<tr>
<td>Kraken (Futures)</td>
<td></td>
</tr>
<tr>
<td>Delta Exchange</td>
<td></td>
</tr>
<tr>
<td>Bitflyer (Futures)</td>
<td></td>
</tr>
</tbody>
</table>

$3.3B of trading volume per day across the top 13 major exchanges

Source: CoinGecko
CME introduced the first cash settled bitcoin futures contract in 2017, which has been a popular trade for institutions and other speculative traders.

Source: Bloomberg
The emergence of a more robust crypto derivatives market will require the development of better industry risk management practices.

<table>
<thead>
<tr>
<th>RISK</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark-to-market exposure</td>
<td>- The close out process may result in realized mark-to-market exposure on the underlying contract</td>
</tr>
<tr>
<td>Liquidity risk</td>
<td>- Sourcing sufficient liquidity in the market (notional/maturity) to replace the required position that has been closed out following the counterparty’s default</td>
</tr>
</tbody>
</table>
| Operational risk         | - Managing close-out of a portfolio  
                          | - Notifying counterparty that default has occurred  
                          | - Replacing transactions in the market  
                          | - Accurately margining transactions  
                          | - Managing on-going valuation disputes |  |
| Legal Risk               | - Enforceability of netting/collateral enforcement arrangements  |
| Collateral Risk          | - Insufficient haircuts on collateral  
                          | - Collateral too closely correlated with counterparty risk  |
| Settlement Risk          | - Intra-day exposure to a counterparty, arising from transfers of cash flows under derivative transaction or returns of collateral amounts following payments under a derivative contract |
Digital asset lending continues to experience high double-digit % QoQ growth, with Genesis Capital reporting an average of more than 80% origination growth since launch.
The lack of global coordination in bitcoin regulation makes it challenging to deploy solutions on a global scale.

Source: BitLegal
We expect regulation to be a major impediment to industry growth over the coming 2-3 years as governments grapple with a poor understanding of what is and is not feasible.

### AREAS UNDER SCRUTINY

| 1 | Government taxonomies and definitions |
| 2 | Virtual currency regulation |
| 3 | Sales regulation |
| 4 | Taxation |
| 5 | Money transmission laws and AML requirements |
| 6 | Promotion and marketing |
| 7 | Ownership and licensing requirements |
| 8 | Border restrictions and declaration |
| 9 | Reporting requirements |
| 10 | Estate planning and succession |

Source: CoinShares Research
You wanna regulate it? Be my guest. Regulate the s**t out of it.
I’ll give you back doors, side doors, whatever you want. Just don’t shut it down.
Surveillance capitalism has already permeated our financial lives and will be unstoppable once tokenized payments are integrated into popular platforms.

<table>
<thead>
<tr>
<th>CORPORATE</th>
<th>COIN TYPE &amp; PEG</th>
<th>DESCRIPTION</th>
<th># USERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>facebook</td>
<td>1 Libra = 1 unit of stable basket</td>
<td>Libra coin backed with a pool of assets, Libra Foundation, and Calibra wallet</td>
<td>2,700M</td>
</tr>
<tr>
<td>J.P.Morgan</td>
<td>1 JPMCoin = 1 USD</td>
<td>Internal use only, for now – used to settle “smart contract” bonds</td>
<td>30,000 middle market, 1,700 corporate</td>
</tr>
<tr>
<td>Rakuten</td>
<td>1 Rakuten Coin = TBD</td>
<td>The online giant’s $9B loyalty program will be rolled out on a blockchain</td>
<td>102.6M</td>
</tr>
<tr>
<td>SBI Holdings</td>
<td>1 S Coin = TBD</td>
<td>Will allow for mobile phone payments, and also allows others to mint their own tokens</td>
<td>Unknown</td>
</tr>
<tr>
<td>Telegram</td>
<td>1 TON = 1 TON</td>
<td>Telegram’s TON token allows in application use</td>
<td>250M</td>
</tr>
</tbody>
</table>
Many companies are working to build tools to protect personal privacy and freedom of expression in all forms using technology.
There is no final one; revolutions are infinite.

- Yevgeny Zamyatin, Sci-Fi Author
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