



# CRYPTO TRENDS REPORT

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November 2019

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



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# REPORT AUTHORS



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Chief Investment Officer

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## BRIEF BIO

- 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

## PRIOR EXPERIENCE



**MARTY STENSON**

Associate

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## BRIEF BIO

- 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)

## PRIOR EXPERIENCE



# COLLABORATING ON KNOWLEDGE CREATION

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## DATA PROVIDERS & RESEARCH FIRMS



## COMPANIES



## INSTITUTIONS



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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.

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# ADDITIONAL RESOURCES

## RESEARCH



CoinShares Research

### THE BITCOIN MINING NETWORK

*Trends, Average Creation Costs, Electricity Consumption & Sources*

Macro Perspectives  
IN SEARCH OF YIELDS

#### MONETARY POLICY TOOLS

Continued Unconventional Monetary Policy Tools  
The ECB is tasked with balancing economic progress and adopting increasingly unconventional monetary policy in their effort to right the ship since the 2008 financial crisis. The most widely used tool has been quantitative easing, a method of injecting liquidity directly into the major Central Banks from Japan to Denmark. The ECB's resort to 'offering' negative interest in the view that it will entice private lending and increase activity with the everlasting hope of achieving inflation target. These measures have at least had some effect with stock and asset prices at all-time highs. Challenges have come home to roost within the financial sector. Commercial banks are facing headwinds against their traditional business models and fintech disruptors, negative rates, low-yield bonds, strict regulatory oversight and depressed appetite.

Central Bank Negative Interest Rates  
The Central Bank (ECB), the Bank of Japan (BoJ) and the National Bank continue setting the stage for negative interest rates following Berlin's latest further push rates in decline to new lows (see chart).

Central Bank Negative Interest Rates Have Taken Root in Several Major Economies



Legend: Denmark, ECB, Sweden, Japan

Source: National Bank, Denmark Nationalbank, European Central Bank, Bank of Japan (October 2019)

Who was the first major economy in the world to introduce negative interest rates in 2012 – was recently raised charges on excess reserves yet again in Japan. Its Krona peg close to the Euro after the ECB's interest rates even further.

CoinShares Research 1 7 October 2019 | Copyright © 2019 CoinShares



## EVENTS + UPDATES



# The Future of Digital Assets

Sponsored by CoinShares

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

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Why We Produce This Report

# BITCOIN BIG BANG: ONCE IN A LIFETIME...

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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

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# CRYPTO BIG BANG: SECOND TIME IN A LIFETIME...?

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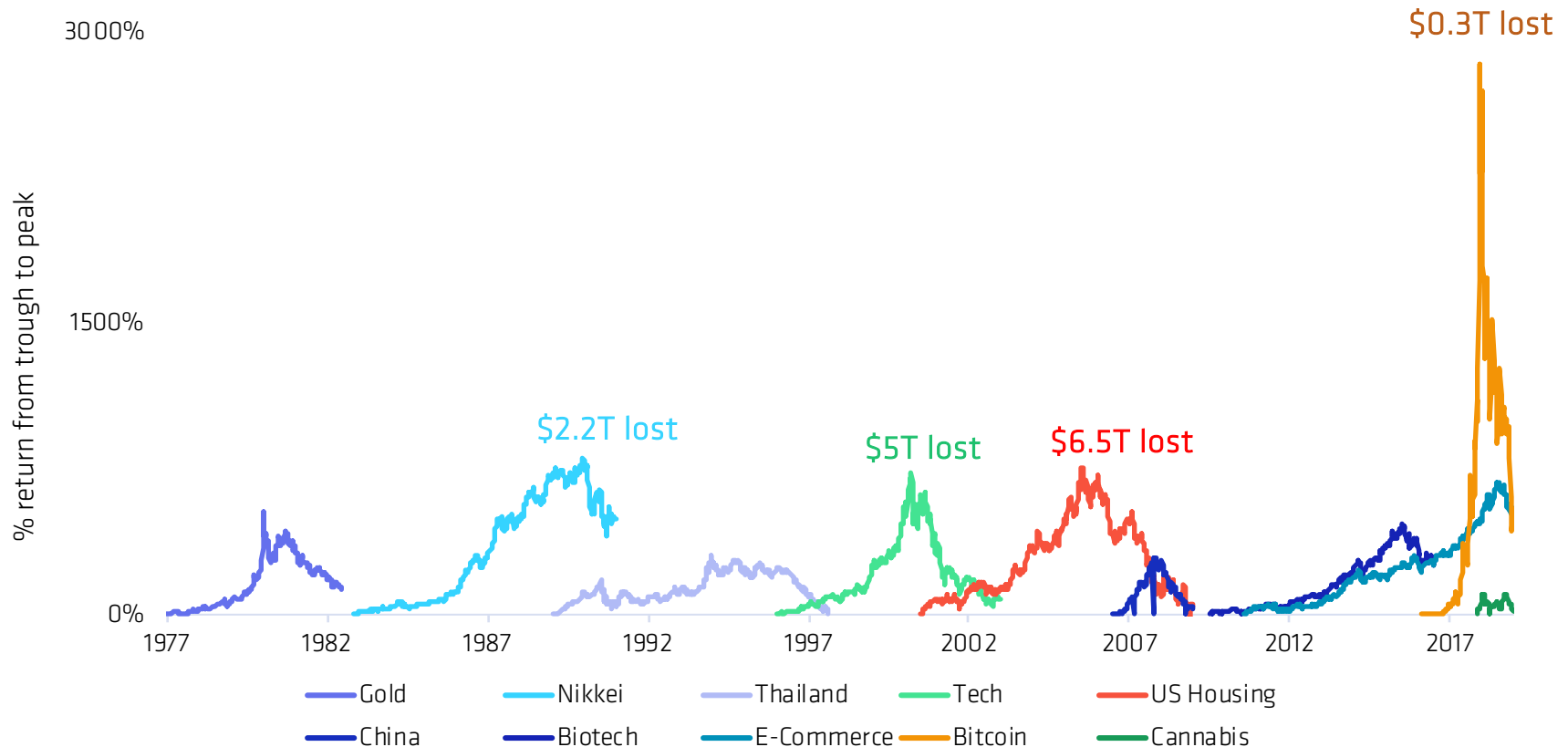
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Following a rapid run up in Bitcoin and Ethereum prices, as well as a wave of hundreds of ICOs, the crypto market cap nearly reached one trillion dollars

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# RELATIVELY BIG BANG, COMPARATIVELY TINY

## ASSET PRICE BUBBLES OF THE PAST 40 YEARS



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)

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Today, the number of bitcoin users around the world are estimated to be anywhere between 35 and 140M<sup>1</sup>, 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<sup>2</sup>, 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<sup>3</sup> and 42% have access to a smart phone<sup>4</sup>, and while many are participating in online communities, many users are still cut off 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.

## SETTING THE SCENE (2/2)

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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

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Forces That Have Shaped Our World

# MACRO TRENDS THAT LED US HERE

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1 Technological Forces

2 Economic Forces

3 Political Forces

4 Social Forces

# TECHNOLOGICAL FORCES

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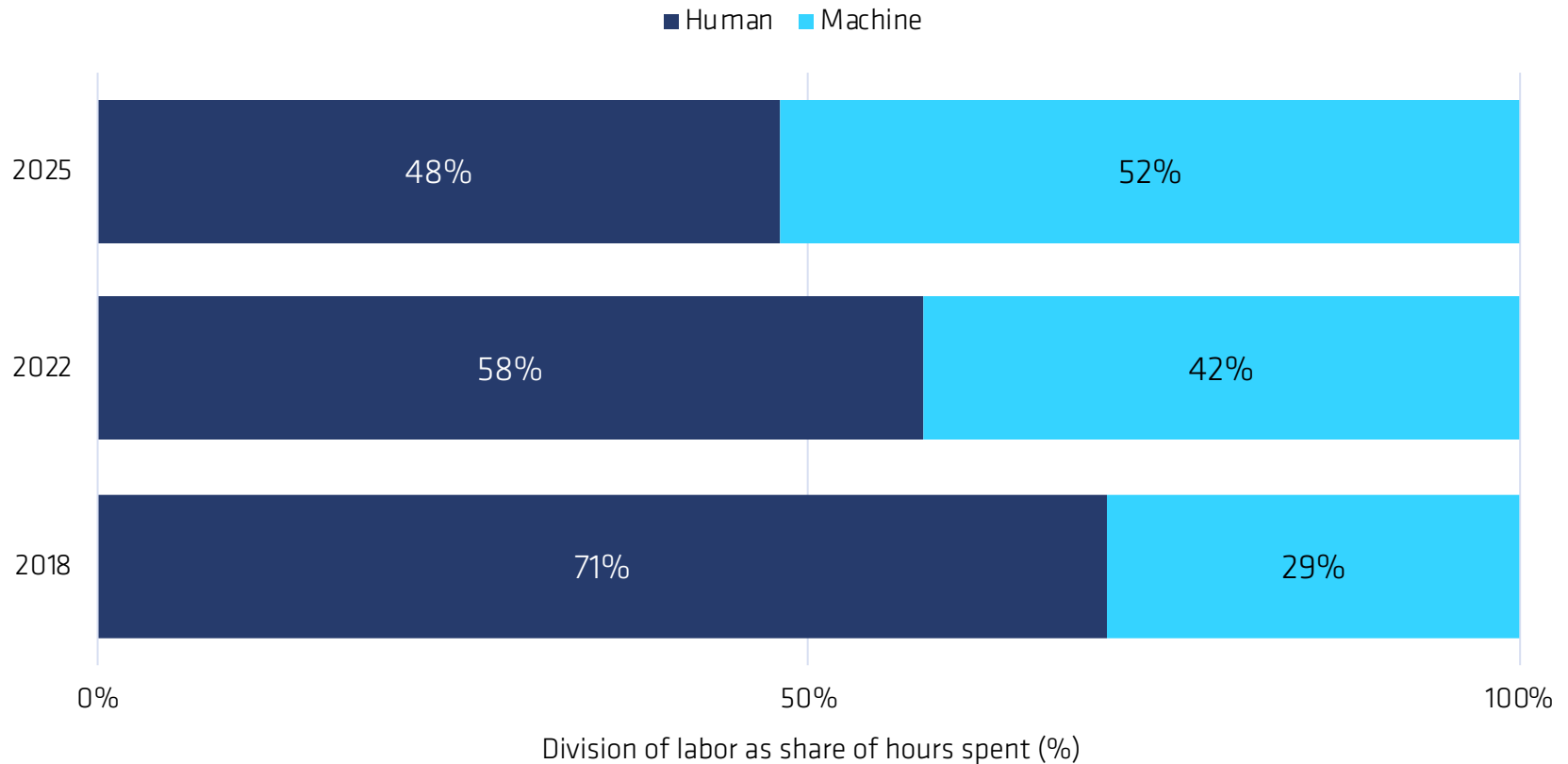
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New technologies are blurring the lines between the physical, digital, and biological worlds, impacting all industries, and challenging ideas about what it means to be human

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# TECHNOLOGICAL FORCES

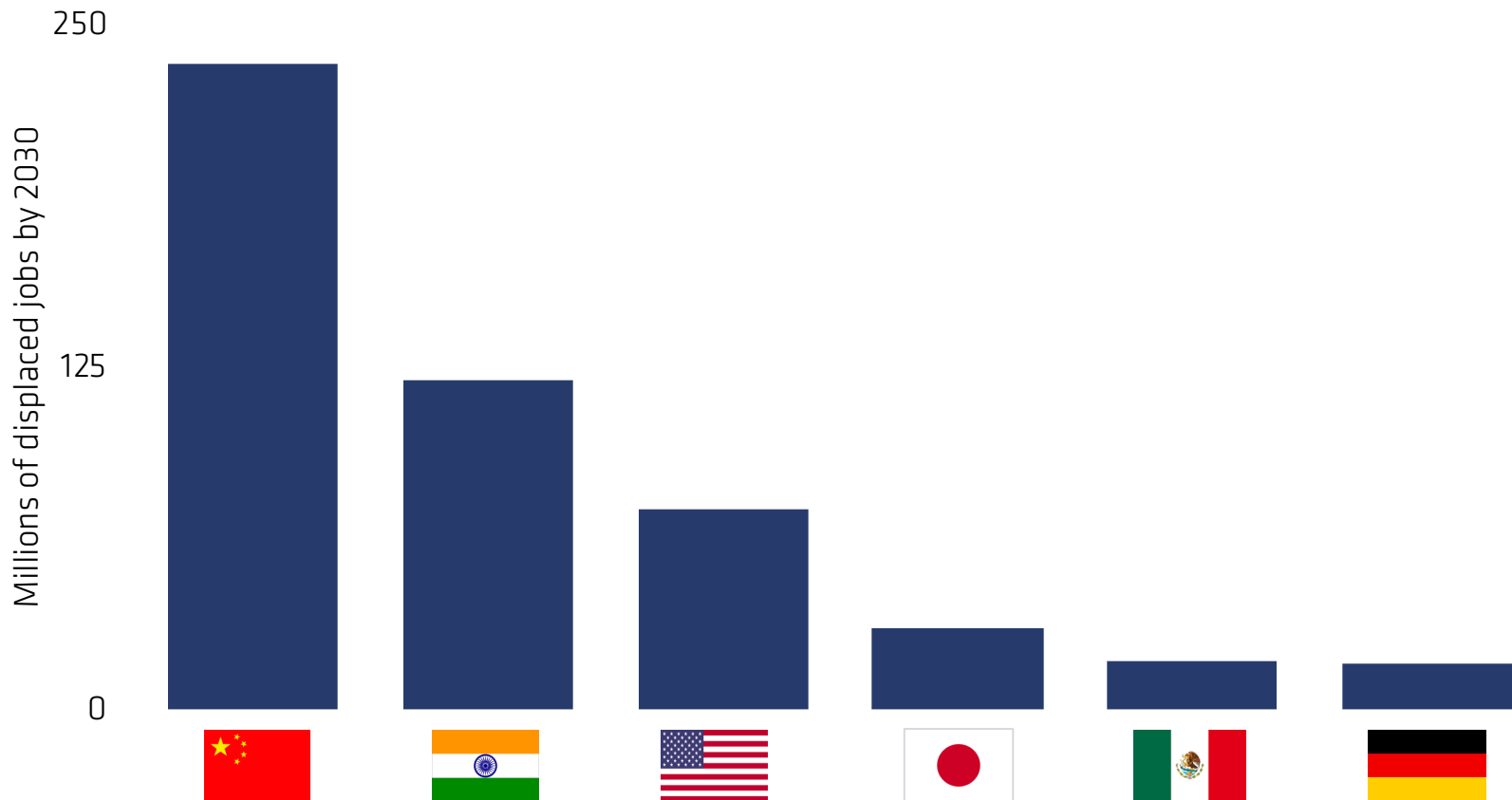
## INCREASING AUTOMATION IN THE LABOR FORCE



As robotics and artificial intelligence begin to permeate the workplace,  
the labor done in economies is shifting from humans to machines

# TECHNOLOGICAL FORCES

## JOB DISPLACEMENT DUE TO AUTOMATION



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



# TECHNOLOGICAL FORCES SHAPE ECONOMIC FORCES

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

- *William Gibson, Sci-Fi Author*

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# ECONOMIC FORCES

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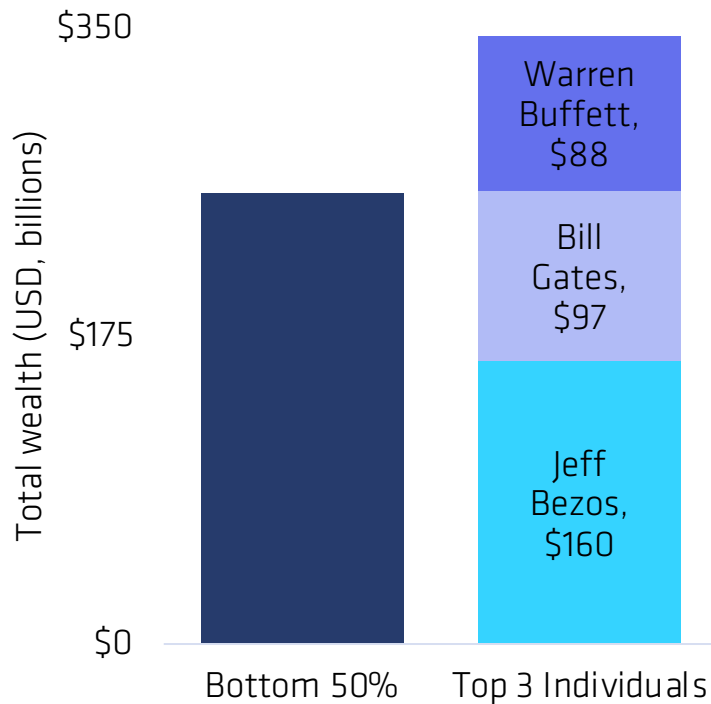
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The world is making huge strides in overcoming global poverty, and today, less than 10 percent of the world lives in extreme poverty

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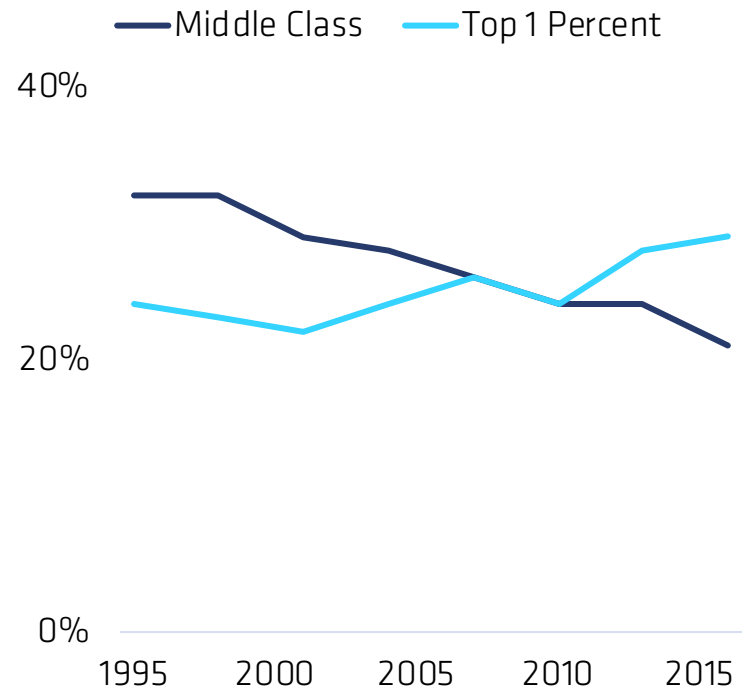
# ECONOMIC FORCES

## GROWING WEALTH INEQUALITY



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

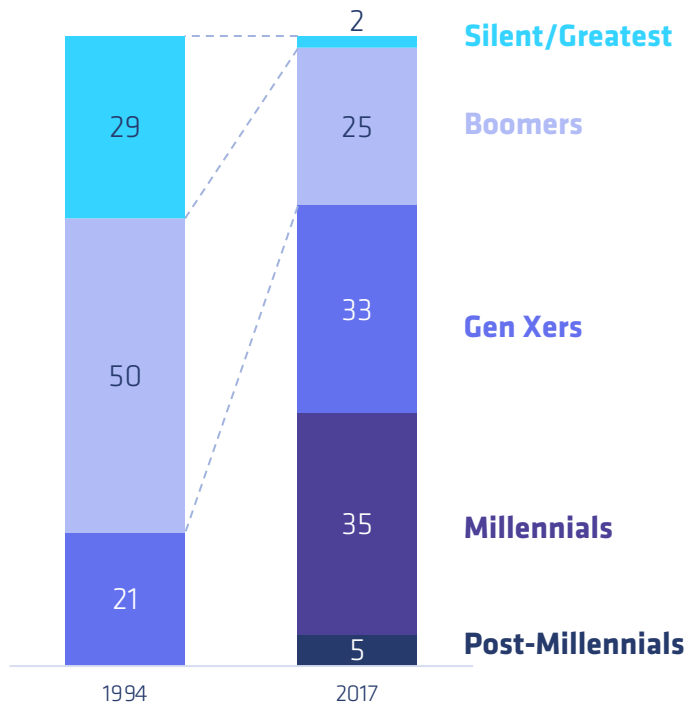
## U.S. WEALTH SHARE BY INCOME GROUP



The middle class now holds less wealth than top 1 percent

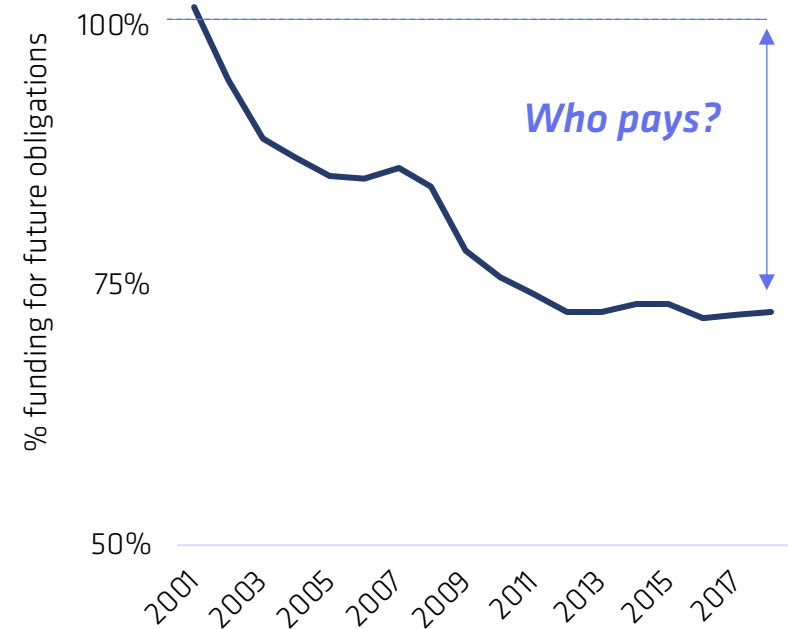
# ECONOMIC FORCES

## 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

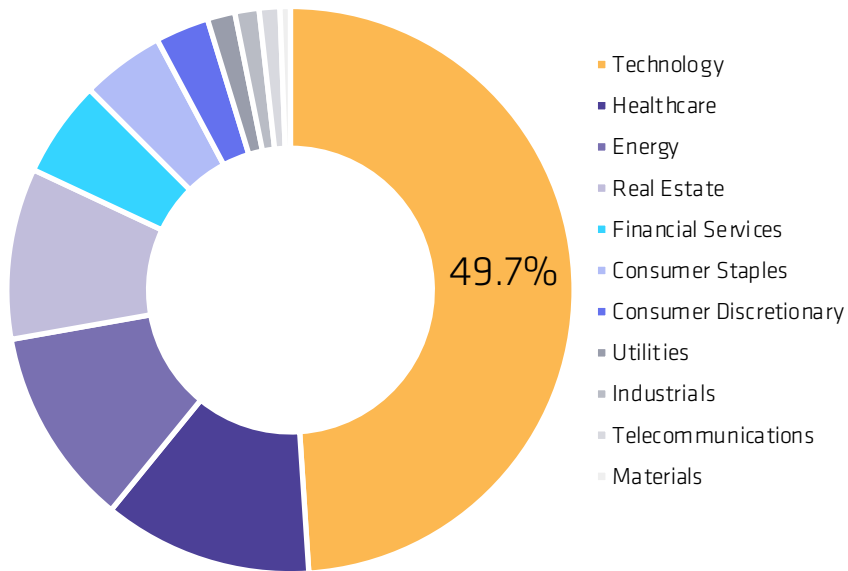
## UNDERFUNDED PENSION LIABILITIES



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

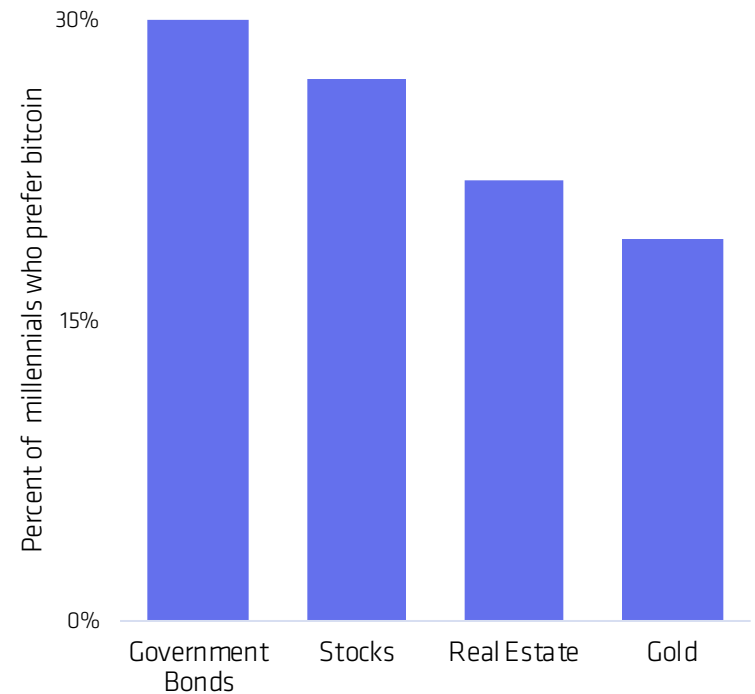
# ECONOMIC FORCES

## MILLENNIAL'S FAVORITE INVESTMENT SECTORS



Millennials want to invest in tech...

## MILLENNIALS WOULD RATHER OWN BITCOIN THAN OWN...



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

# ECONOMIC FORCES SHAPE POLITICAL FORCES

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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)*



# POLITICAL FORCES

## THE STAKES ARE GETTING HIGHER



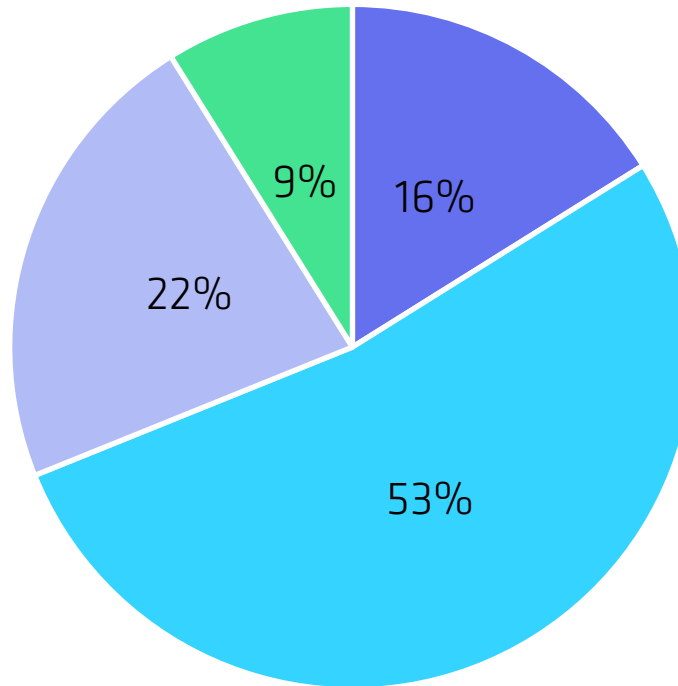
Around the world, tensions are rising as citizens raise basic questions about what they can expect from their governments in a constantly changing world

# POLITICAL FORCES

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## PERCEIVED CORRUPTION AROUND THE WORLD

■ Extremely Corrupt   ■ Moderately Corrupt   ■ Slightly Corrupt   ■ Not Corrupt



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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

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# POLITICAL FORCES SHAPE SOCIAL FORCES

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The world will not be destroyed by those who do evil, but by those who watch them without doing anything.

- *Albert Einstein, Scientist*

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# SOCIAL FORCES

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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

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# SOCIAL FORCES

## AMERICAN CITIZENS TRUST IN US INSTITUTIONS

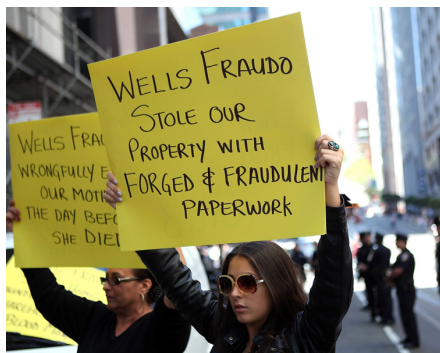
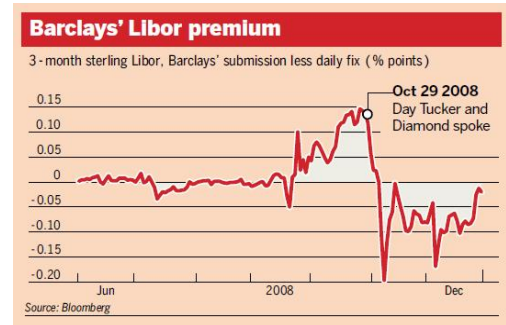


Trust in US banks and financial institutions has dropped sharply over the last forty years



# SOCIAL FORCES

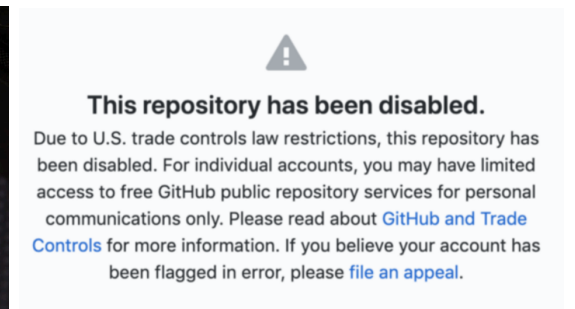
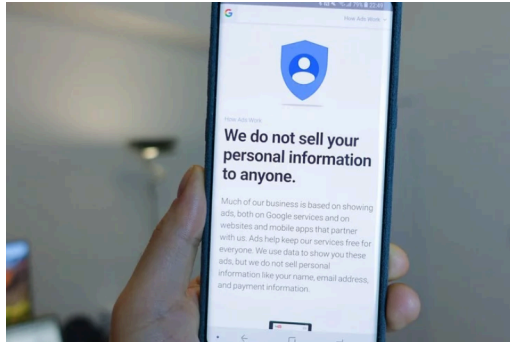
## TRUST IN FINANCIALS INSTITUTIONS IS DECLINING



Financial scandals continue to dominate headlines as institutions of all types come under fire for systemic abuses of trust and power

# SOCIAL FORCES

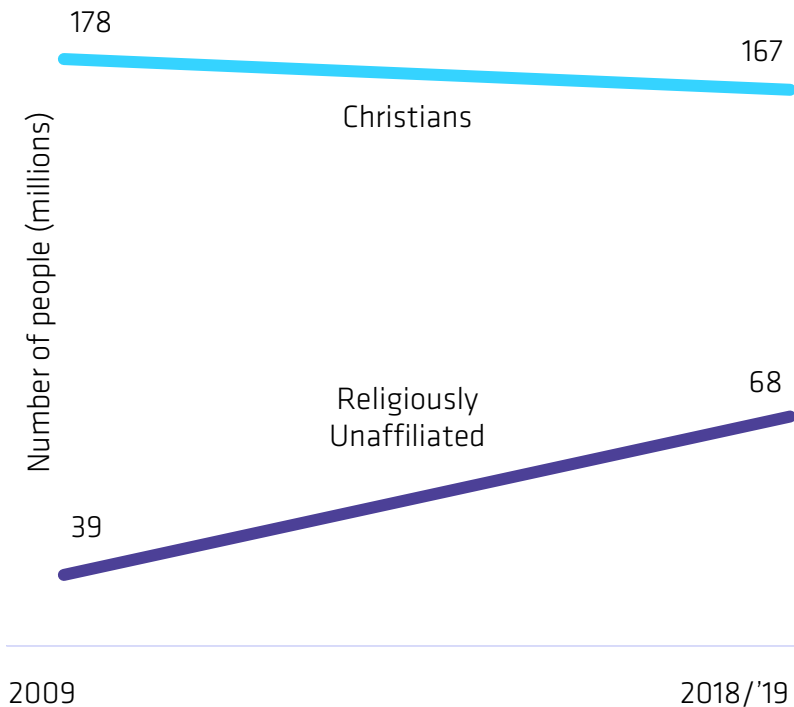
## TRUST IN COMPANIES IS ALSO DECLINING



Trust in tech companies is not immune either – the trend towards “surveillance capitalism” has led to increased mistrust of tech platforms

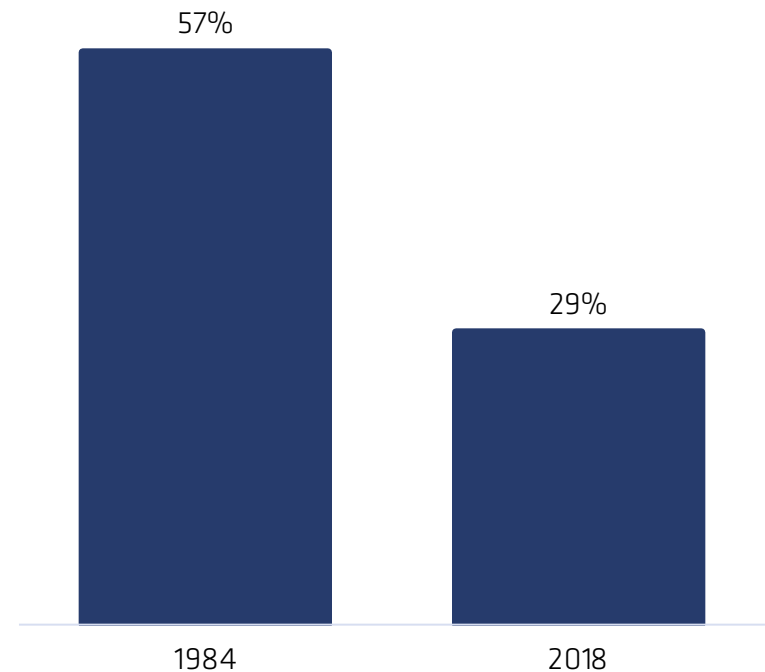
# SOCIAL FORCES

## DECLINE OF RELIGION IN THE U.S.



Over the last ten years, the number of people opting out of religion has doubled

## RELIGIOUS DONATIONS AS % OF ALL U.S. CHARITABLE GIVING



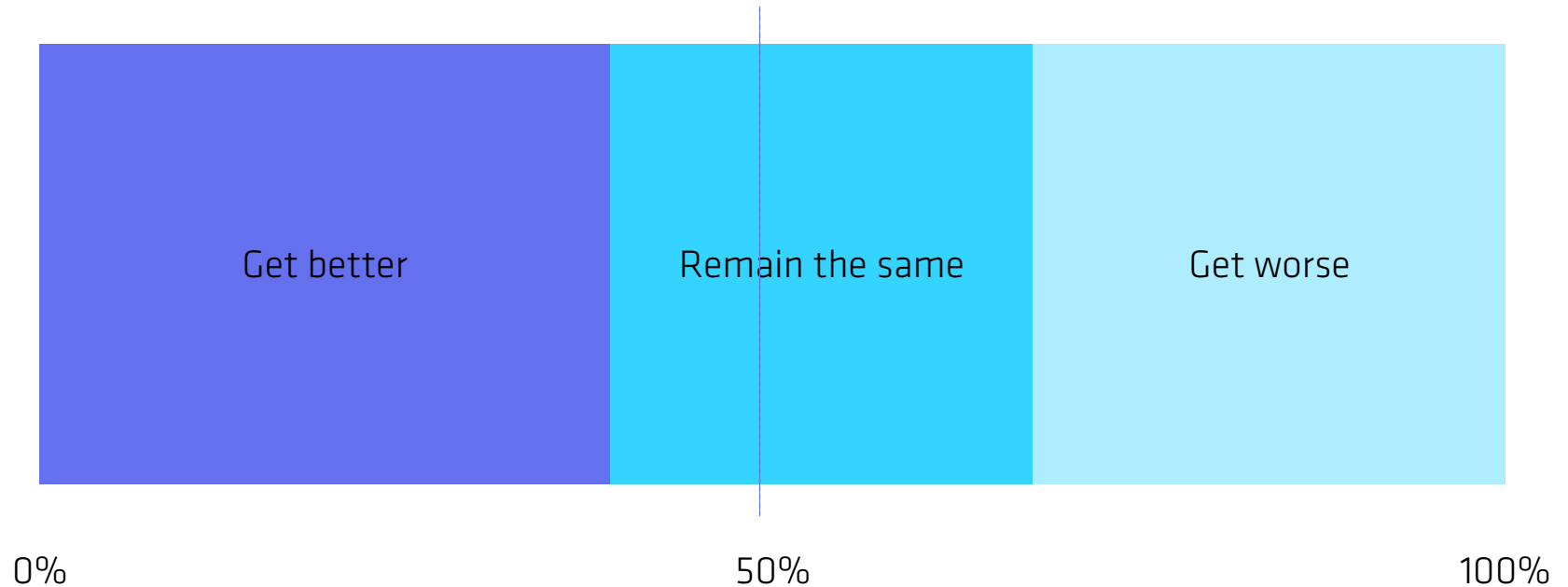
All-time low in U.S. religious giving; shift to humanitarian and health organizations

# SOCIAL FORCES

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## PEOPLE ARE PESSIMISTIC ABOUT THE FUTURE

Over the next 15 years, living conditions will...



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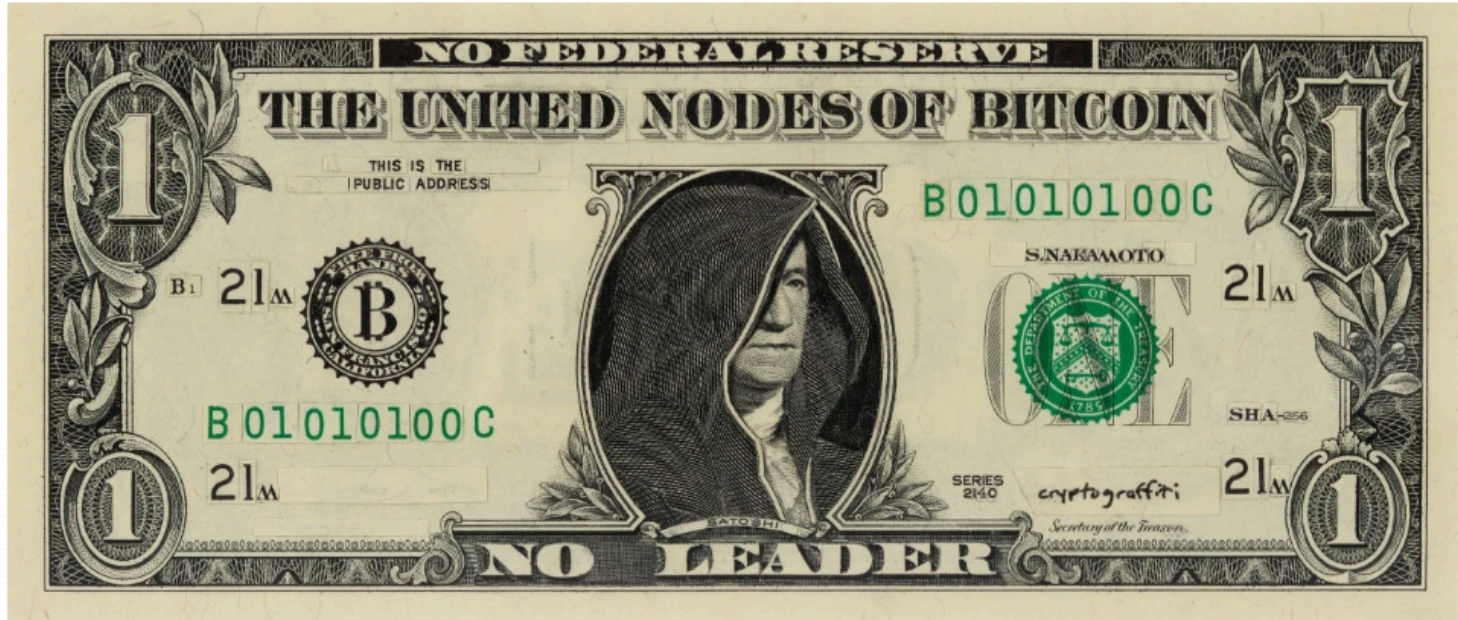
More than half of people around the world expect stagnation  
or that living conditions will get worse

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# THESE FORCES SET THE STAGE FOR BITCOIN

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As technical, economic, political, and social forces continue to shape our world,  
a clear narrative is emerging around bitcoin

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# WHERE ARE WE NOW

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An Assessment of the Current State of Crypto

# THE CURRENT STATE OF CRYPTO MARKETS

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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

7

Sovereign Coins or “Initial Country Offering”

# 1 TEN YEARS OF BITCOIN: THE INTERNET OF VALUE

## A USEFUL, BUT LIMITED, ANALOGY

### THE INTERNET

Innovation in Information Transfer

#### Application Universe:

*Streaming video and music, eCommerce, messaging, data sharing, cloud computing*

#### Killer App: Email

Network:  
ISPs

Protocols:  
TCP/IP, HTTP, DNS, FTP

### BITCOIN

Innovation in Value Transfer

#### Application Universe:

*Censorship resistance, time-stamped data, disintermediated payments, distributed compute, data storage, and more*

#### Killer App: Store of Value

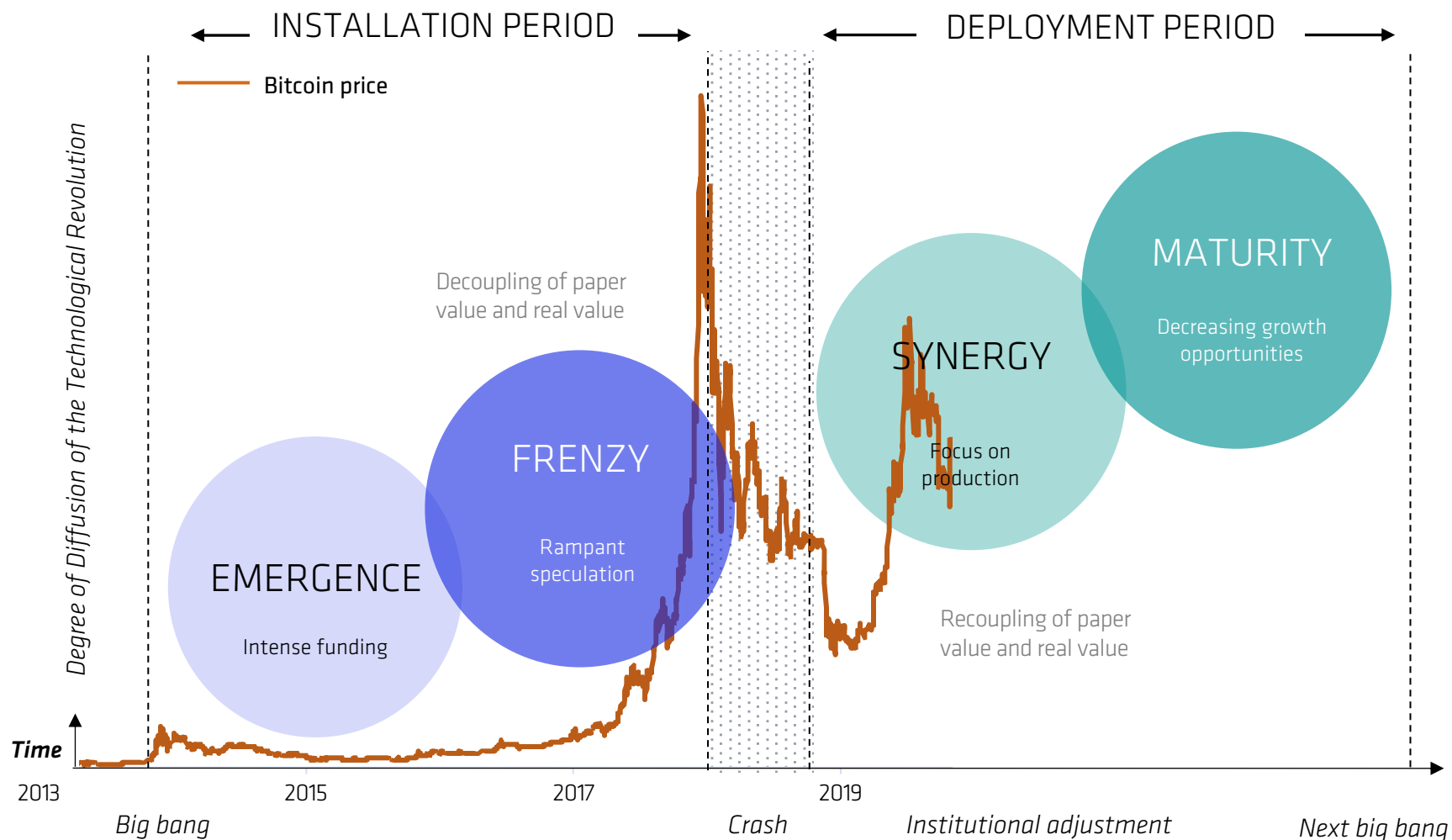
Network:  
Miners and Full Nodes

Protocol  
Bitcoin

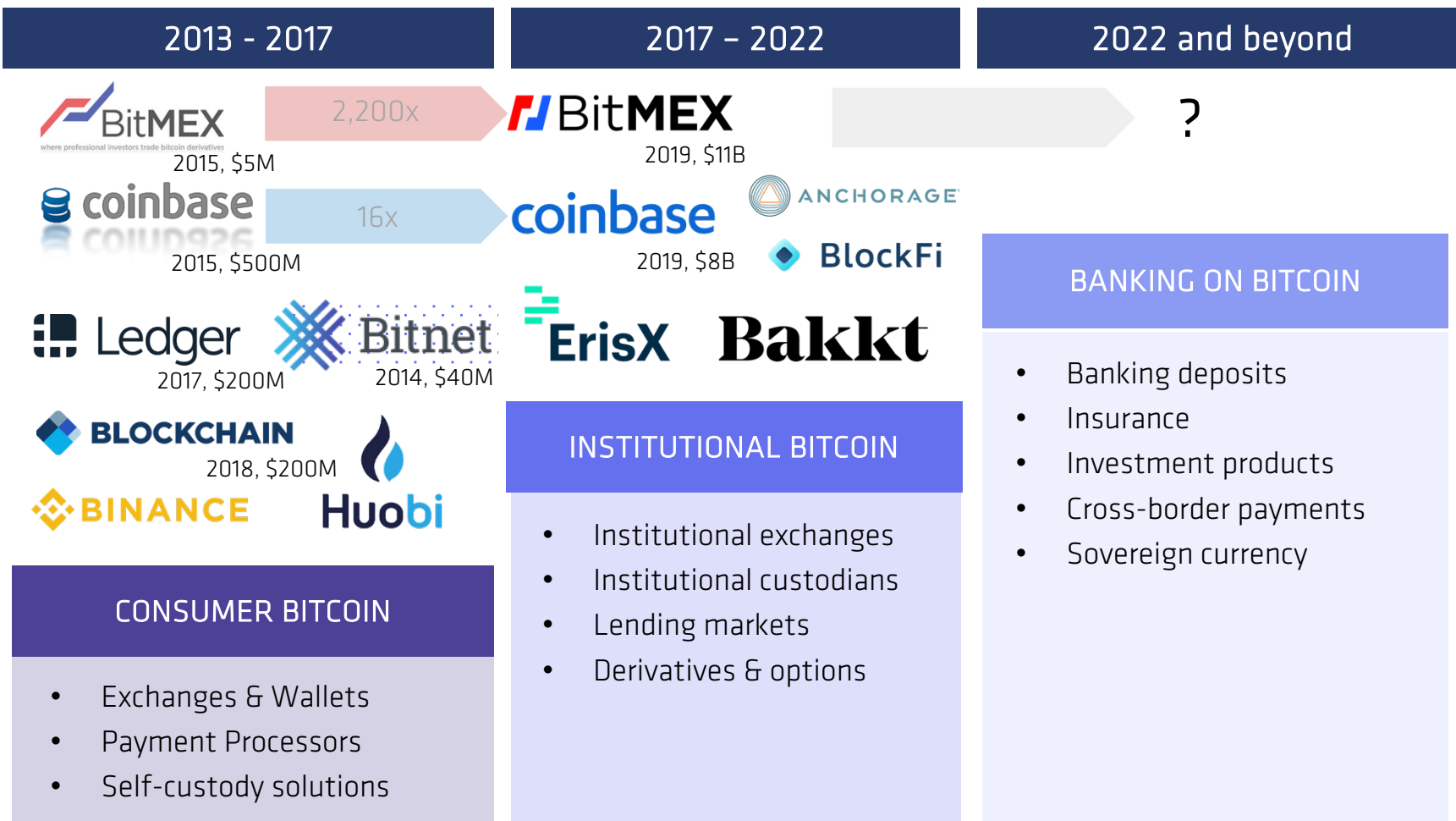
The internet unlocked a global market for many industries, except financial services, which stayed mired in local networks. Bitcoin unlocks a global, open market for financial services.

# 1 TEN YEARS OF BITCOIN: A SLOW EVOLUTION

## BITCOIN AS A TECHNOLOGICAL REVOLUTION



# 1 TEN YEARS OF BITCOIN: NEW MARKETS, NEW USE CASES







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

# 1 MOVING BEYOND BITCOIN



While bitcoin has defined the market for cryptocurrencies, digital finance has rapidly expanded across a broad range of technologies, use cases, and markets

## 2 NOTHING IS DECENTRALIZED

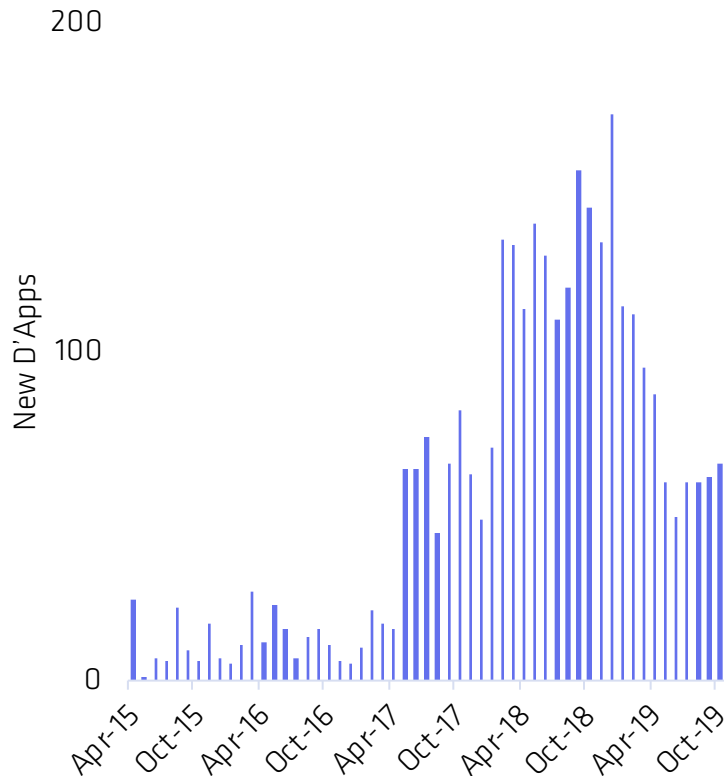
|             | MEASURE                | METRIC   |  |  |  |  |
|-------------|------------------------|--|--|---|---|---|
| APPLICATION | Applications           | User adoption of various applications              | 1000s  | 100s  | ?   | ?   |
|             | "Ecosystem"            | Amount of capital dedicated to ecosystem?          | \$B  | \$B   | \$M   | \$M   |
| NETWORK     | Network Cost           | Annual "mining" reward or cost to maintain network | ~\$6B  | ~\$1B   | \$0   | \$0   |
|             | Nodes in Network       | # public nodes in network                          | 100K+<br><i>various types</i>  | 10K   | ?   | 156   |
|             | Node Concentration     | # entities with >50% of network power in consensus | 4  | 3   | 2   | 1   |
| PROTOCOL    | Distribution of Tokens | % supply held by top 100 accounts                  | 19%  | 34%   | 81%   | 62%   |
|             | Development            | # client codebases that account for >90% of nodes  | 1  | 2   | 1   | 1   |

The pursuit of "decentralization" has largely been performance theater



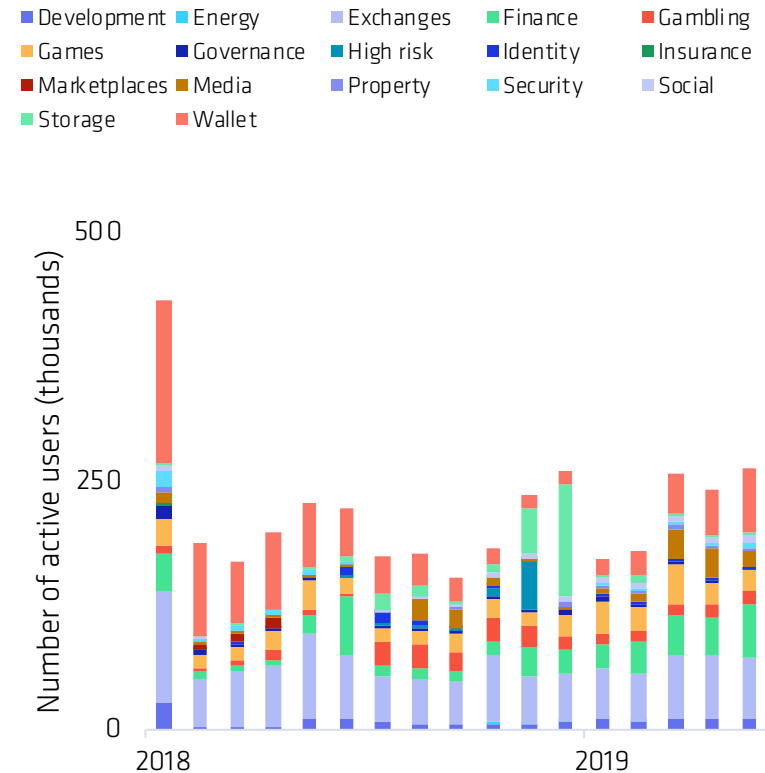
## 2 THE STATE OF DECENTRALIZED APPS AKA D'APPS

### NEW D'APPS PER MONTH



2018 market a peak for d'app development, but 2019 has seen fewer new launches

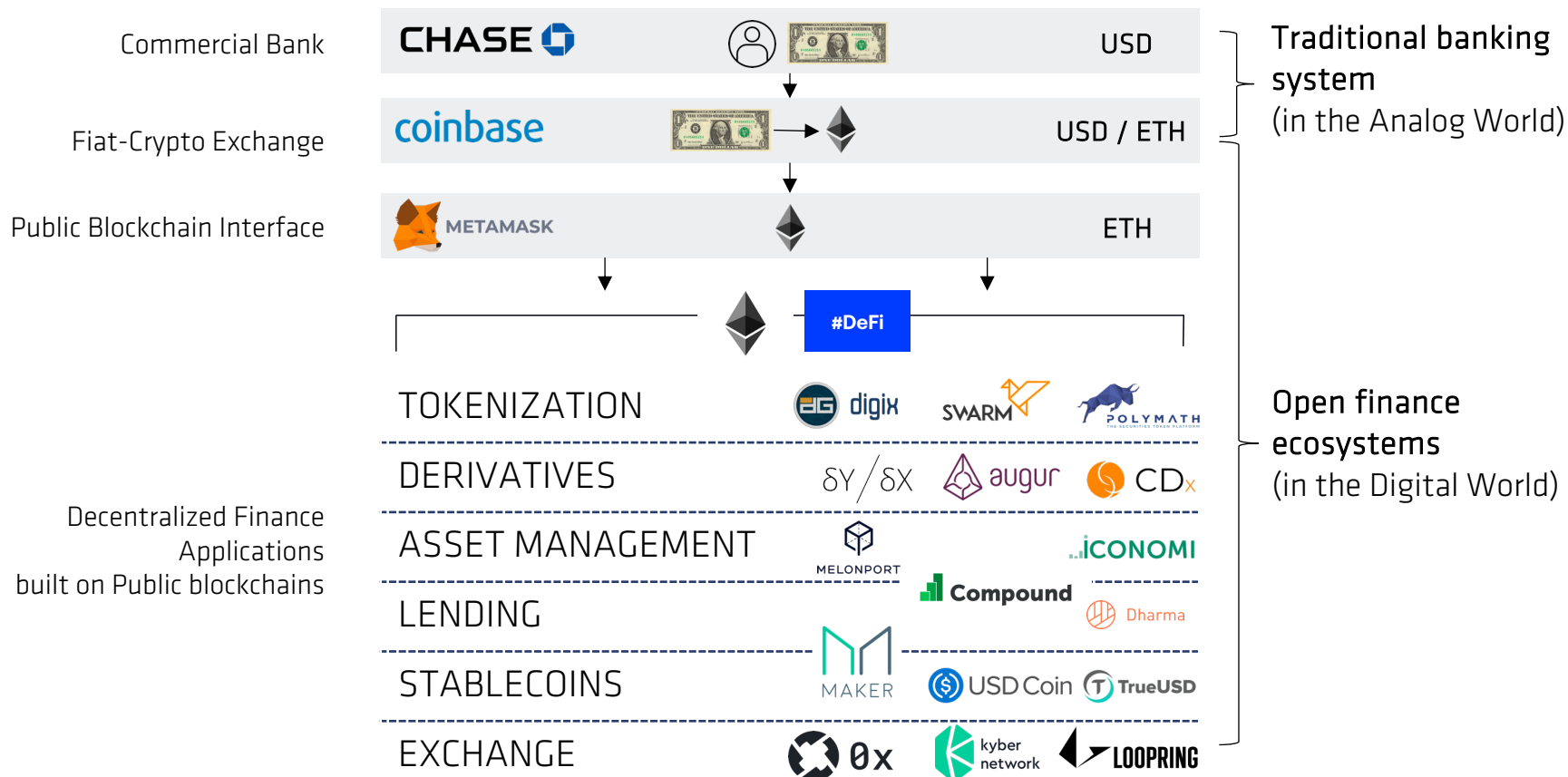
### ETH D'APP ACTIVITY BY CATEGORY



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

## 2 DECENTRALIZING FINANCE AKA DEFI

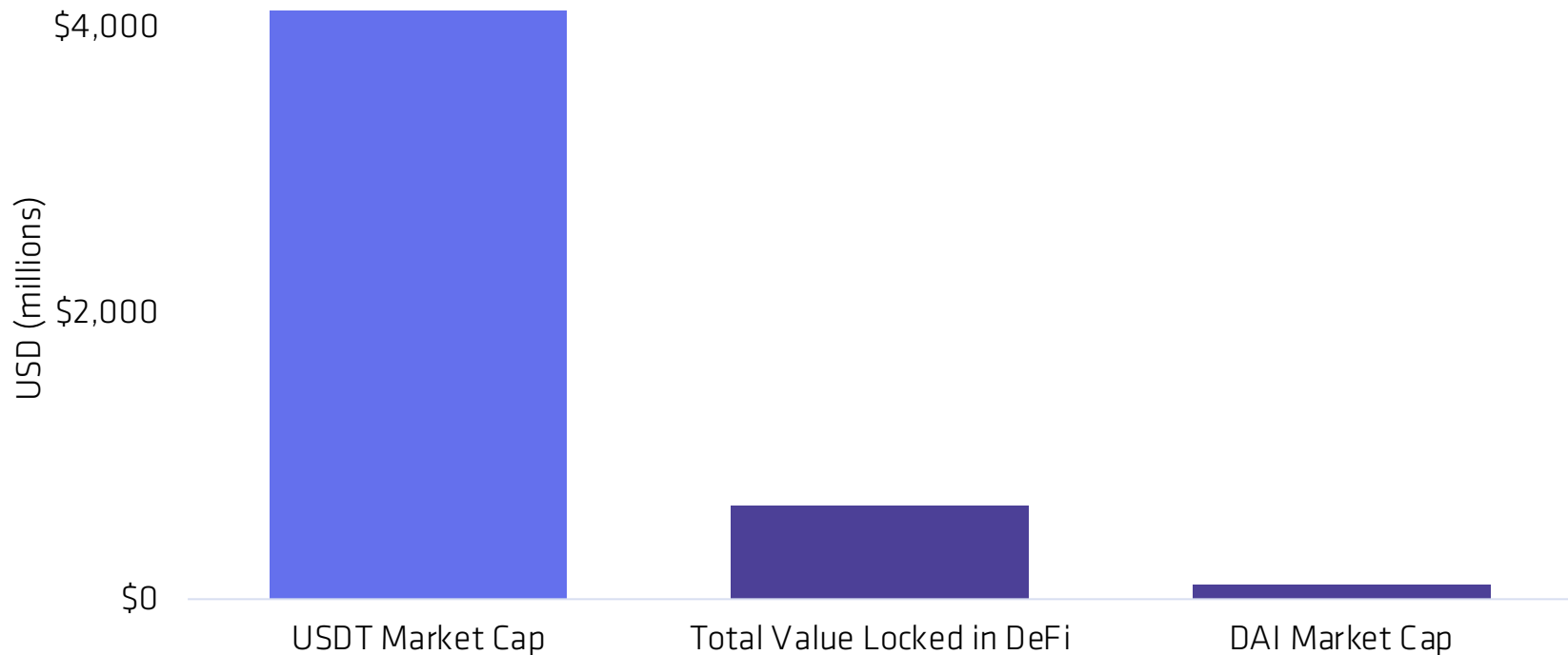
### OVERVIEW OF THE OPEN FINANCE DEVELOPMENT STACK



While many firms are attempting to build the various layers of the open finance stack, regulatory challenges continue to challenge their growth and adoption

## 2 CENTRALIZED FINANCE (CEFI) BIGGER THAN DEFI

### MARKET CAP: CEFI V DEFI



While decentralized finance (DeFi) is a growing area of interest, centralized finance (CeFi) managed by intermediaries is currently far larger

### 3 CRYPTO INVERTS THE INTERNET INVESTING STACK

#### BREAKING DOWN FUNDING

##### The Internet

*Innovation in Information Transfer*

Application Universe:

Data storage and distribution, streaming video and music, cloud computing, and information processing

Capital Deployed from 1995 to 2000



##### The Blockchain

*Innovation in Value Transfer*

Store of value, smart contracts, asset digitization, distributed computing, verification, and data management

Capital Deployed from 2013 to July 2019



Network:

ISPs

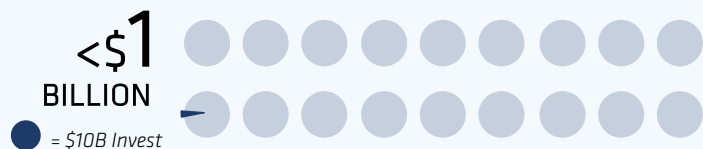
Miners, Full Nodes, Staking Pools

Protocols:

TCP/IP, HTTP, DNS, FTP

Bitcoin, Ethereum, many others

Capital Deployed from 1995 to 2000

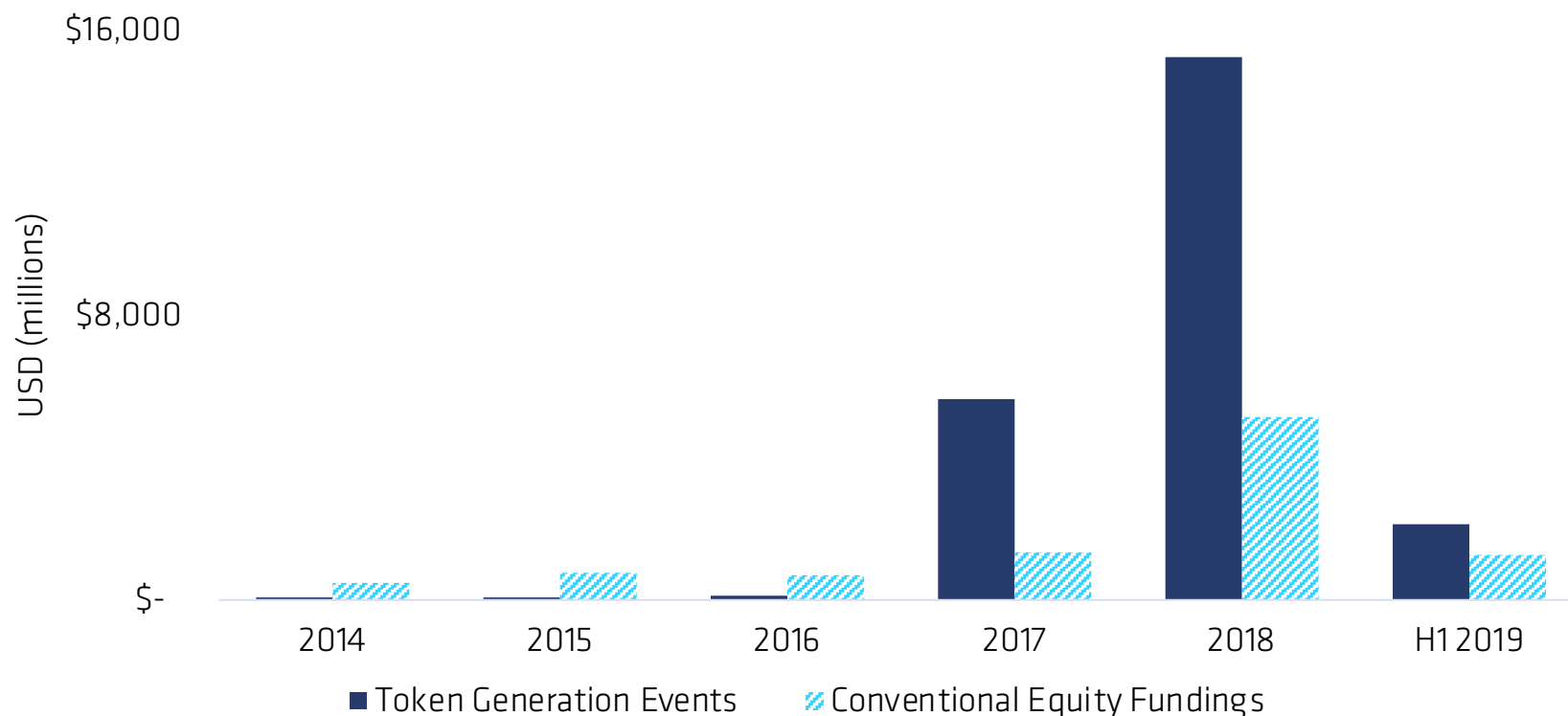


Capital Deployed from 2013 to 2018



### 3 FAT PROTOCOLS ARE STILL AN INVESTMENT THESIS

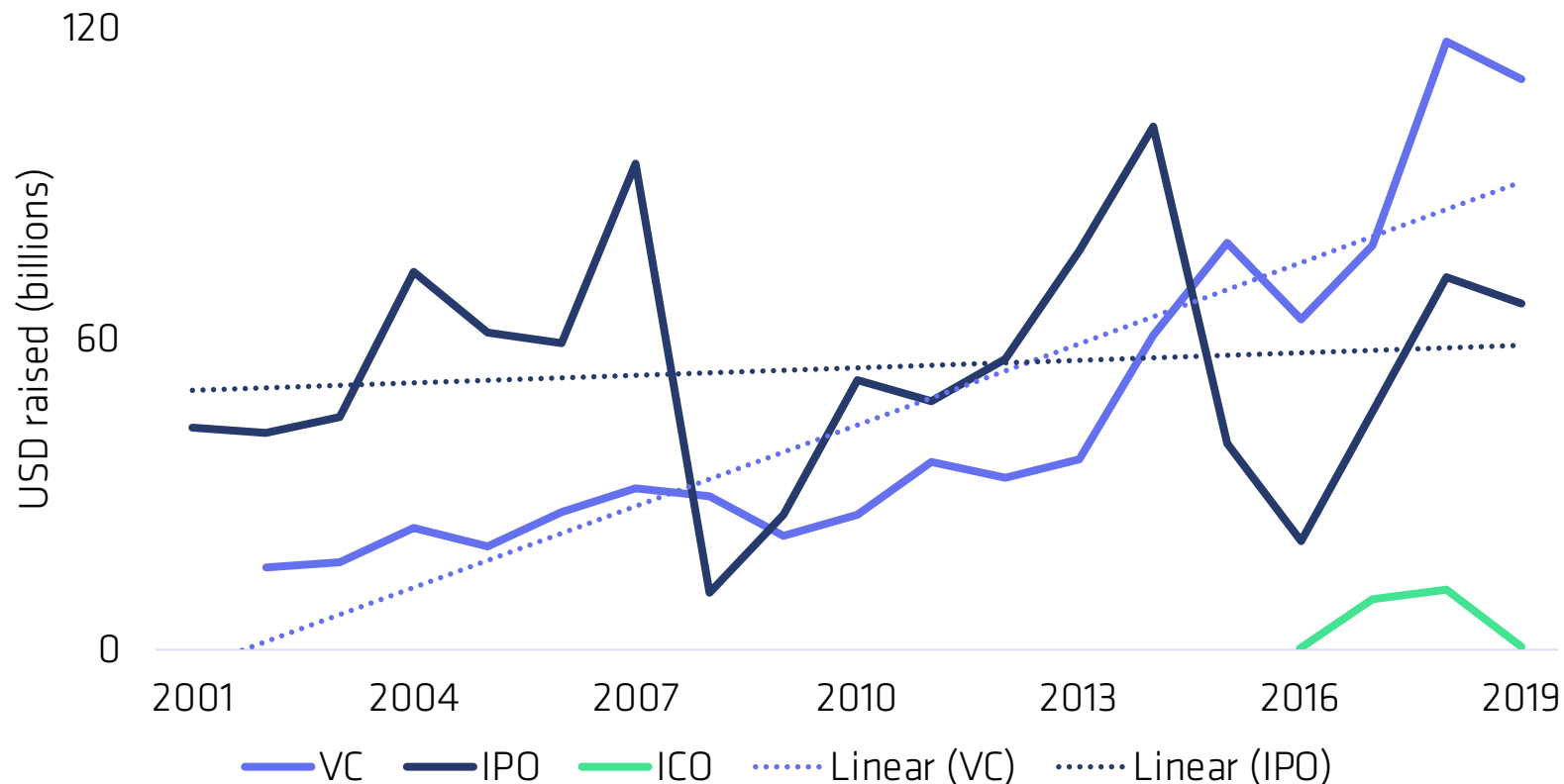
#### TOTAL CAPITAL INVESTED IN BLOCKCHAIN FIRMS: EQUITY FUNDING V TOKEN FUNDING



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

### 3 ICO'S ARE NOT THE NEXT IPO

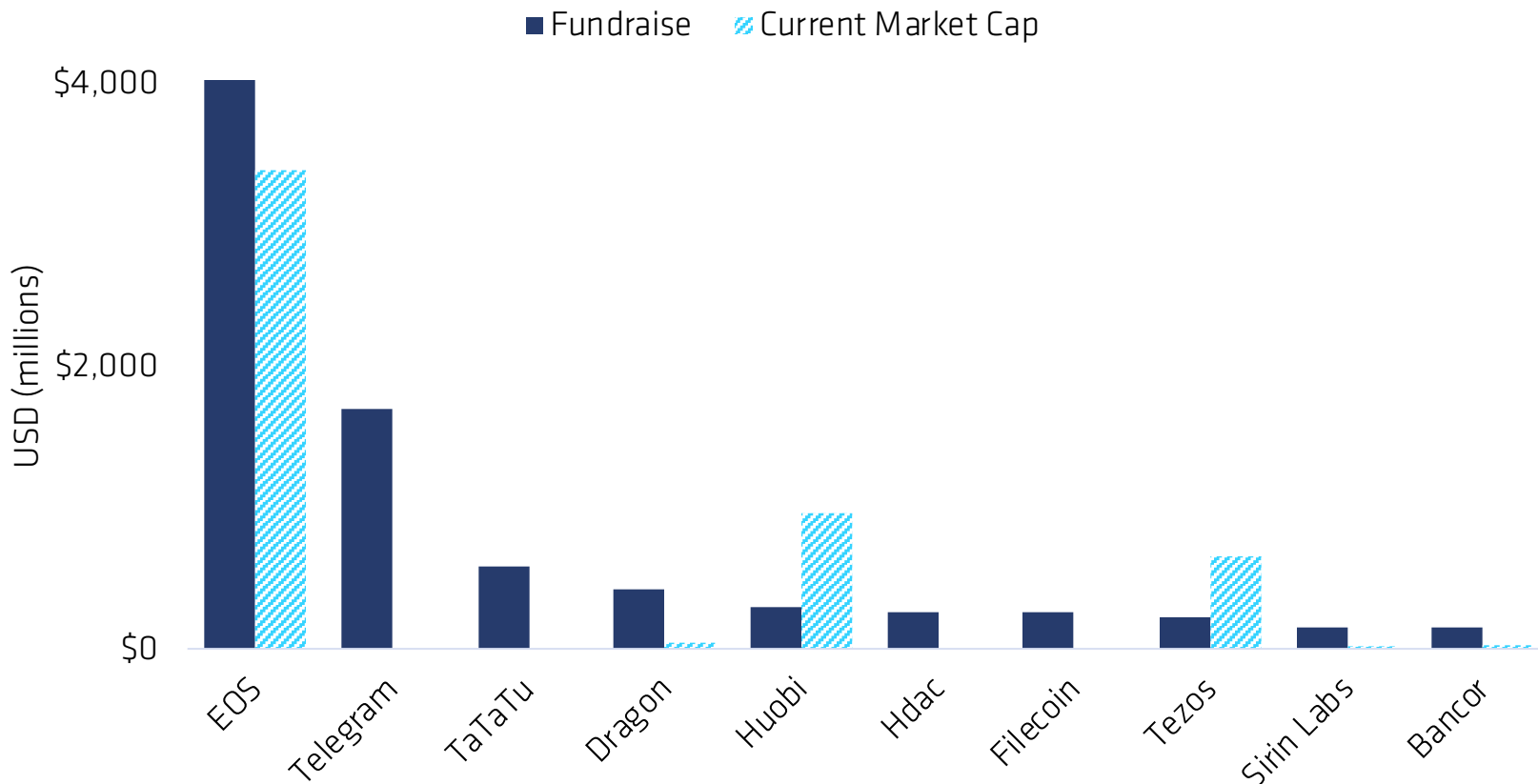
#### AMOUNT OF CAPITAL RAISED BY FUNDRAISING METHOD



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

### 3 THE LARGEST ICO'S DID NOT LIVE UP TO EXPECTATIONS

#### TOP ICOs BY AMOUNT OF CAPITAL RAISED DURING OFFERING PHASE

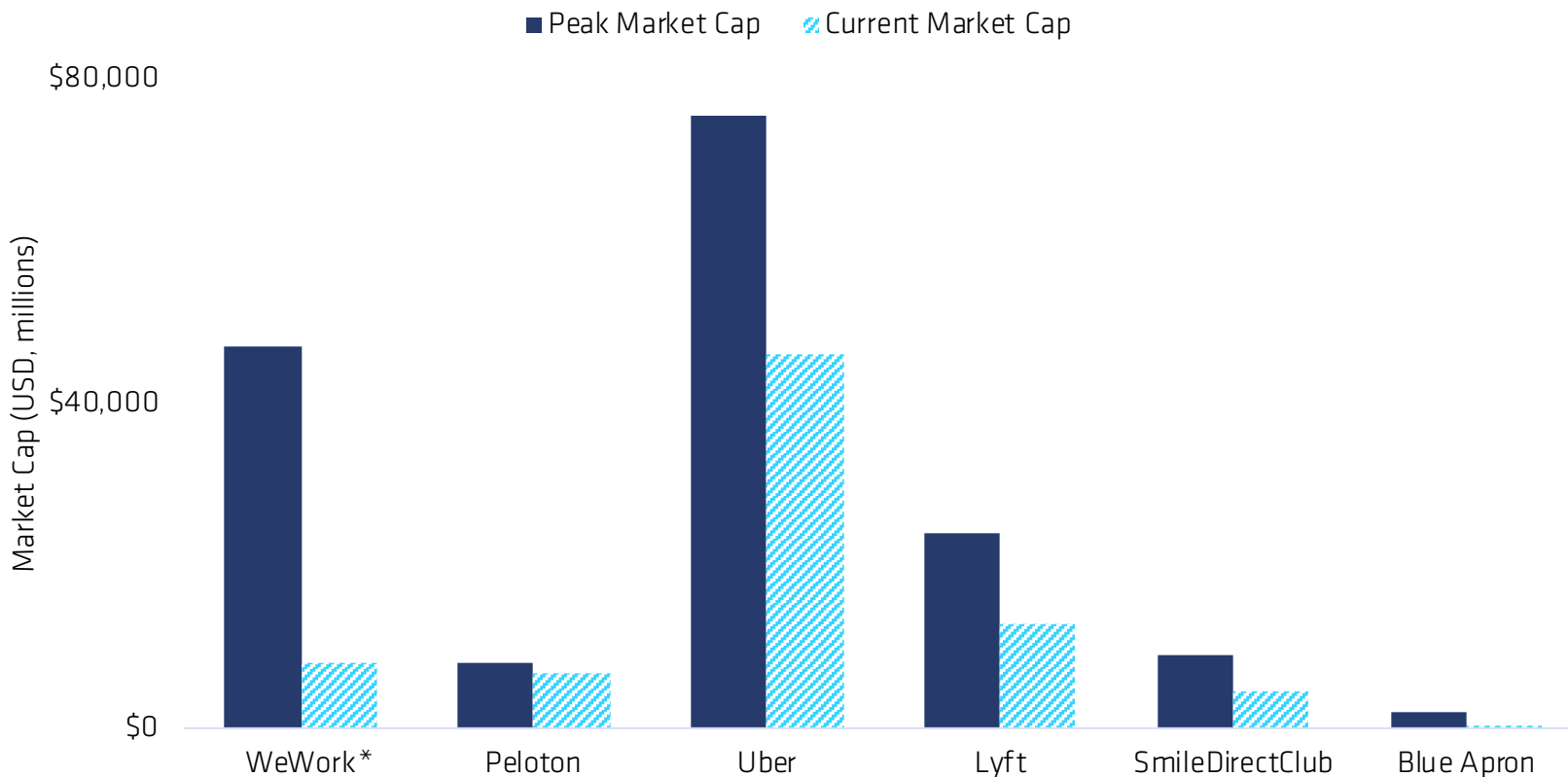


The top 10 ICOs raised \$8.3 billion, but over half have not launched or no longer exist



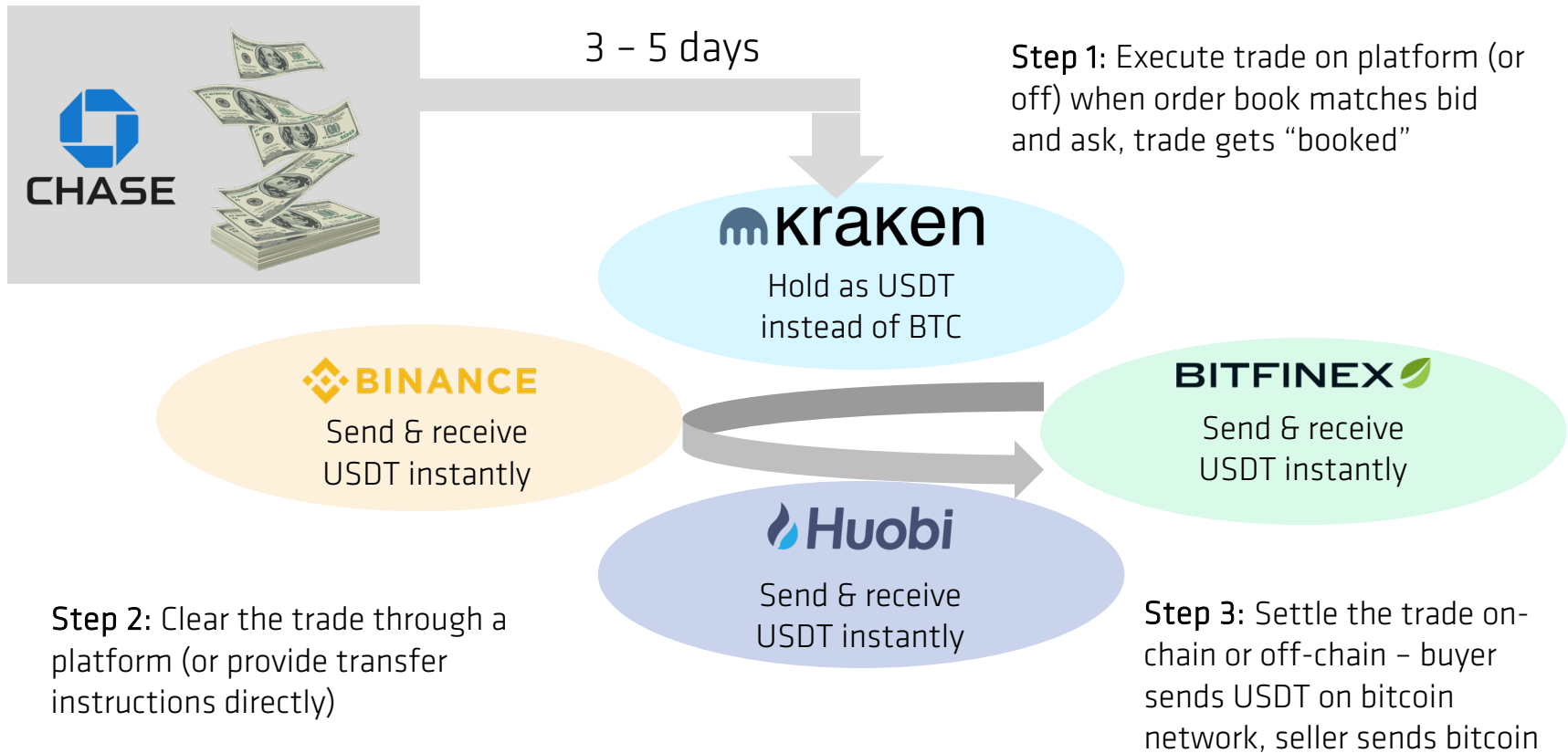
### 3 BUT THEN AGAIN, IPO'S AREN'T MUCH BETTER

#### EXPECTATION ≠ REALITY



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

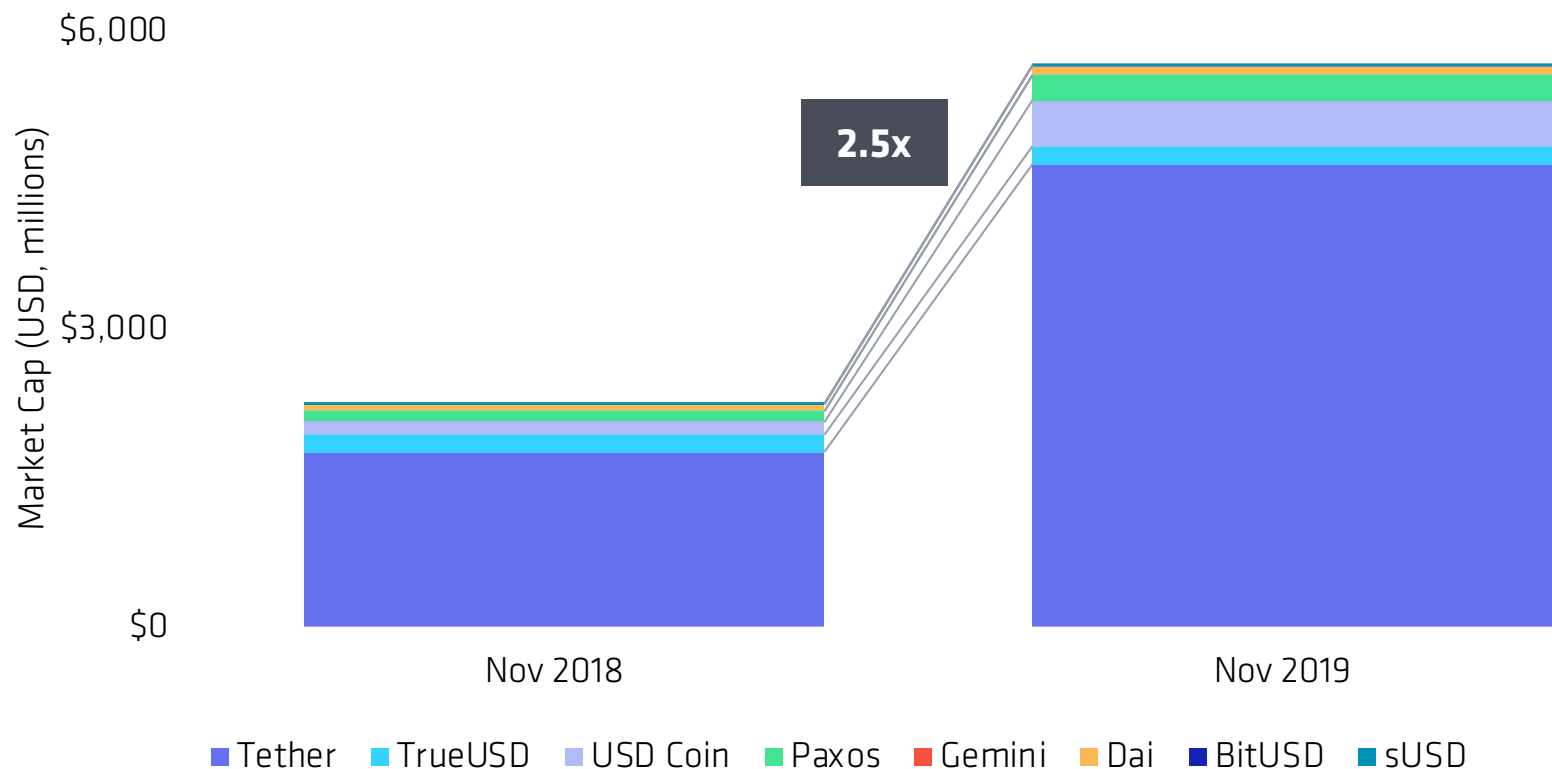
## 4 AN EXPLOSION OF STABLECOINS



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

## 4 AN EXPLOSION OF STABLECOINS





### GROWTH OF THE STABLECOIN INDEX



While the overall stablecoin market doubled in value, Tether maintained its proportional market share of ~80%

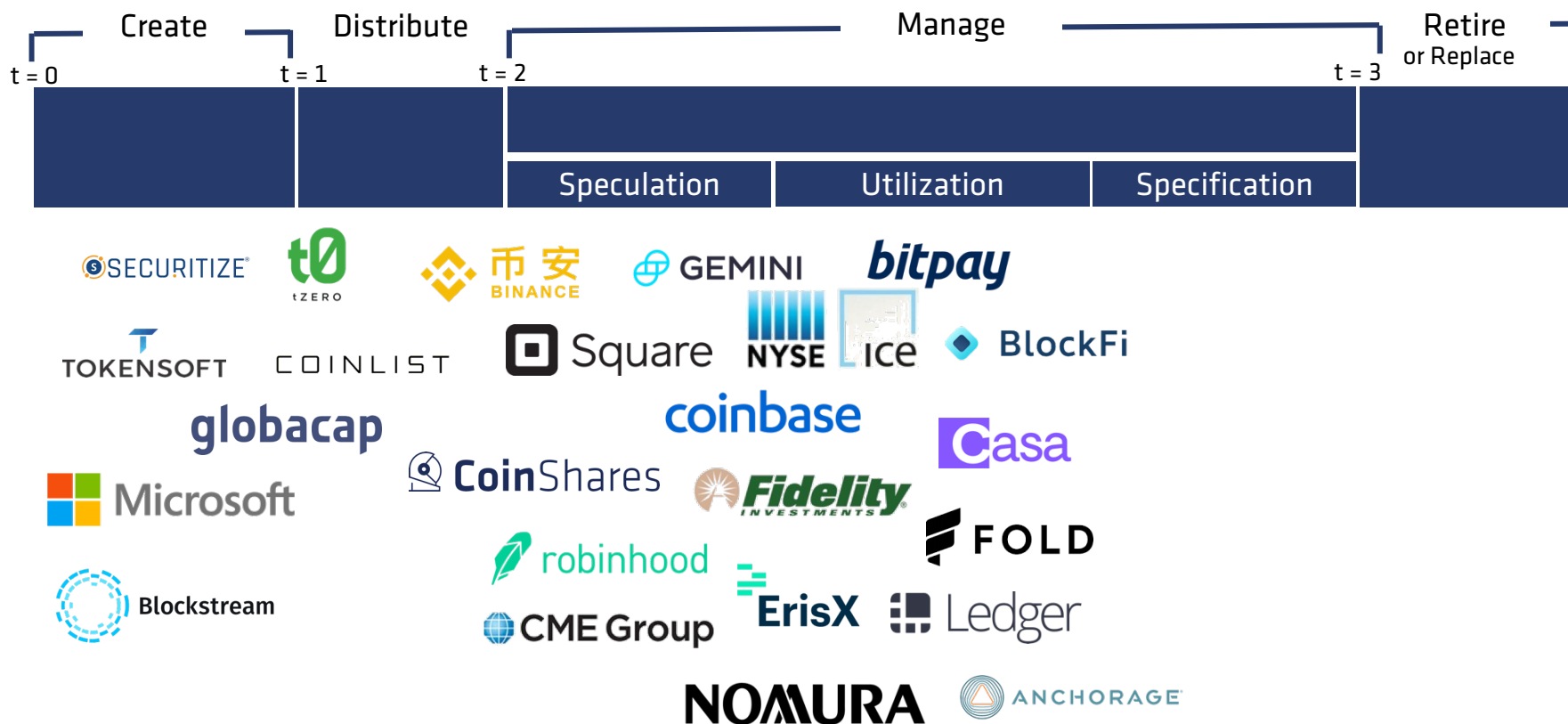
## 5 FINANCIAL INSTITUTIONS ARE STARTING TO ENTER

### US FINANCIAL INSTITUTIONS MAKING CRYPTO MOVES

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

## 5 WE'RE STILL AT THE EARLY STAGES




### THE SLOW EVOLUTION OF MARKET INFRASTRUCTURE



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

## 6 BLOCKCHAIN – HYPE OR HERE TO STAY?

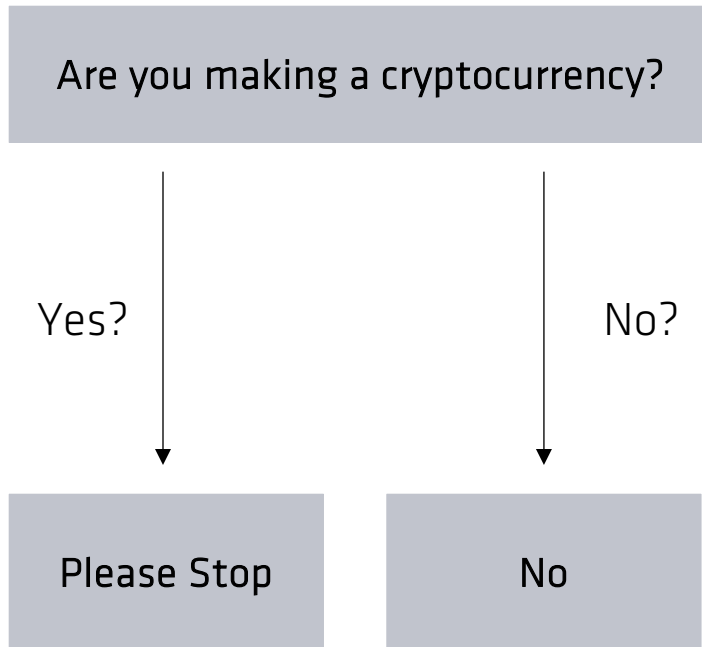
### THE HOTTEST ENTERPRISE BLOCKCHAIN CO'S OF 2017

| COMPANY   | DESCRIPTION  | TOTAL RAISED |
|---|--|--------------|
|                            | 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 | \$112M       |
| <br>Digital Asset Holdings | Digital Asset Holdings provides tools that use distributed ledgers to track and settle digital and mainstream financial assets   | \$107M       |
|  Chain                    | 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)                  | \$44M        |

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

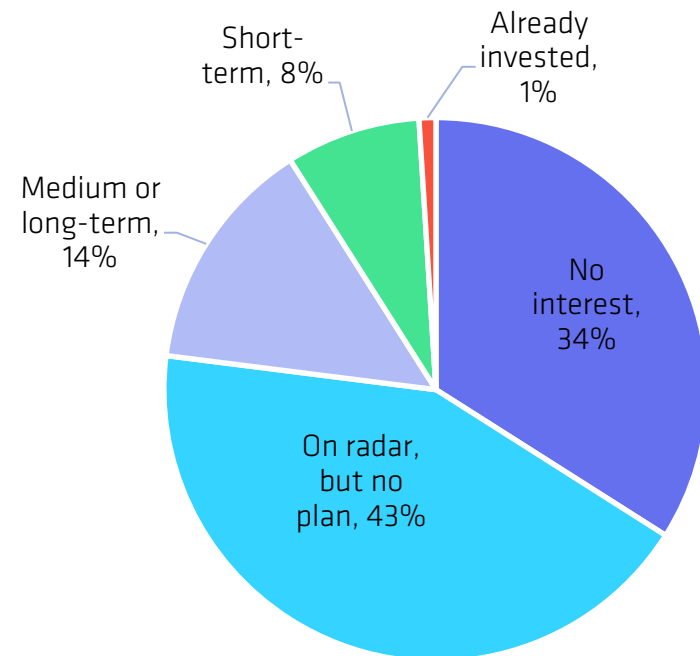
## 6 BLOCKCHAIN BLOCKCHAIN BLOCKCHAIN

### SHOULD YOU USE A BLOCKCHAIN?



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



## 7 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

---

EVERY MAJOR GOVERNMENT HAS DIGITAL CURRENCY ADVOCATES

OPINION | COMMENTARY

### *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.

#### PAYMENTS & FINANCIAL SERVICES

## Turkey to introduce national blockchain currency

🏠 > Business

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

---

No topic has been more polarizing than central bank issued digital currencies

---

## 7 BUT ACTUALLY, EVERYONE

THE GAME IS ON



Satoshi or these guys - who do you want to go with?

# WHAT ARE WE SEEING

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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<sup>1</sup>, 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.

---

Measuring isn't meaningful in and of itself

---

# BITCOIN IS BOTH RELIGION AND SCIENCE

---

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

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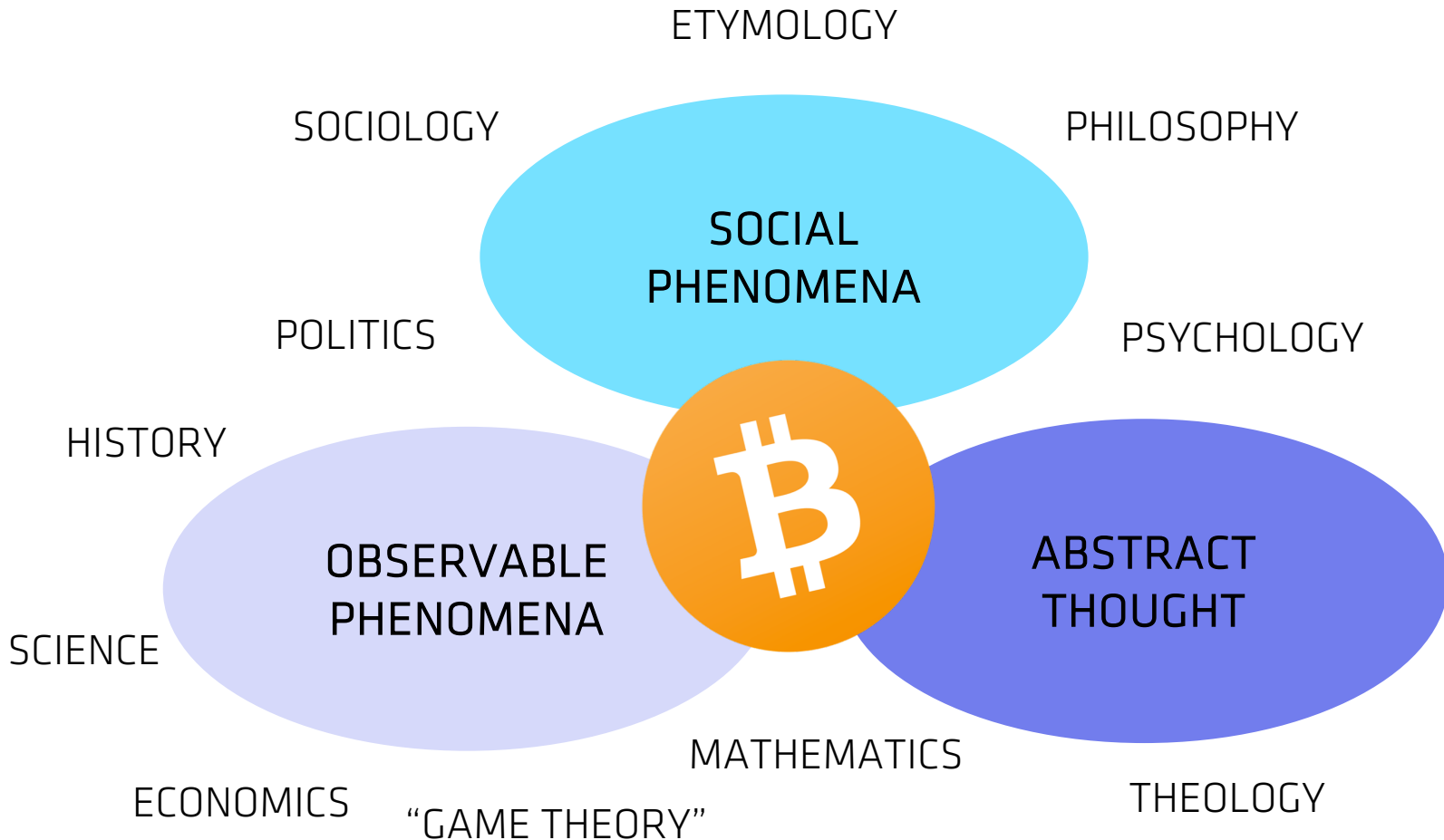
In order for crypto to become more widely accepted, it must move beyond religious overtones and pseudo-science into more formalized fields of inquiry

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# THE INTELLECTUAL DOMAIN OF BITCOIN

A BROAD, INTERDISCIPLINARY FIELD



# HOW WE THINK ABOUT DATA GATHERING

## EVALUATING GROWTH

### Application Universe:

Time stamped data, payments, distributed compute, data storage, and more

### Killer App Store of Value

### Network Miners and Full Nodes

### Protocol Bitcoin

## IMPERFECT METRICS

### Application Layer

- Number of active users
- Revenue / profit per user
- On-chain transaction value and volume
- Capital raised

### Store of Value (Bitcoin)

- Bitcoin price
- % of supply mined
- On-chain transaction value and volume

### Network Layer

- Total hash rate
- Number of full nodes
- Miner concentration
- Mining profitability

### Protocol

- Number of developers
- Number of commits
- Number of pull requests
- Number of Git participants / core devs

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

# ANALYZING EMPIRICAL DATA ABOUT BITCOIN

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

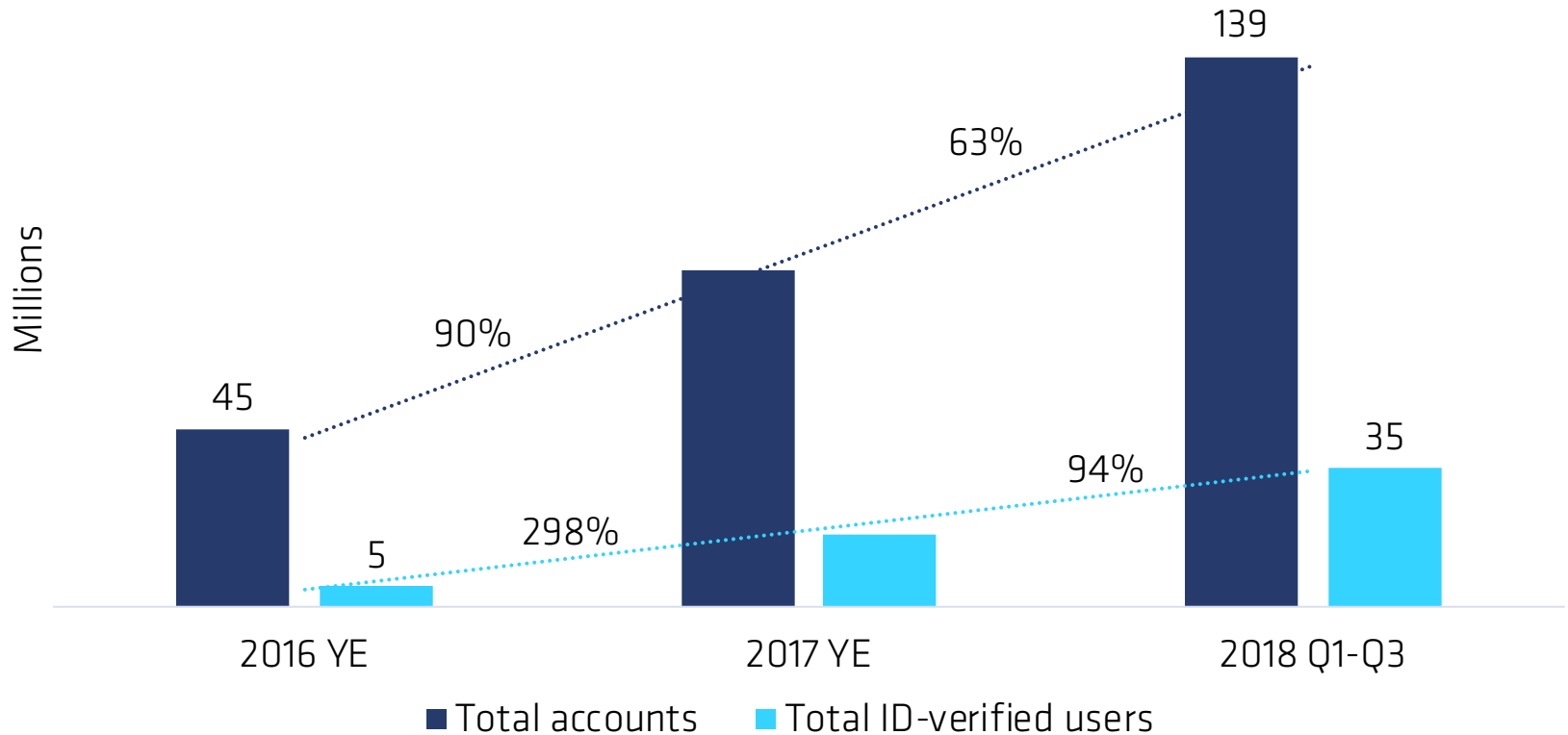
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A brief review of empirical data available for various components of the bitcoin ecosystem highlights some of the challenges in sourcing and analyzing data

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# MEASURING ADOPTION: NUMBER OF ACCOUNTS

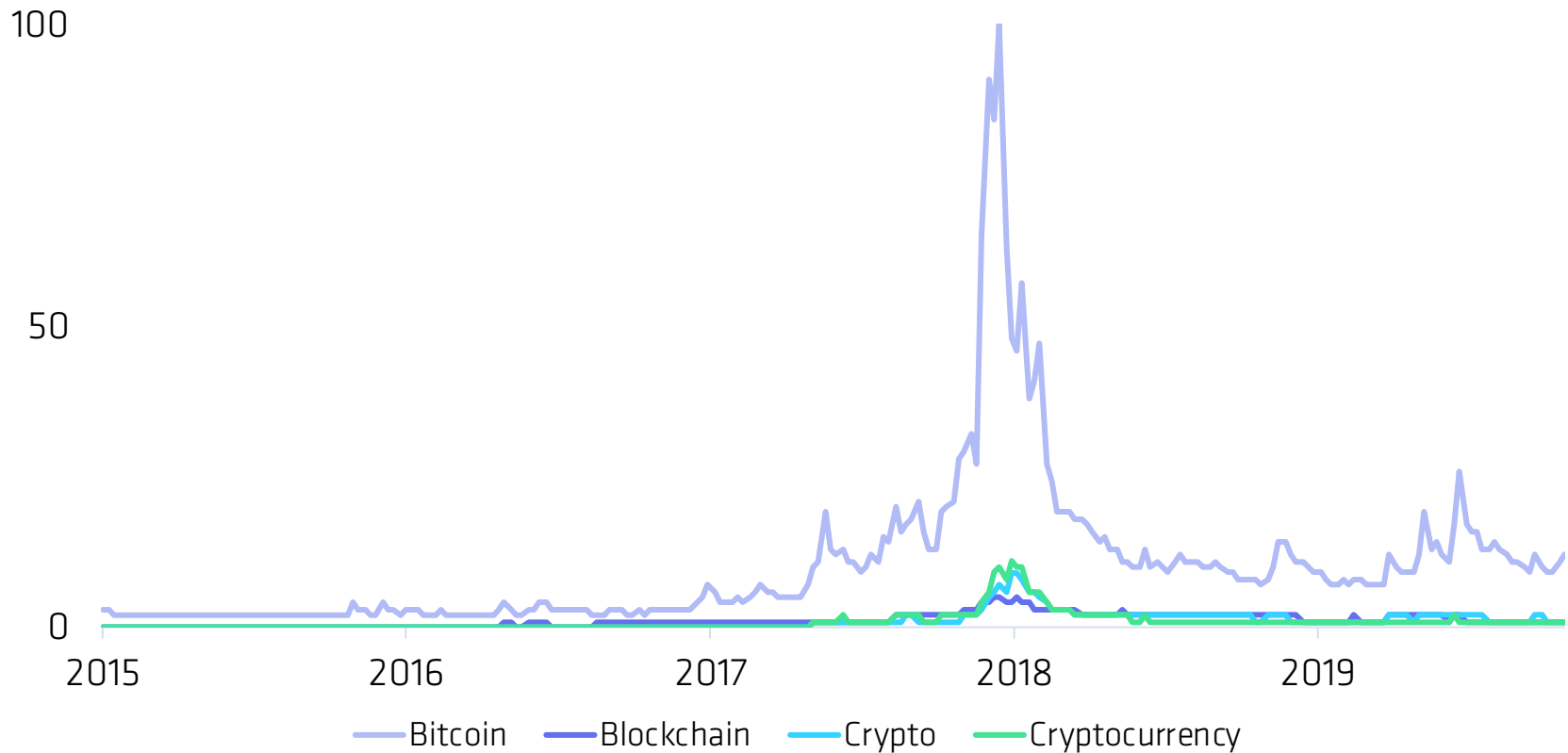
## ESTIMATE OF TOTAL CRYPTOASSET USERS



At least 139 million user accounts have been created at crypto service providers, representing an *estimated minimum* of 35 million ID-verified users

# MEASURING ADOPTION: SEARCH INTEREST

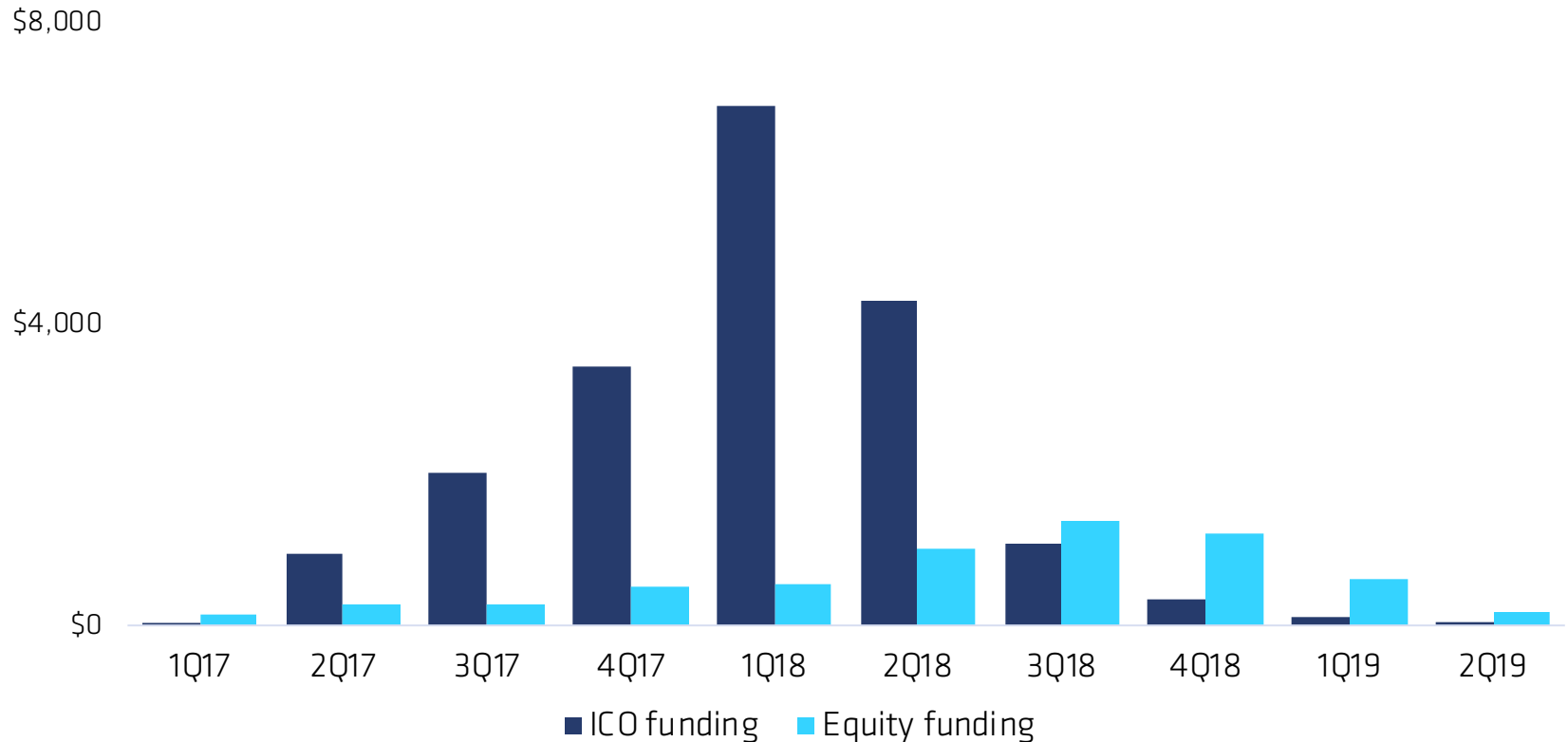
## RELATIVE GOOGLE SEARCH INTEREST FOR 'BITCOIN' OVER TIME



Google search interest in 'bitcoin' far outranks other search terms, and seems to follow price action, peaking around the time bitcoin's price peaked

# MEASURING ADOPTION: FUNDING

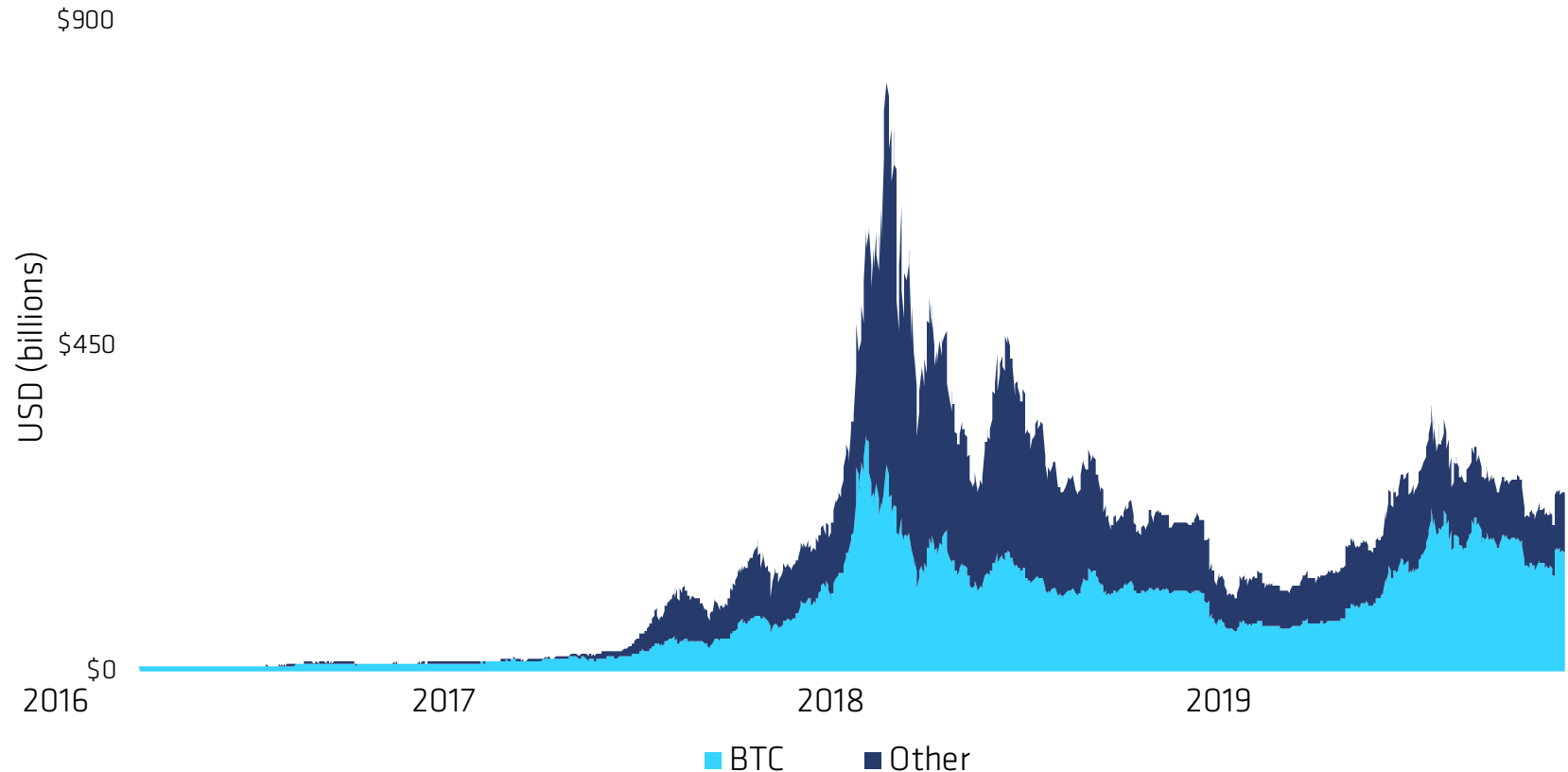
## BLOCKCHAIN FUNDING SOURCES



Reported funding varies by publication, and there is no standard industry resource for tracking financing and funding rounds.

# MEASURING ADOPTION: MARKET CAP

## TOTAL MARKET CAPITALIZATION



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

# MEASURING ADOPTION: HASH RATE

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## BITCOIN NETWORK HASH RATE



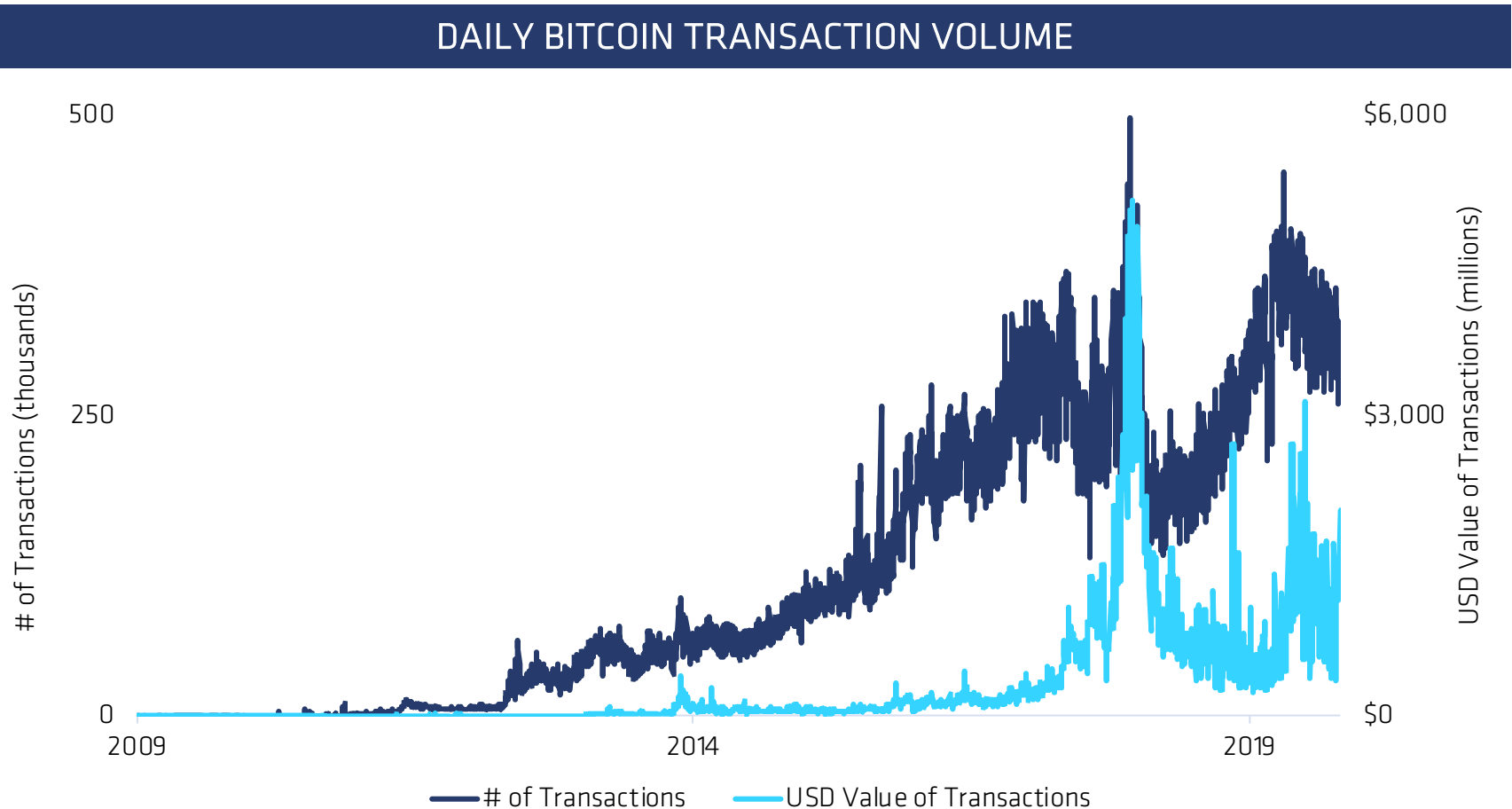
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The computational resources dedicated to the bitcoin network continue to grow despite price volatility, indicating significant investment in the network infrastructure

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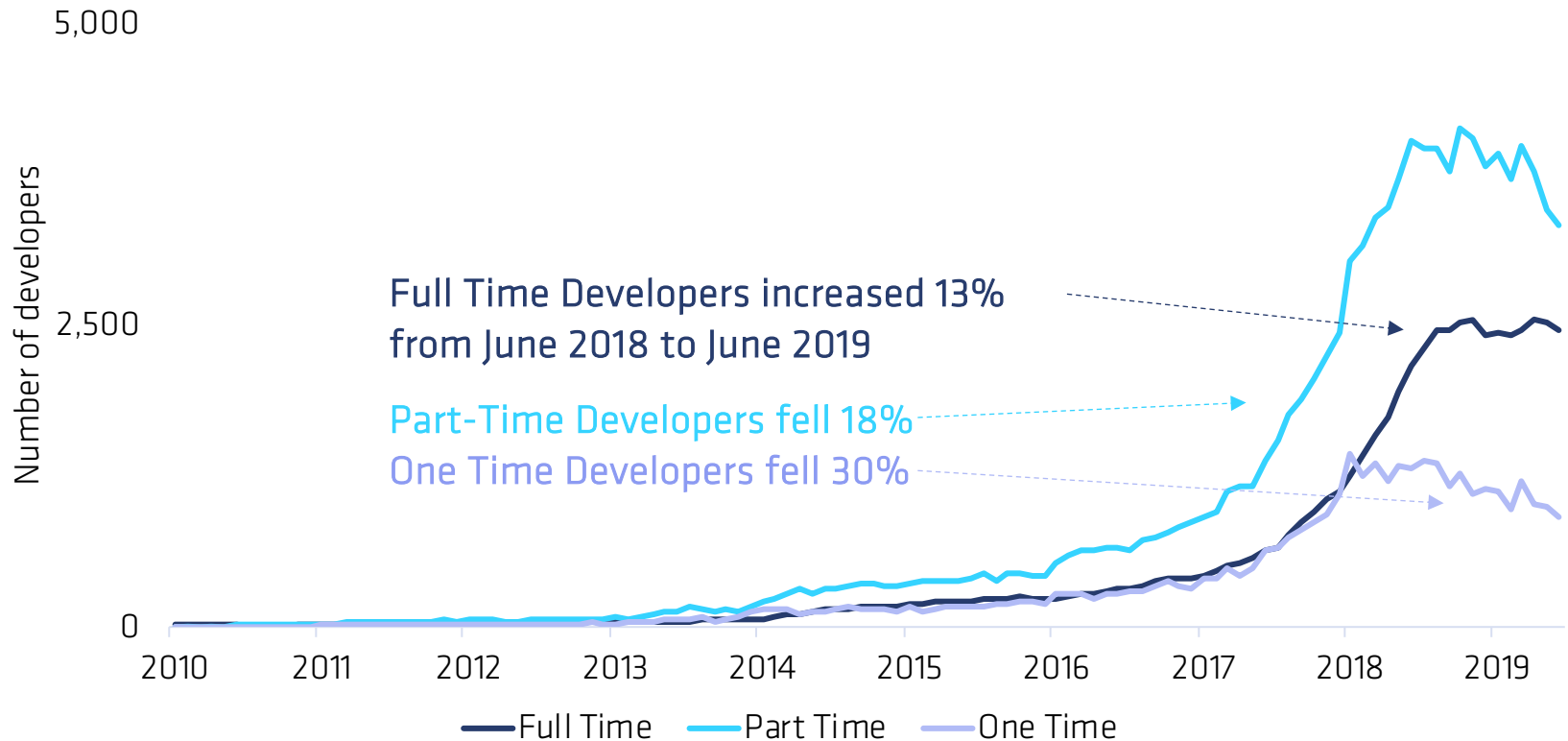
# MEASURING ADOPTION: TRANSACTION VOLUME



USD value of on-chain transactions has increased over 150% to \$2 billion per day

# MEASURING ADOPTION: NUMBER OF DEVELOPERS

## DEVELOPER ACTIVITY



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.

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Robust analysis of this industry requires quality data sources coupled with sound analysis in order to produce meaningful insights

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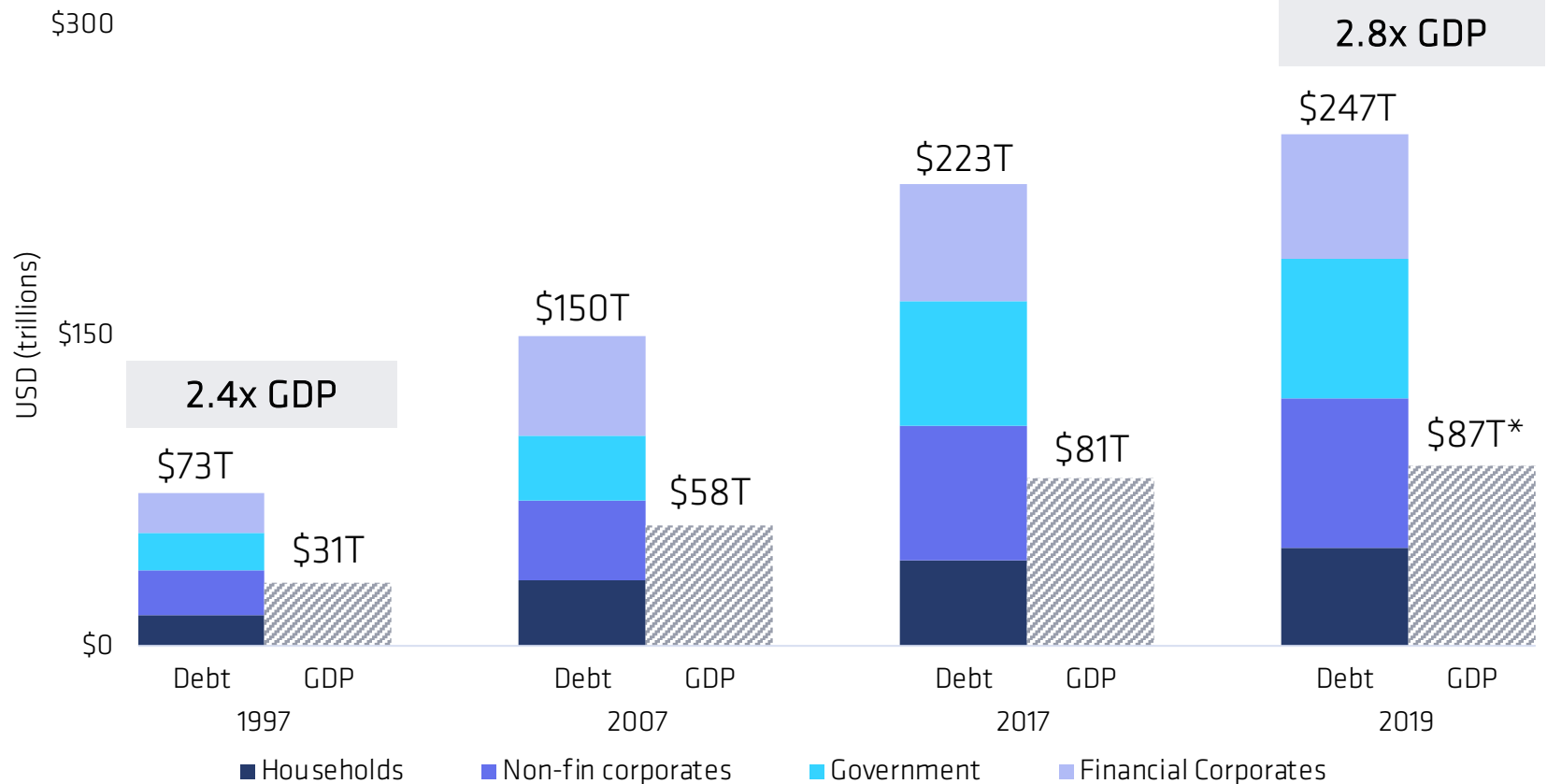
# WHERE ARE WE GOING

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Macro Trends Shaping the Future

# MORE INDEBTED THAN EVER

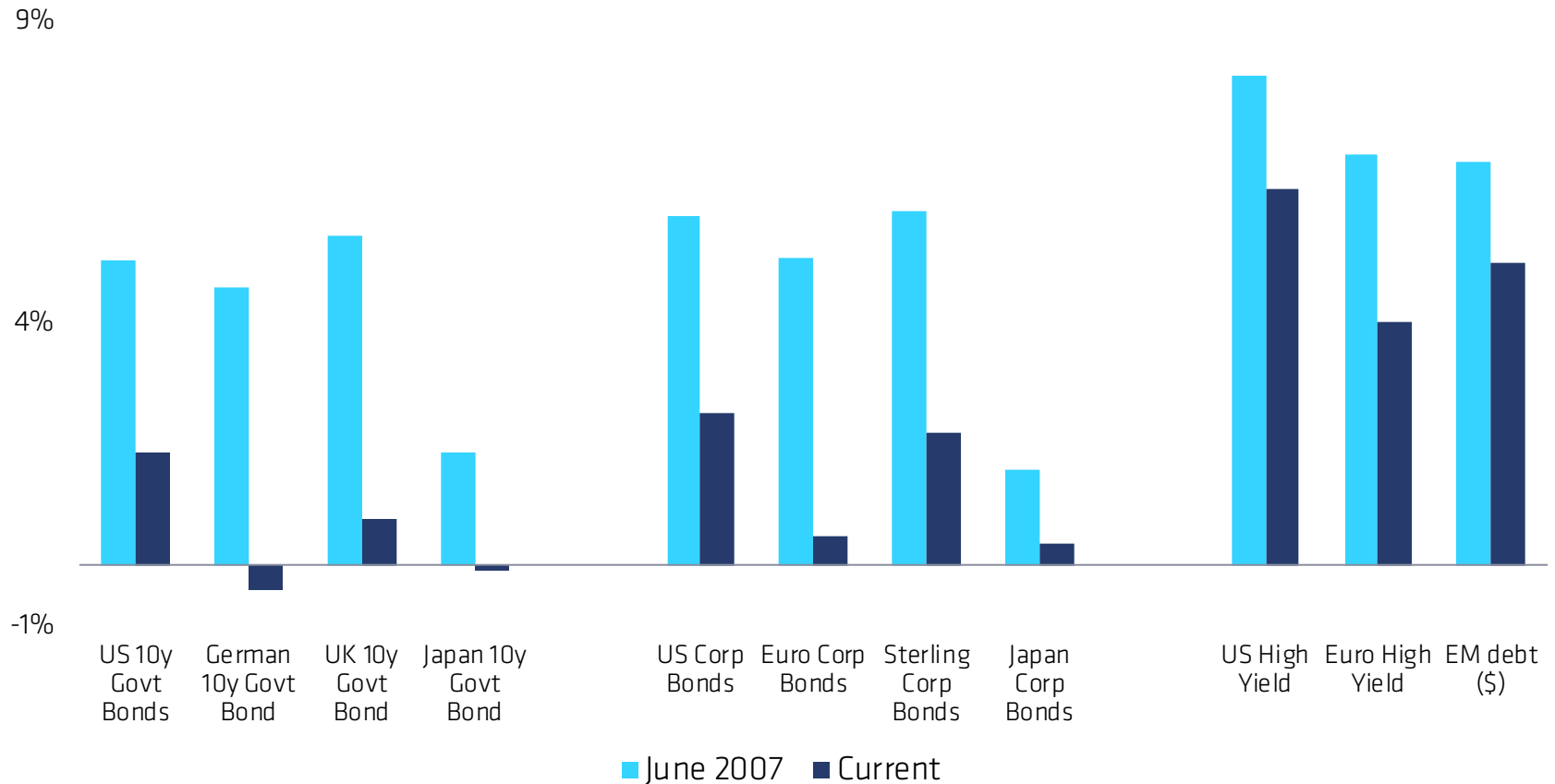
## BAD BUDGETING: WHAT WE SPEND EXCEEDS WHAT WE PRODUCE



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

# HUNT FOR YIELD ACROSS ASSET CLASSES

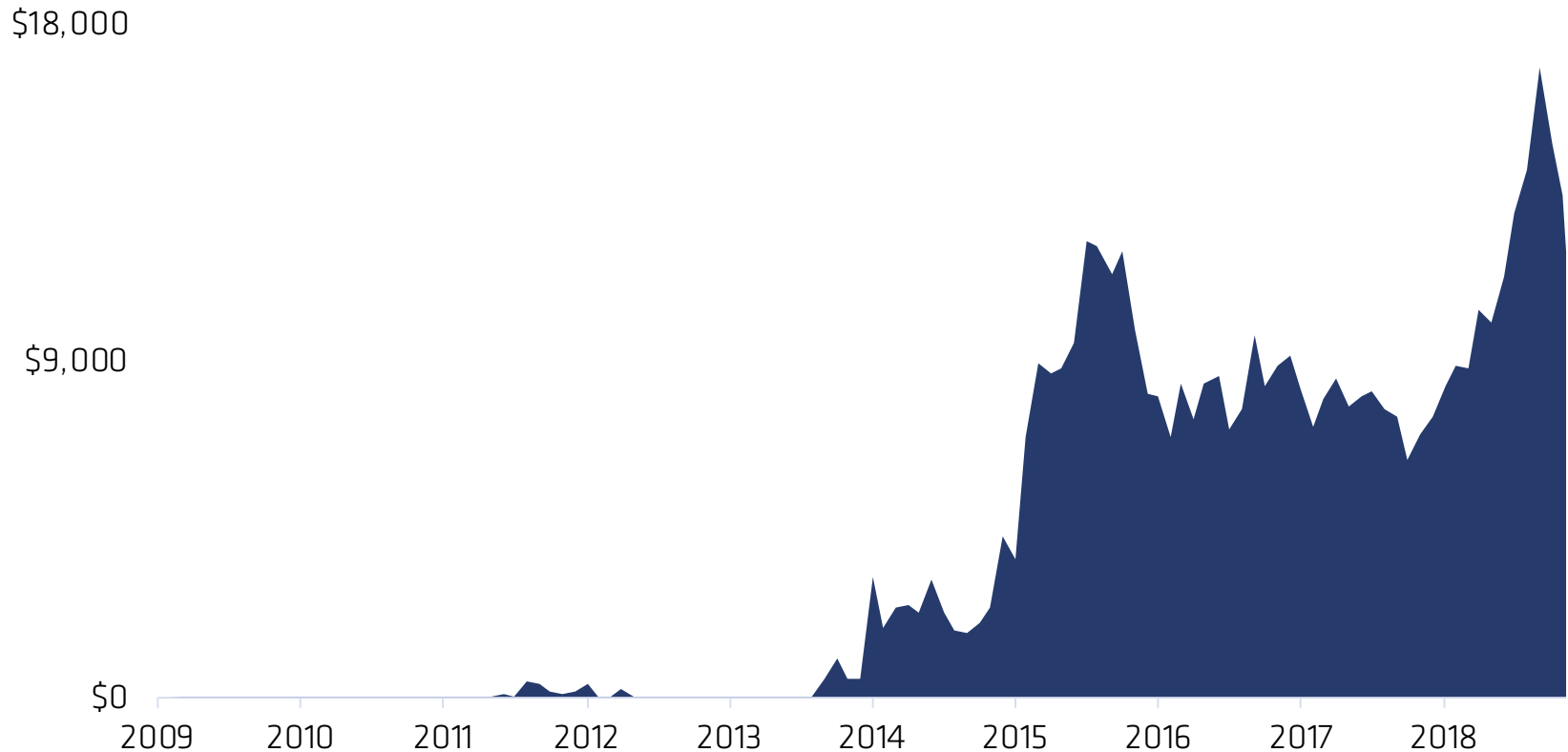
## GLOBAL BOND YIELDS NEARING RECORD LOWS



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

# NEGATIVE YIELDING DEBT

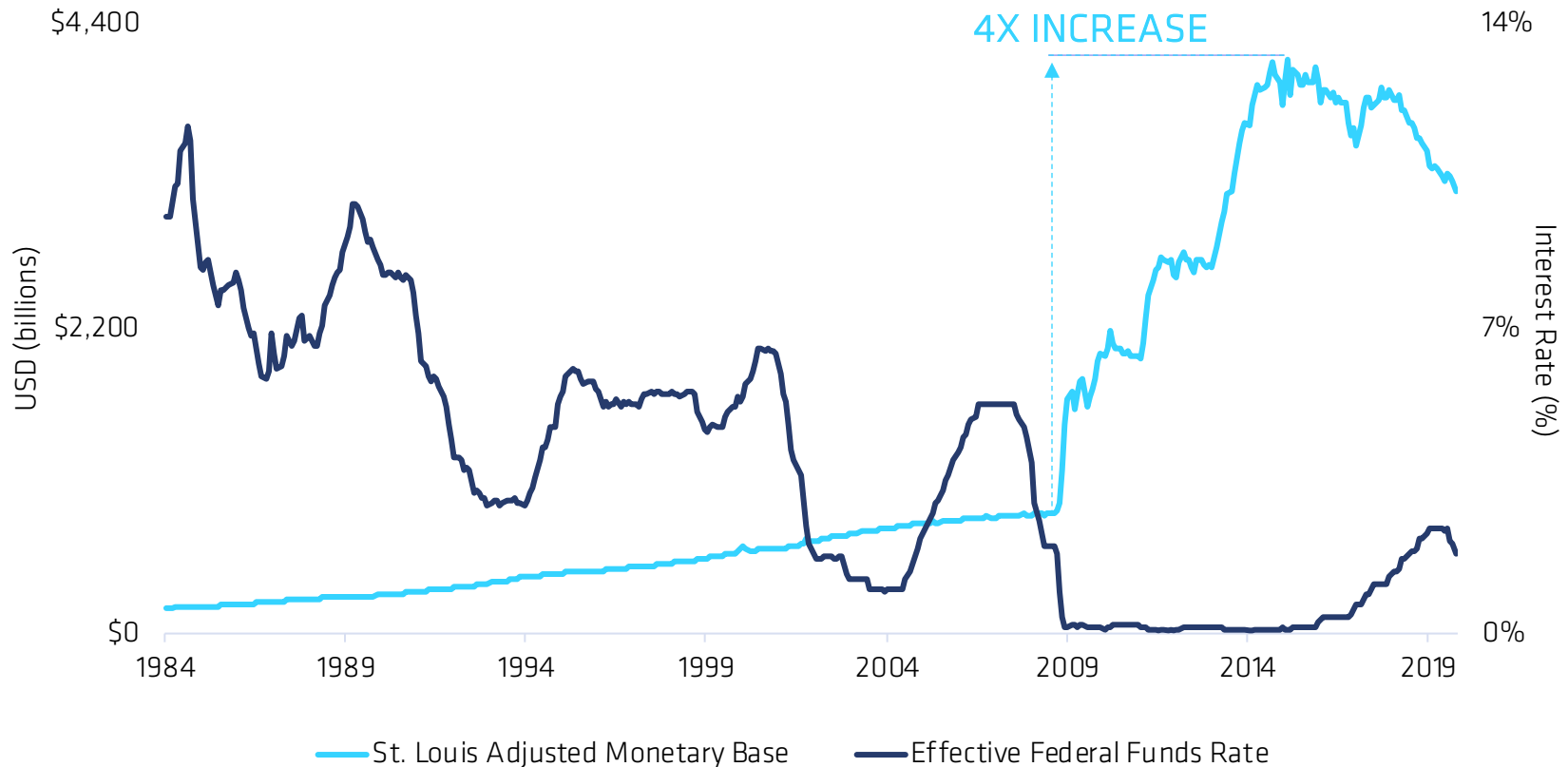
## UNPRECEDENTED LEVELS OF NEGATIVE-YIELDING DEBT



Negative-yielding debt topped \$17T earlier this year,  
more than 25% of all global sovereign debt, and almost 20% of global GDP

# WE CAN'T STOP PRINTING MONEY

## WE PAY FOR DEFICITS BY PRINTING MORE MONEY

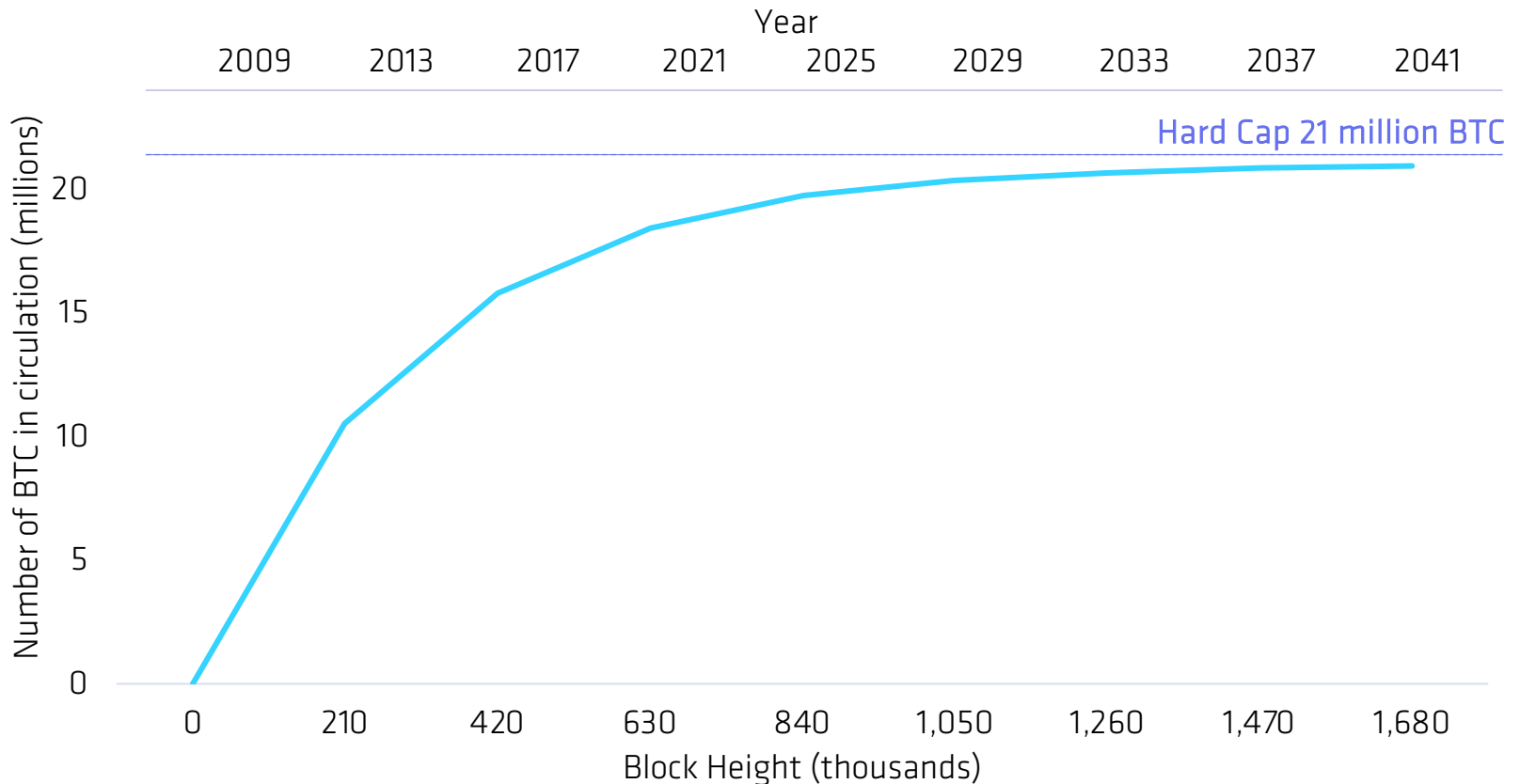


Following the 2008 recession, the US money supply grew 4x while interest rates declined rapidly and have stayed at historic lows



# BITCOIN'S SUPPLY CURVE IS LOOKING SEXY

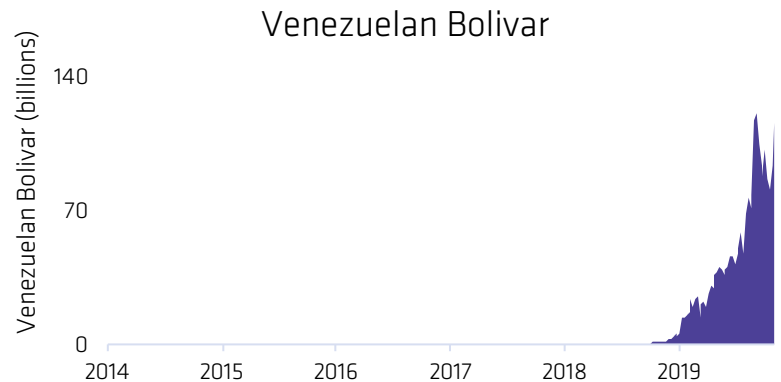
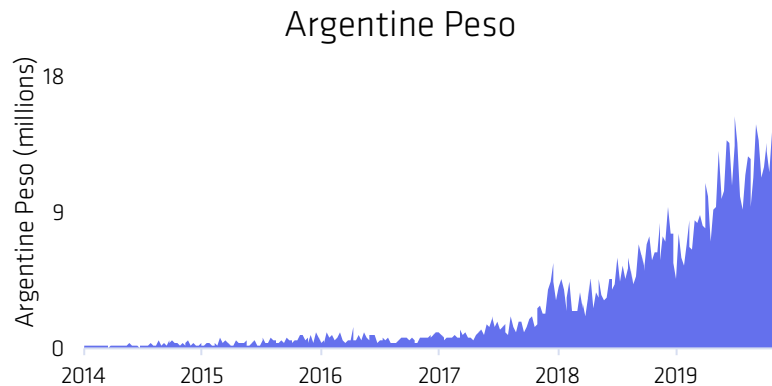
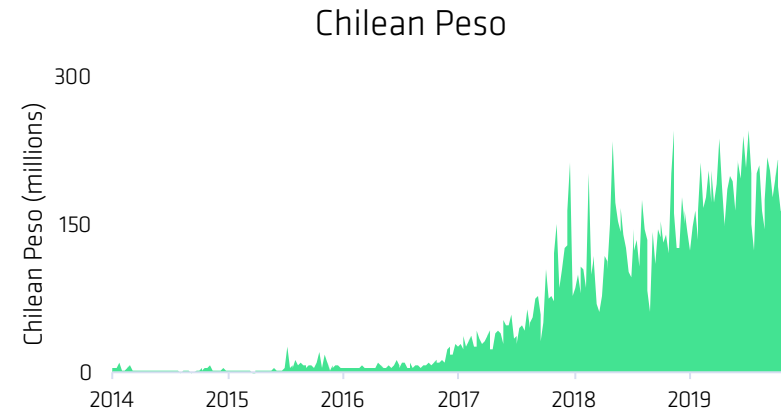
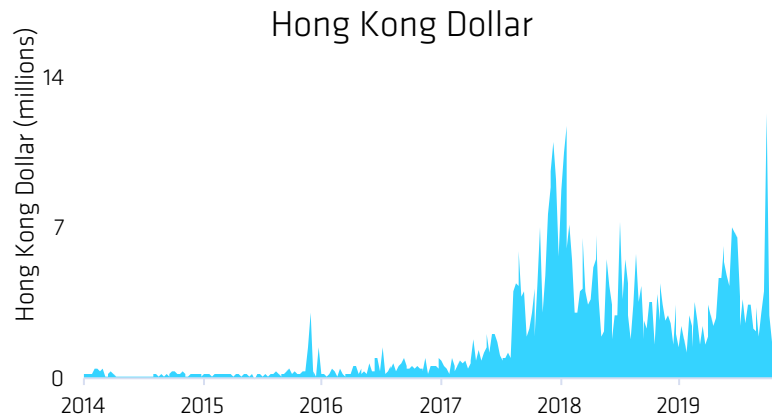
## BITCOIN'S FIXED SUPPLY SCHEDULE



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

# BITCOIN AS A SAFEGUARD TO DEVALUATION?

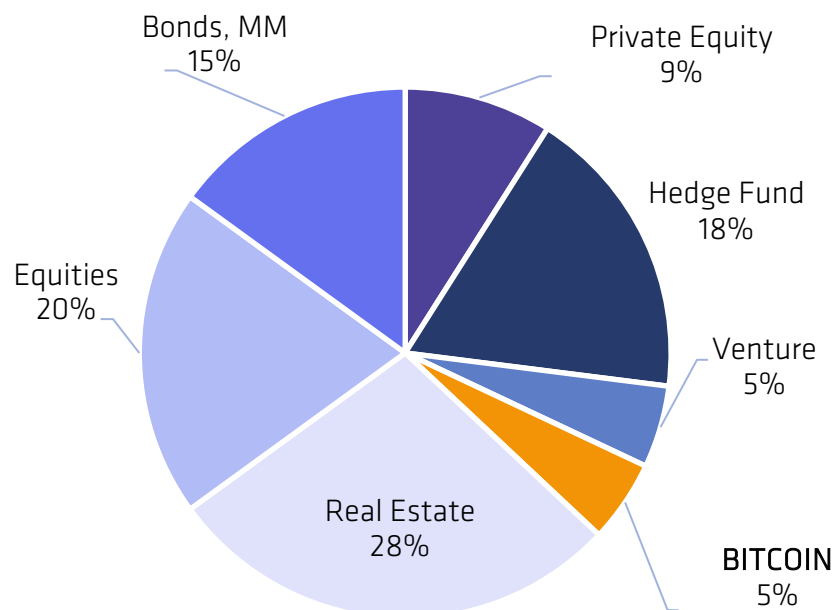
## LOCALBITCOINS VOLUME SPIKES IN TIMES OF CRISIS



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



## EXPOSURE STRATEGIES

### EXPOSURE STRATEGY

### EXAMPLE

Exchange Traded Product (passive beta)

 **CoinShares**

Venture Fund

“Crypto Fund”

Direct Investing

 **coinbase**

IPOs

 **GALAXY**  
DIGITAL

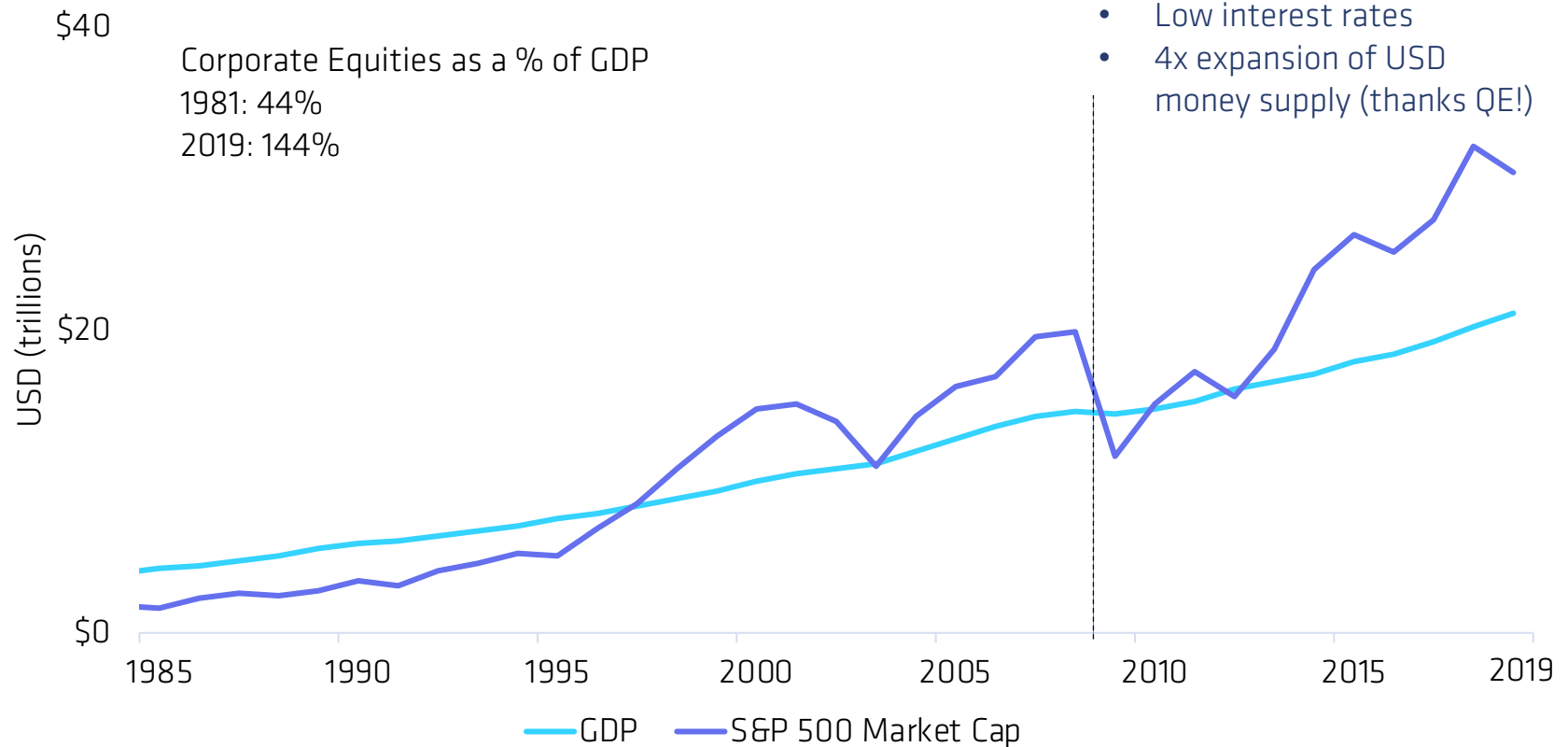
Equities

 Square  **NVIDIA**

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

# FINANCE IS EATING... EVERYTHING

## FINANCIALIZATION OF THE US ECONOMY



The value of corporations has increased significantly faster than gross domestic product, meaning returns to capital outpace returns to labor

# VALUE SHIFT FROM PHYSICAL TO DIGITAL

## LARGEST COMPANIES 2009

**ExxonMobil**



**ICBC**

**Microsoft**

**HSBC**

**中国移动**  
China Mobile

**Walmart**

**PETROBRAS**

**中国建设银行**  
China Construction Bank

**Shell**

COMBINED  
MARKET CAP

**\$2.3T**

**2.8x**

COMBINED  
MARKET CAP

**\$6.4T**

## LARGEST COMPANIES 2019

**Microsoft**



**amazon**

**Alphabet**

**BERKSHIRE  
HATHAWAY INC.**

**FACEBOOK**

**Alibaba Group**

**Tencent 腾讯**

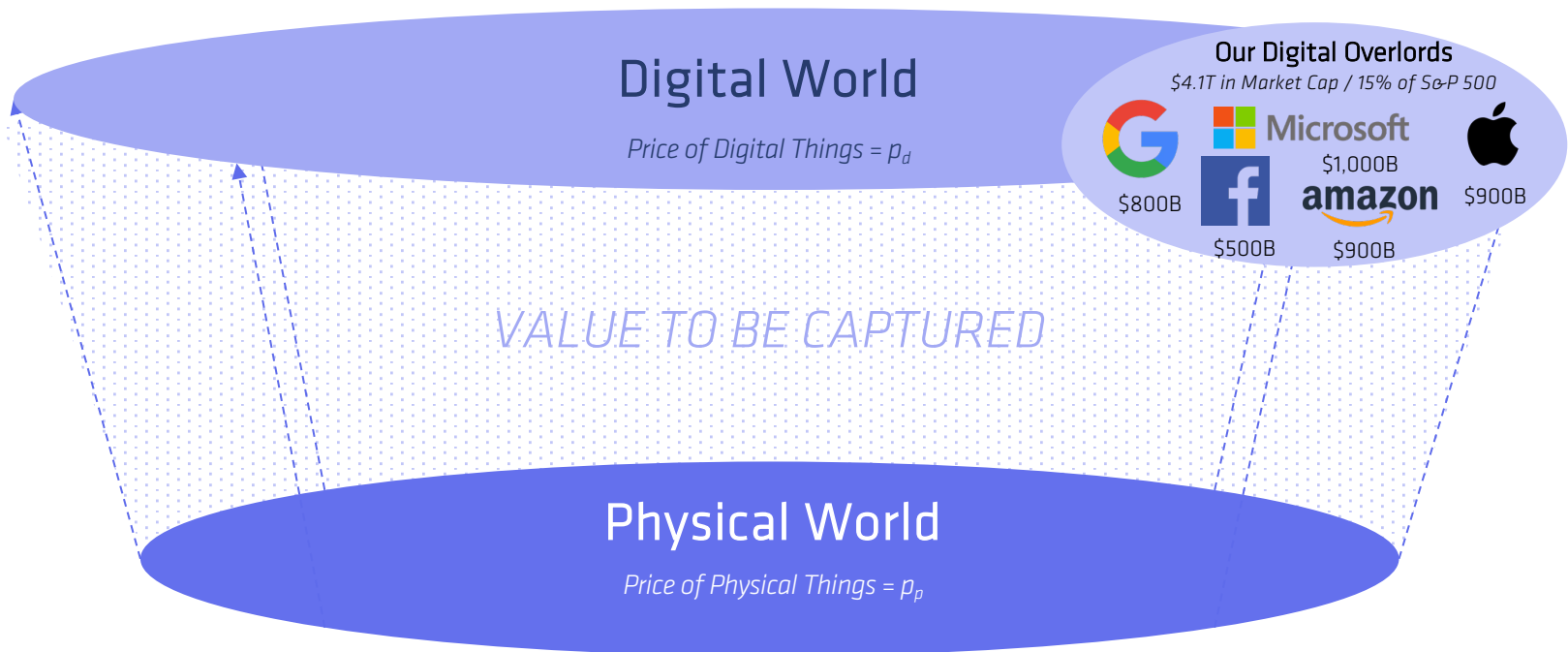
**VISA**

**JPMorganChase**

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

# DIGITIZATION EMPOWERS PLATFORMS, NOT PEOPLE

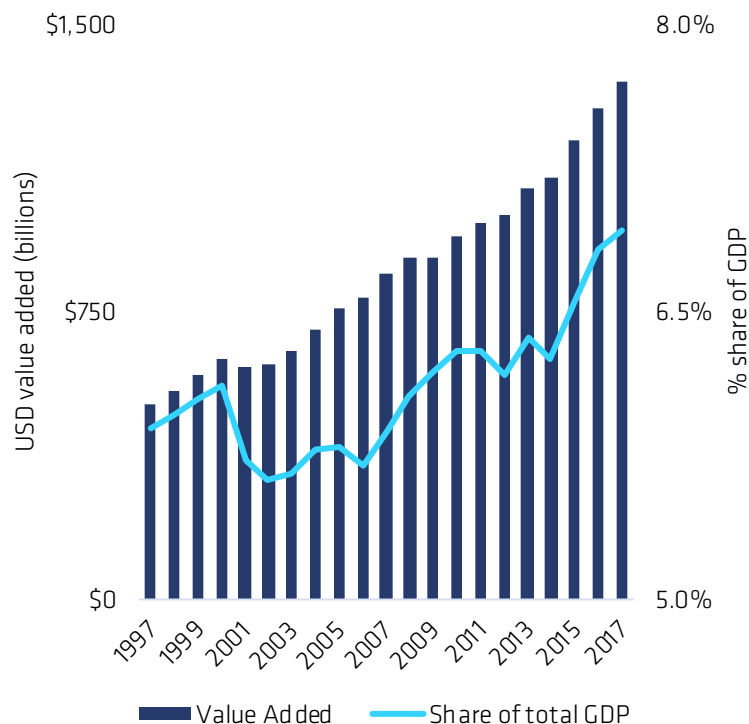
THE EVOLUTION FROM PHYSICAL TO DIGITAL IS HIGHLY CENTRALIZED



Our digital world is controlled by a small group of companies who own our data, monetize our behavior, and seek growth at any expense

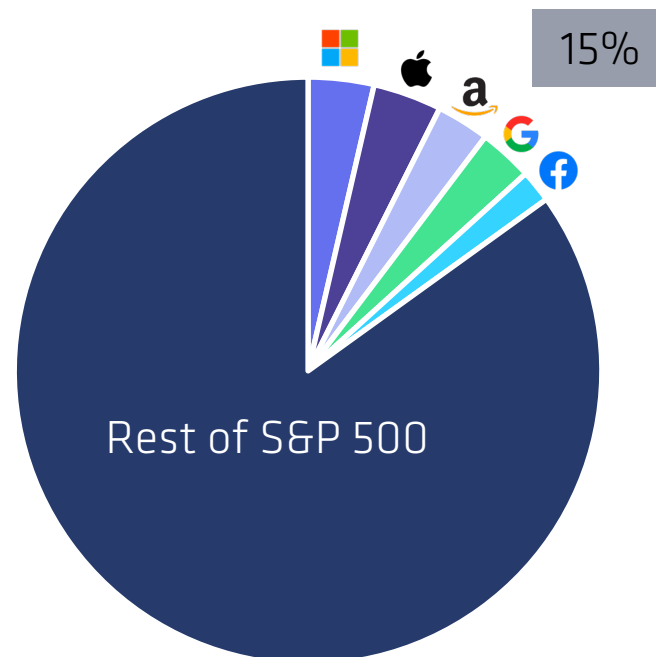
# A SMALL GROUP OF COMPANIES CAPTURE MOST VALUE

## GROWTH OF THE U.S. DIGITAL ECONOMY



While the digital economy is growing...

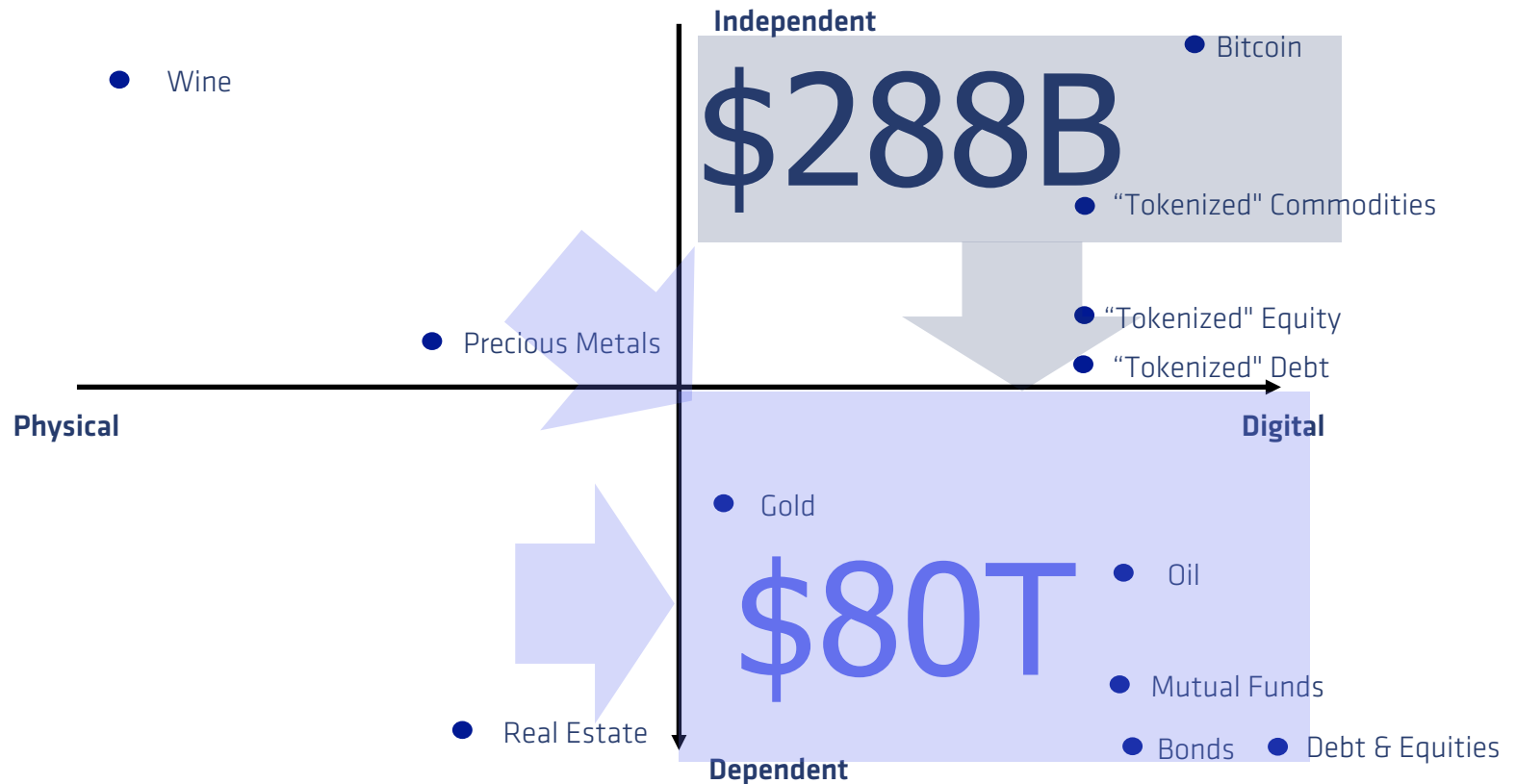
## PERCENT OF S&P 500 BY MARKET CAP



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

# DIGITIZATION MAKES ASSETS DEPENDENT ON PLATFORMS

## CRYPTO MARKETS ARE BECOMING MORE DEPENDENT ON INTERMEDIARIES



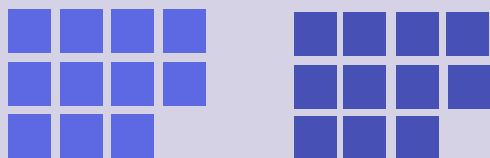
As more asset classes become digitized and trade electronically, markets become dependent on intermediaries and trading venues



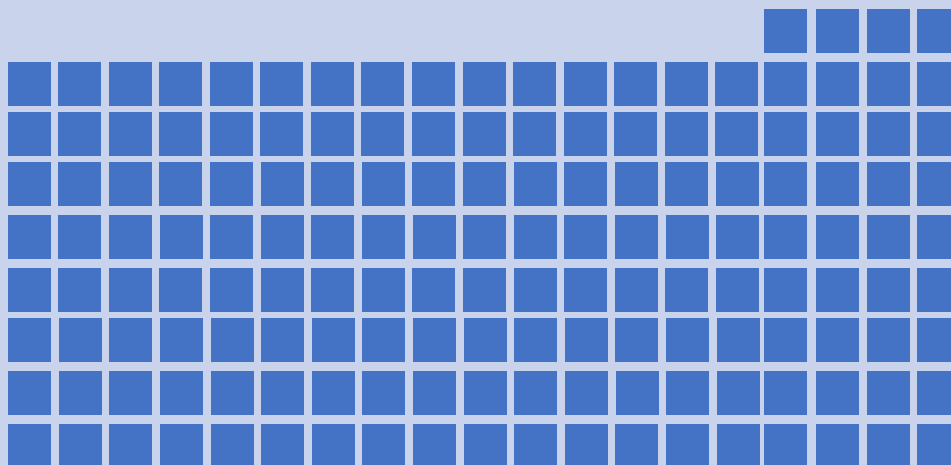
# “INSTITUTIONAL” BITCOIN TRENDS TO CENTRALIZED

## THE NEED FOR REGULATED ENTITIES DRIVES CENTRALIZATION

### Coinbase (incl Xapo)



### Self-stored / held by an un-accounted for intermediary



### Other Aggregators

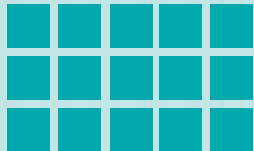
#### Grayscale



#### XBT Provider



#### Top Exchanges



#### Mt Gox Custodian



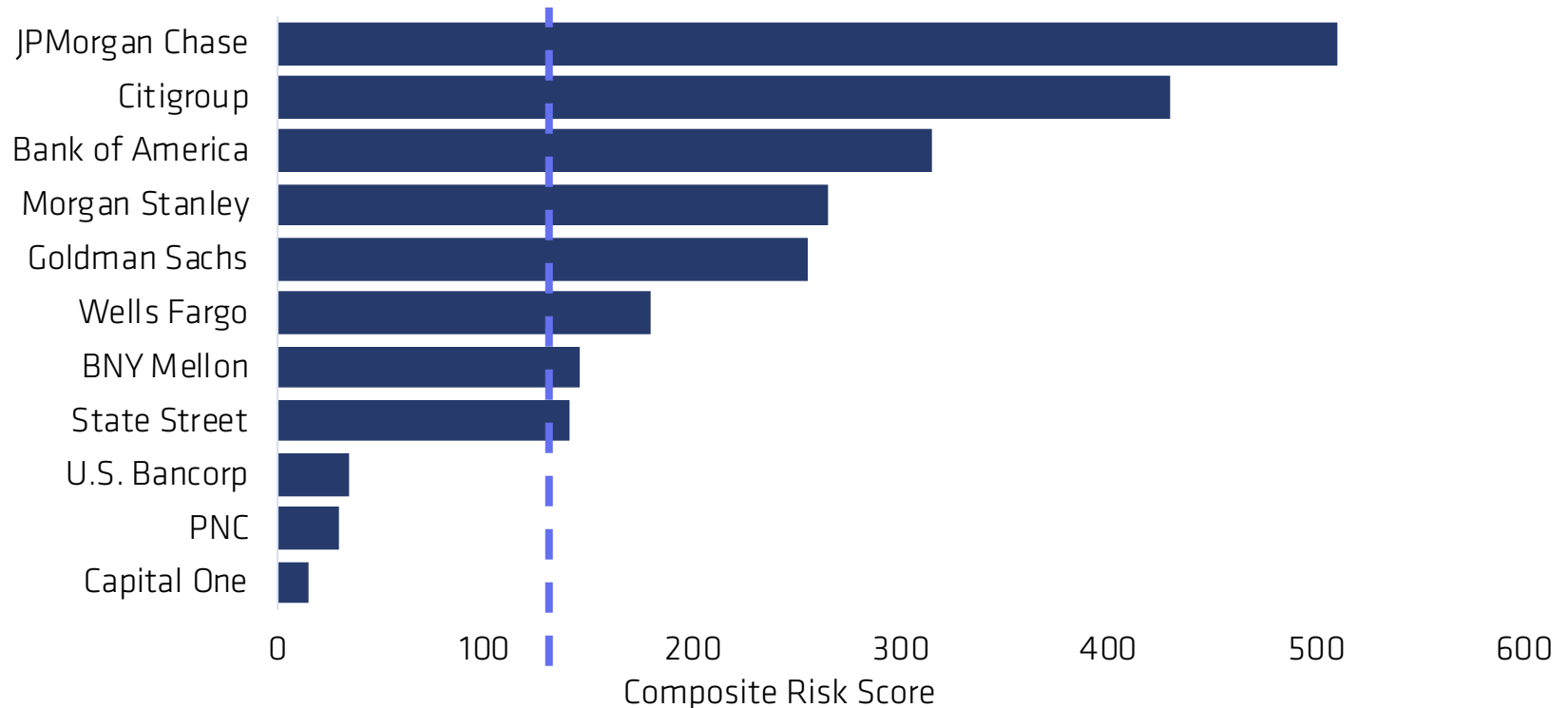
### Assumed Lost



As bitcoin companies become more focused on institutional adoption, more bitcoins will be custodied by regulated entities who are subject to oversight

# A FAMILIAR PICTURE

## US SIFI's (SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS)



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”

# BAILOUT AREN'T UNIQUE TO LEGACY FINANCE

## CENTRALIZATION INCREASES SYSTEMIC RISK

TIME INC. NETWORK | FORTUNE | MONEY | TIME | SPORTS ILLUSTRATED | GOLF | TL TRAVEL + LEISURE | PEOPLE | MORE

**FORTUNE**

NEWS POPULAR VIDEOS FORTUNE 500

**Leaderless, Blockchain-Based Venture Capital Fund Raises \$100 Million, And Counting**  
9:00 AM EDT

Amazon Introduces a Dash Button for Cloud Services Because Why Not?  
9:00 AM EDT

What to Do About an Employee With a Drug Problem  
9:00 AM EDT

Windows 10 Shuts Its Stuff at PGA Tour  
9:00 AM EDT

What Google's Trouble in Europe Says About Antitrust in the Age of Software  
9:00 AM EDT

Warren Buffett's Berkshire Hathaway Bought \$1 Billion in Apple Stock  
9:00 AM EDT

Range Resources to Buy Memorial Resource in \$4.4 bn Deal  
9:00 AM EDT

Labor Secretary Gets Verizon and Unions Back Together  
9:00 AM EDT


Gannett Just Raised its Offer for Tribune  
9:00 AM EDT

Silicon Valley's Venture Capitalists Are Raising Money to Protect Their Unicorns  
9:00 AM EDT

Donald Trump Blasts the New York Times for Its 'Hit Piece'  
9:00 AM EDT

Ancor Stock Soars More Than 50% on Pfizer Takeover Deal  
9:00 AM EDT

**Leaderless, Blockchain-Based Venture Capital Fund Raises \$100 Million, And Counting**  
by David Z. Morris @davidzmmoris MAY 15, 2016, 5:04 PM EDT




**The DAO is touted as a new form of decentralized financial organization.**

A new entity called The DAO, created using the Bitcoin-inspired financial platform Ethereum, has collected more than \$100 million worth of cryptocurrency since late April, and will use the funds to support projects in the sharing economy. The DAO is being touted as a model for a new kind of organization, created and run

Frq Design Ltd/Getty Images

**RECOMMENDED FOR YOU**



## A \$50 Million Hack Just Showed That the DAO Was All Too Human

### Hard fork Ethereum to revert the hack of The DAO



Dominic Williams started this petition to [Ethereum Stakeholders](#)

#### Victory

This petition made change with 1,066 supporters!

Ethereum: Hard fork Ethereum to revert the hack of The DAO

Share on Facebook

Send a Facebook message

Send an email to friends

Tweet to your followers

FUTURE SOCIETY

## The DAO Heist Undone: 97% of ETH Holders Vote for the Hard Fork

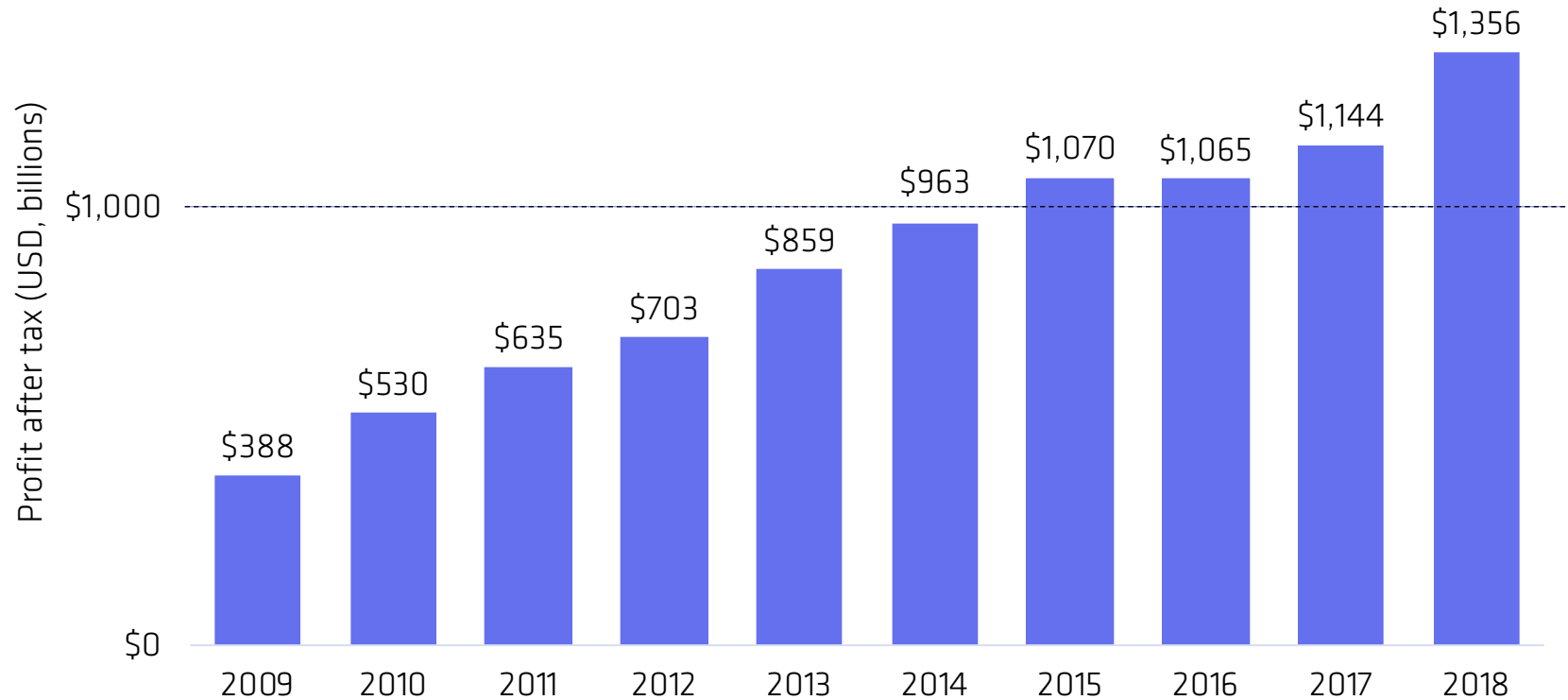
The cybertheft seems to have been stopped in its tracks.

CECILLE DE JESUS | JULY 19TH 2016

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

IT'S NEVER BEEN MORE LUCRATIVE TO BE A BANK

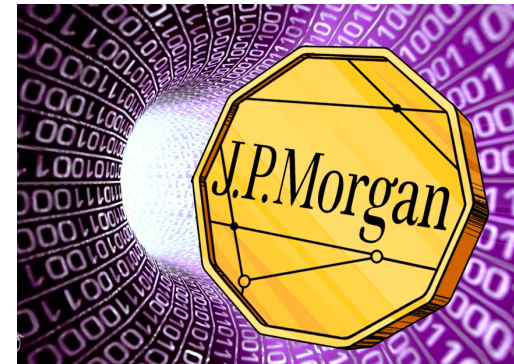
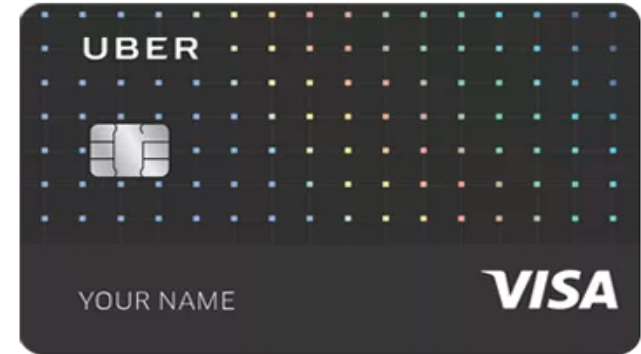


In the last ten years, the global banking industry has cashed in over \$8.5 trillion in after-tax profit

# NOW TECH WANTS TO GET INTO FINANCE

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## BIG TECH IS GETTING INTO BANKING








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Every tech company wants to be a bank and, eventually, a central bank

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# MOVING TO OPEN FINANCE

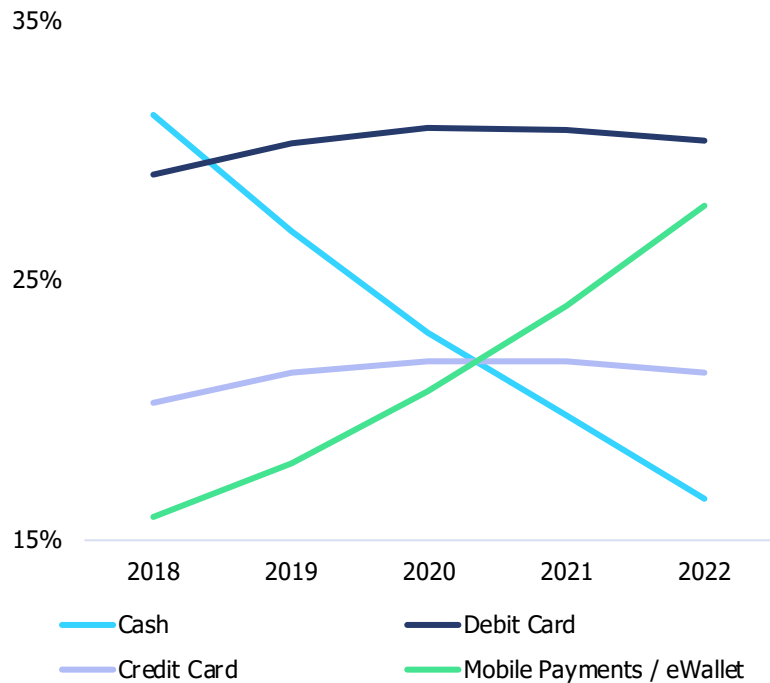
## THE EVOLUTION OF THE DIGITIZATION OF FINANCE

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

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

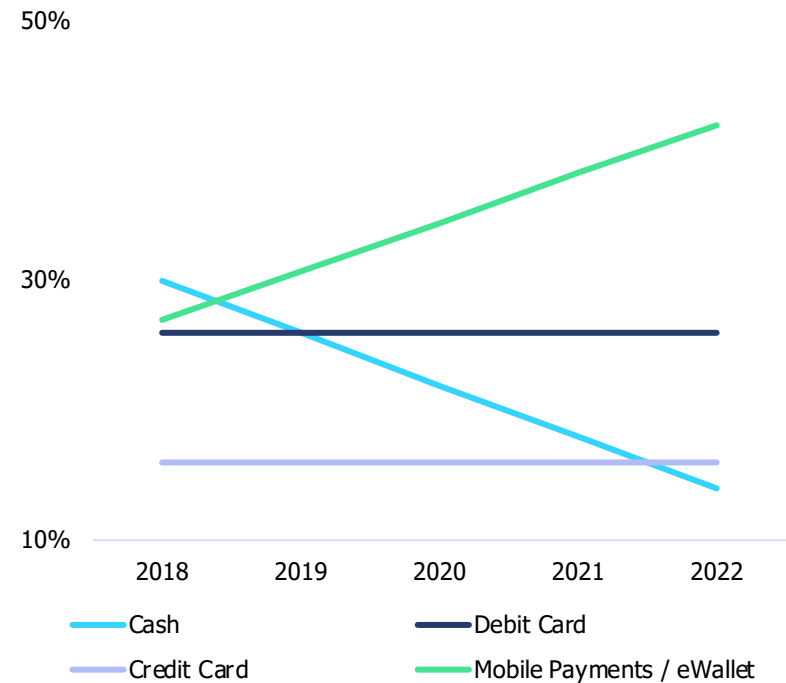
# PAYMENTS ARE THE FRONTIER FOR OPEN FINANCE

## GLOBAL SHARE OF POINT OF SALE PAYMENT METHODS



Mobile payments forecast to surpass cash and credit cards by 2021

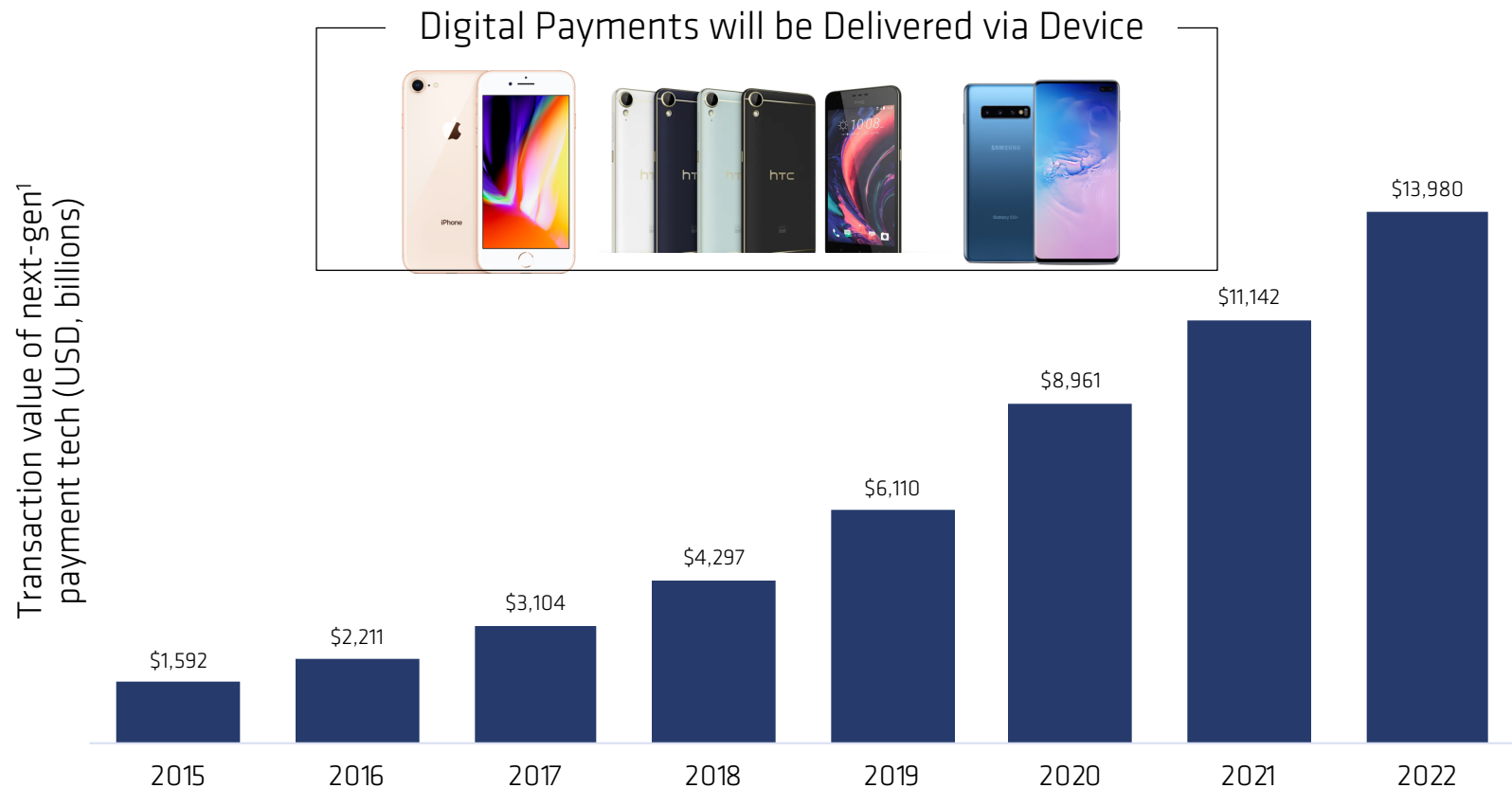
## ASIA-PACIFIC POINT OF SALE PAYMENT METHODS



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

# THE DIGITAL PAYMENTS CHARGE WON'T BE LED BY BANKS

## PLASTIC WILL BE REPLACED BY SILICON







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

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## HANDSET MANUFACTURERS AND TELCOS MAKING CRYPTO MOVES

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

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

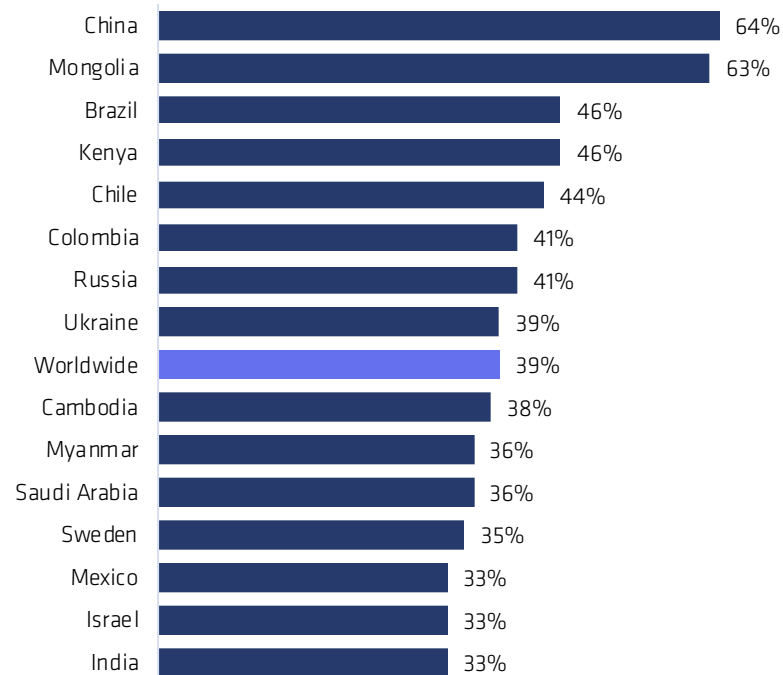
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# SOCIAL NETWORKS ARE THE NEW PAYMENT NETWORKS

## WORLD'S LARGEST MOBILE PAYMENT PLATFORMS

| COMPANY           | ACTIVE USERS |
|-------------------|--------------|
| Facebook / Libra* | 2.7 billion+ |
| WeChat            | 1 billion+   |
| Alipay            | 1 billion+   |
| Samsung Pay       | 1 billion+   |
| Apple Pay         | 383 million  |
| PayPal            | 250 million  |
| Amazon Pay        | 50 million   |
| Google Pay        | 24 million   |

## 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

# WHAT THIS MEANS FOR CRYPTO

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Where We're Looking

# WHAT WE'RE FOCUSED ON

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- 1 The Secular Bitcoin Trend is Your Friend
- 2 Finance Fundamentals Still Apply
- 3 Focus on “Category Kings” in Both Existing and Emergent Categories
- 4 Expect the Next Big Bang to Drive Corporate M&A and IPOs
- 5 Brace for an Explosion of Derivatives and Debt
- 6 Watch for (Poorly Implemented) Global Coordination on Regulation
- 7 And Expect Panopticon Money and Tools for the Resistance

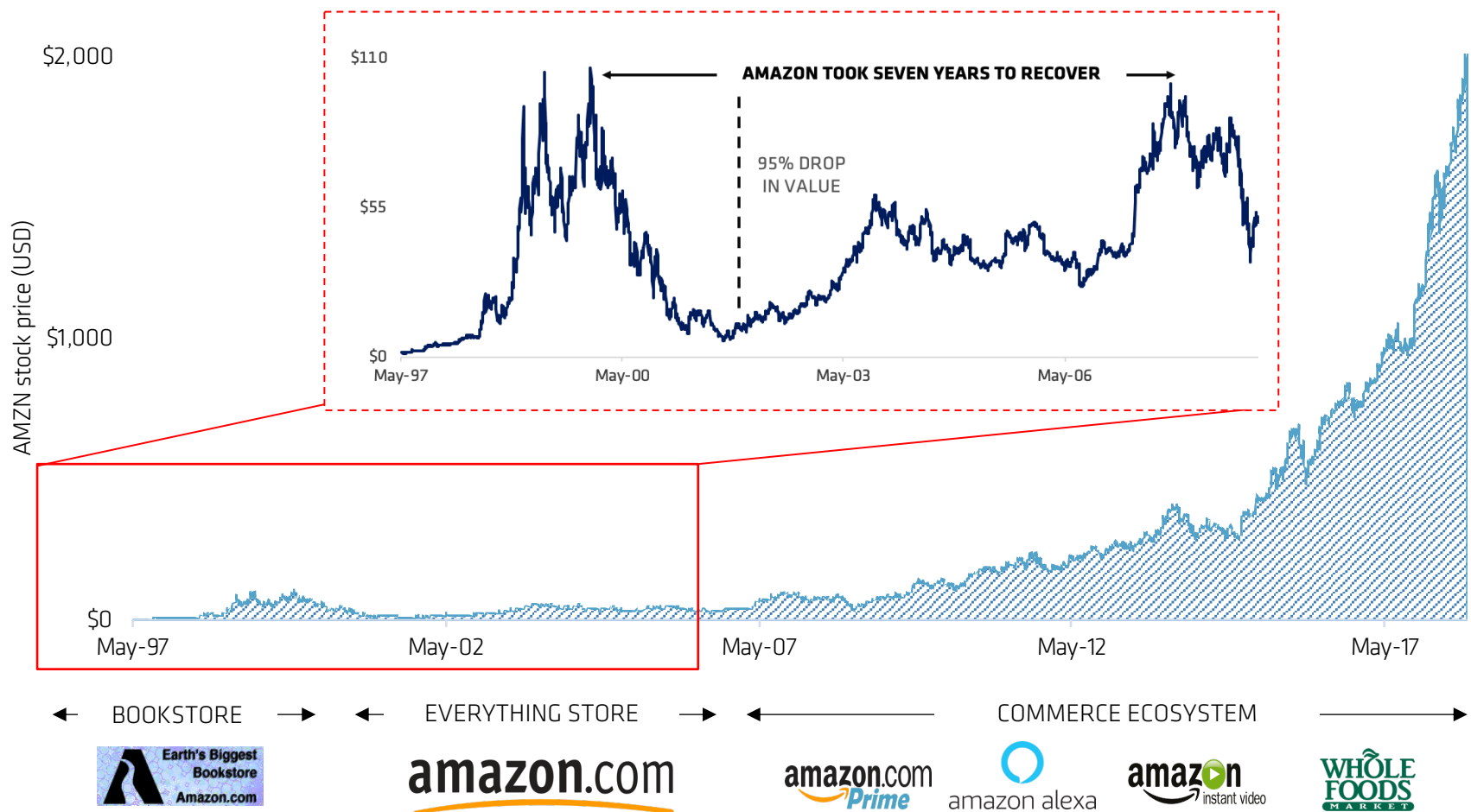
# 1 MAPPING BITCOIN'S SECULAR V CYCLICAL TREND

## BITCOIN'S PRICE APPRECIATION (LOG SCALE)



If we remove noise, the trend for bitcoin is up and to the right year after year

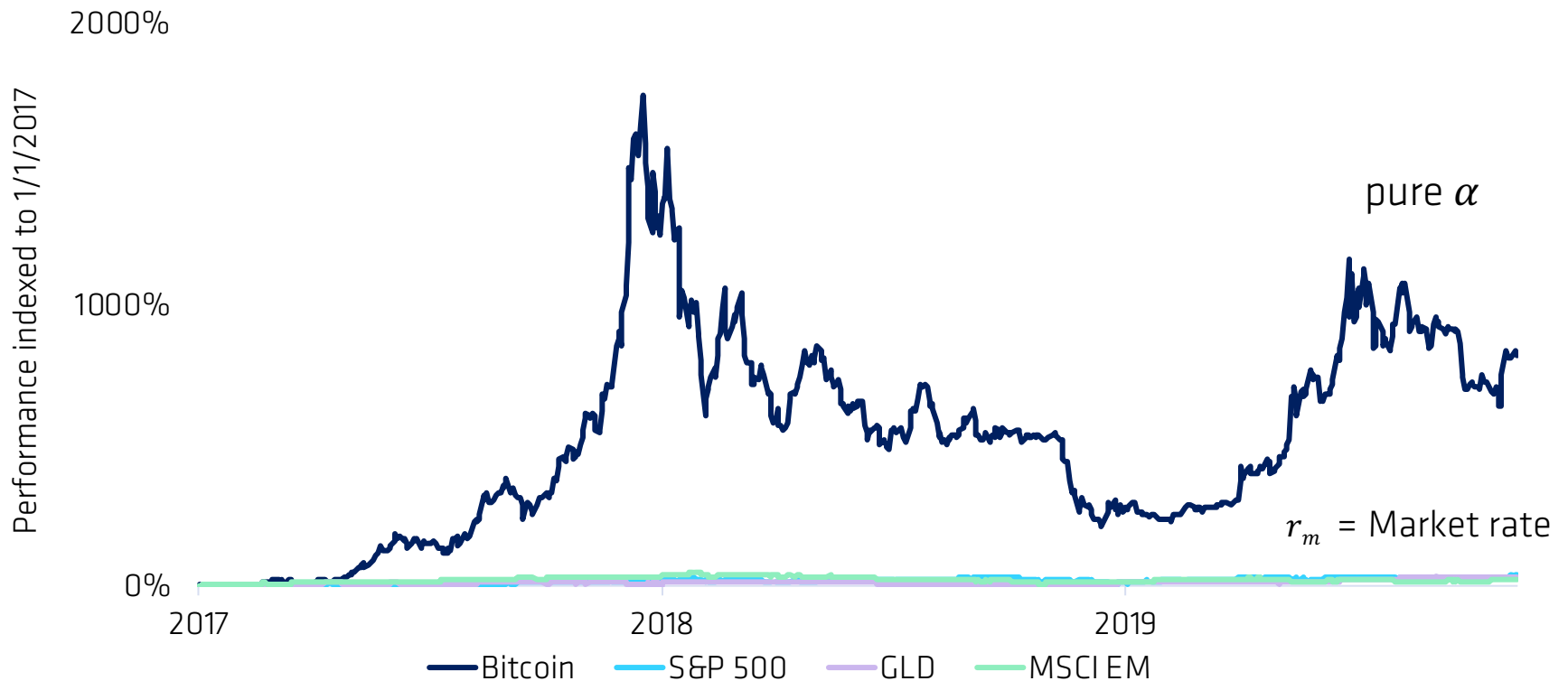
# 1 SECULAR INVESTMENTS REQUIRE CONVICTION



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

# 1 COMPARED TO EVERYTHING ELSE: BITCOIN OUTPERFORMS

## BITCOIN PERFORMANCE AGAINST OTHER MAJOR ASSET CLASSES



Comparatively, bitcoin has been volatile, but on an absolute basis, it's outperformed every other asset class over a comparable time scale

# 1 PLACING BITCOIN IN CONTEXT

## US INVESTMENT RETURNS OVER THE LAST FIVE YEARS

| Strategy       | Annualized Return |
|----------------|-------------------|
| Debt           | 6%                |
| Fund of Funds  | 11%               |
| Hedge Fund     | 11%               |
| Real Assets    | 11%               |
| Secondaries    | 13%               |
| VC             | 16%               |
| PE             | 18%               |
| IPO            | 21%               |
| <b>Bitcoin</b> | <b>115%</b>       |

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



# 1 THE IMPORTANCE OF PSYCHOLOGICAL ANCHORING

## ANALOGIES PROVIDE USEFUL CONTEXT FOR INVESTORS

| Legacy Asset             | Market Size    | Blockchain Asset                          | Expression                   |
|--------------------------|----------------|---|------------------------------|
| Gold                     | \$7 trillion   | Store of Value (SOV)                      | Bitcoin                      |
| Oil (Commodities)        | \$1.7 trillion | Digital Utility                           | Ethereum & "Smart Contracts" |
| VC                       | \$60 billion   | New blockchain protocols and early stage  | ICOs                         |
| HF / PE growth investing | \$1.2 trillion | Securitizing equity for private companies | Tokenized Securities         |
| Real Estate              | \$1.4 trillion | Fractional ownership and tokenized REITs  | Tokenized Ownership          |

We have limited analogies to explain the market potential for bitcoin and crypto asset, and anchoring to existing asset classes can provide helpful context

## 2 FINANCE FUNDAMENTALS

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### UNDERSTANDING HOW COMPANIES MAKE MONEY

#### INCOME STATEMENT

Revenues

(Expenses)

Profit / (Loss)

- Helps you keep an eye on profitability
- In early stages, expenses often exceed revenue

#### BALANCE SHEET

Assets

Liabilities

Equity

- Both sides should balance – health check
- Startups sell equity to get cash (assets)

#### CASH FLOW

Operations

Investments

Financing

- Shows how money flows into and out of the business
- Raise cash via financing to cover ops and investments

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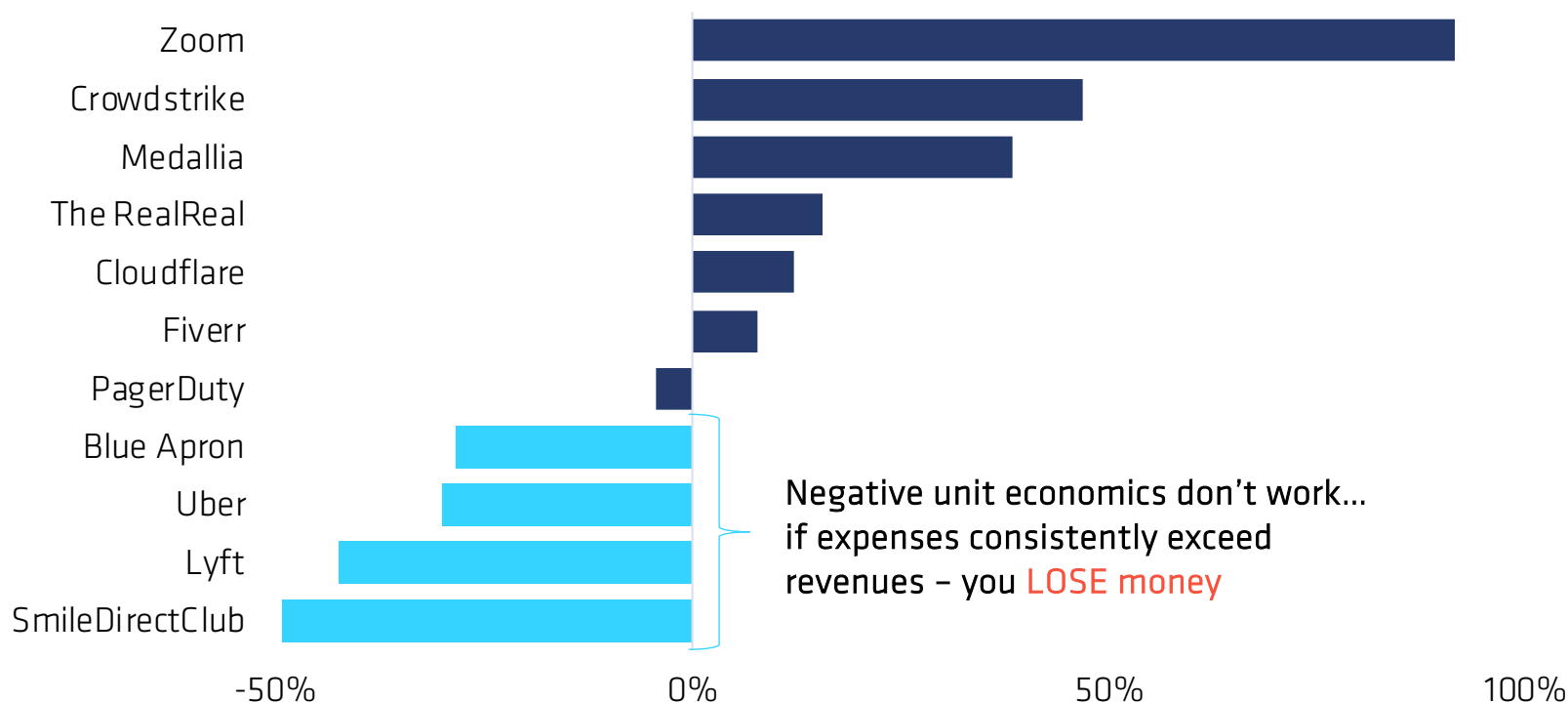
While cryptocurrencies may be a new innovation, companies still need to make money and manage their cash flows carefully to grow equity value for investors

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## 2 MARKETS STILL UNDERSTAND FUNDAMENTALS

### RECENT TECH IPO PERFORMANCE

Stock performance since IPO

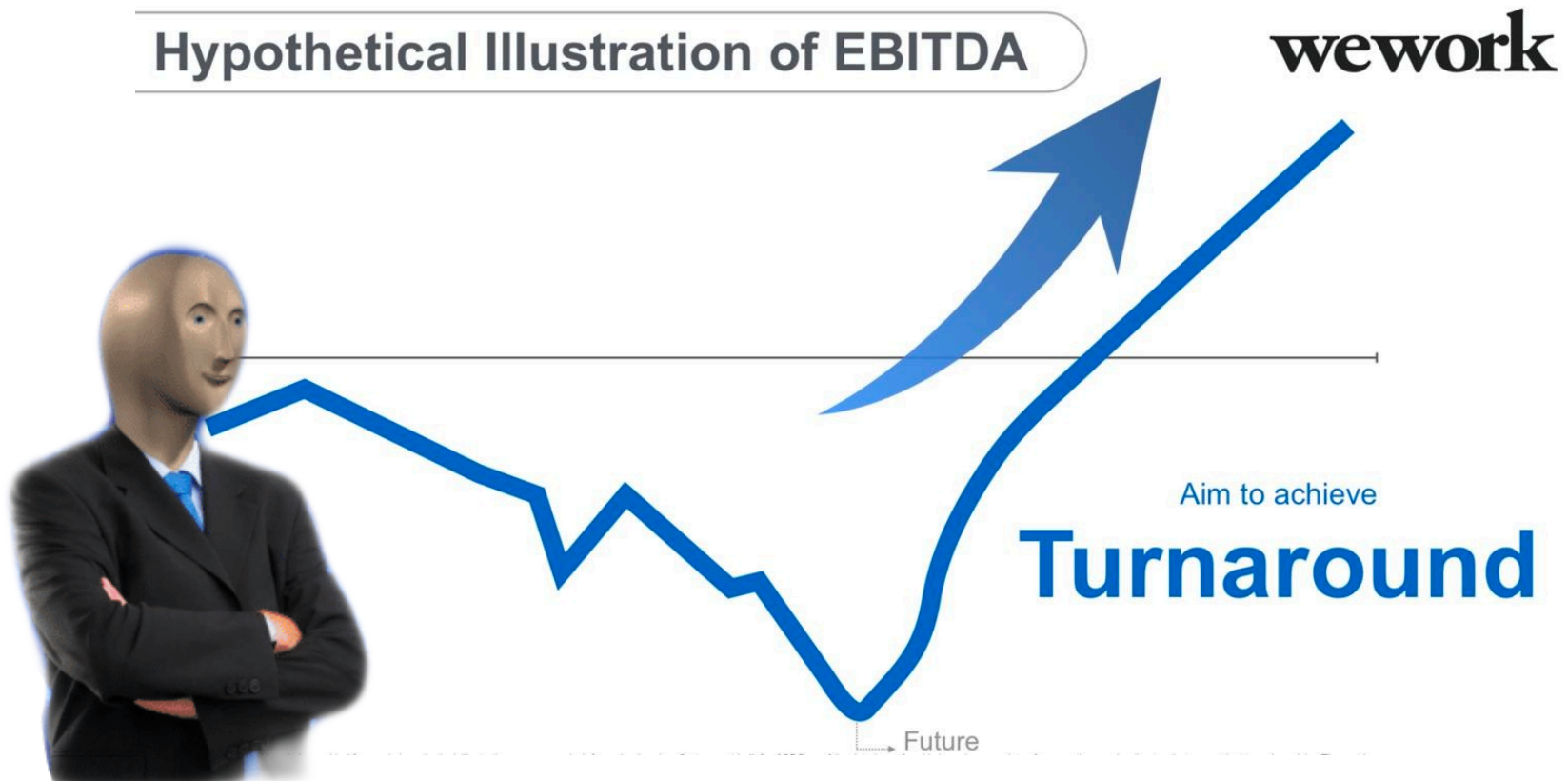


Recent IPO performance has not fared well for companies who have negative unit economics, despite their impressive user growth metrics and “network” value

## 2 EVERYONE'S FAVORITE FINANCE FOLLY

### COMMUNITY ADJUSTED EBITDA

#### Hypothetical Illustration of EBITDA



Even STONKS guy can't turn a negative into a positive. Fundamentals of finance!

## 2 TOKEN FINANCING STILL DOESN'T MAKE SENSE

### TOKENS RAISE ASSETS BUT WHERE'S THE OFFSET?

| Assets   | Liabilities + Equity   |
|--|--|
| <b>Assets</b> <ul style="list-style-type: none"><li>Cash or cash equivalents (BTC, ETH)</li><li>Inventory (tokens held by project)</li><li>Accounts receivable</li></ul> <b>Investments</b> <ul style="list-style-type: none"><li>Ecosystem fund investments</li></ul> <b>Property Plant &amp; Equipment (PP&amp;E)</b><br><b>Goodwill</b> | <b>Liabilities</b> <ul style="list-style-type: none"><li>Notes Payable (ST or LT)</li><li>Accounts Payable</li><li>Wages Payable</li><li>Interest Payable</li><li>Taxes (current +deferred)</li><li>Legal and Regulatory</li></ul> <b>Community Debt</b> <ul style="list-style-type: none"><li>Network Delivery</li></ul> <b>Company Equity</b> <ul style="list-style-type: none"><li>Preferred Stock</li><li>Common Stock</li></ul> |

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

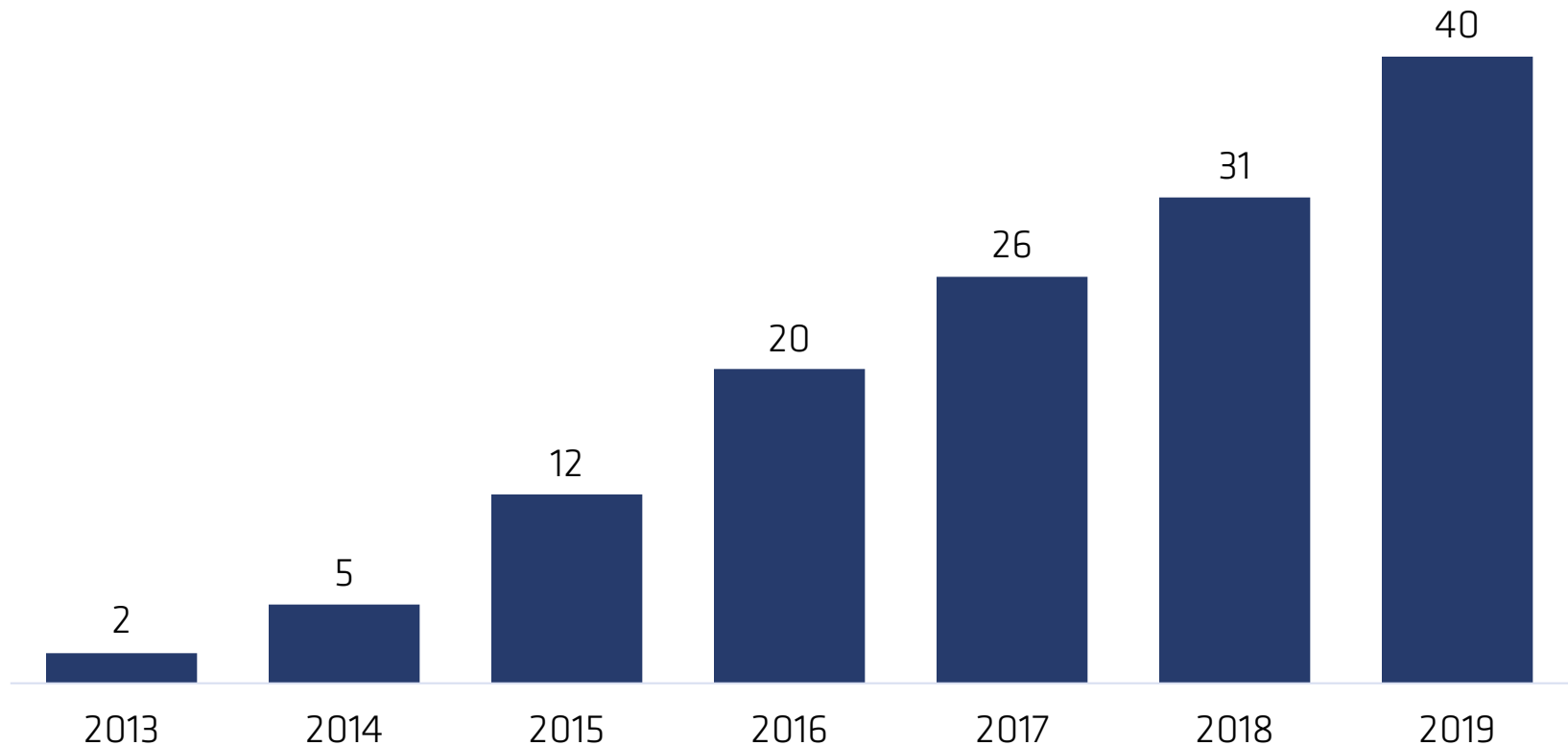
## 2 IS TOKEN FINANCING A BOON FOR OPEN SOURCE?

| ERA        | MOVEMENT                     | PHILOSOPHICAL ORIENTATION | RELATIONSHIP TO PROPRIETARY SOFTWARE (PS) | ECONOMIC IMPACT      |
|------------|------------------------------|---------------------------|---|----------------------|
| 1983-1998  | Free Software (FS)           | Liberalism                | "PS is evil"                              | Billions             |
| 1998-2013  | "Open Source" Software (OSS) | Utilitarianism            | "PS is not necessarily evil"              | Hundreds of billions |
| 2013-2028+ | Commercial OSS (COSS)        | Commercial-ization        | "PS is complementary"                     | Trillions            |
| 2017 - ?   | Utility Tokens aka (TOSS)    | Crypto Chad-ism           | "YOLO!"                                   | Tens of trillions    |

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





## 2 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

## 2 AND MANY TOKEN FOUNDATIONS ARE NOW FUNDS

| ENTITY   | FUND FOCUS   | CAPITAL RAISED     | CAPITAL DEPLOYED   |
|--|--|--------------------|--|
|  eos vc™          | EOS VC focuses on developing the EOSIO ecosystem and investing in other funds and directly                 | \$4B               | \$600M +<br>(\$300M to Galaxy,<br>\$200M to Accelerate VC) |
|    XPRING         | Xpring is Ripple's effort to support the "Internet of Value" by partnering with and investing in companies | \$12B<br>marketcap | \$500M to date   |
|  TEZOS FOUNDATION | The foundation is focused on deploying resources that support the long-term future of Tezos                | \$232M             | \$10M to date  |
|                  | aeternity Ventures is the the investing arm of aeternity blockchain, and invests in blockchain projects    | \$24M              | Unknown – 10+<br>portfolio co's                            |

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



### 3 CATEGORY CREATION AND BUSINESS MODELS

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- 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

### 3 CATEGORIES BY BUSINESS MODEL























#### PRODUCTS (Margin & marketing driven)

| Consumer   | Payments   | Hardware  | Research & Analytics   | Professional Services   |
|--|--|---|--|---|
|  <br> <br> <br>  |   <br><br> <br>  |  <br><br><br>  |  <br><br><br> | <br><br> |

#### PLATFORMS (Volume & distribution driven)

| Custody & Security   | Marketplaces   | Exchanges   | Enterprise   | Trading & Tools  |
|--|--|---|--|--|
|  <br><br><br>  |  <br><br><br> |  <br> <br> <br>  |  <br><br><br>  |  <br><br> <br> |

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

| Capital Markets  | Enterprise BaaS   | Networking  | Developer Tools   | Protocols / OSS   |
|--|---|---|---|---|
| <br><br><br> | <br> <br> | <br><br> <br> |  <br><br>   | <br><br> |

### 3 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

### 3 WHAT MATTERS MOST

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#### COMPARING BUSINESS MODELS

##### THE INTERNET

Innovation in Information Transfer

##### What Drove Early Business Models

Advertising

##### What Metrics Matter Most

eyeballs / Distribution  
 clicks / Engagement  
 conversion to Sales

##### Power Comes From

Having the most data to sell

##### BITCOIN

Innovation in Value Transfer

##### What Drives Business Models

Transactions

##### What Metrics Matter Most

Volume / # & \$ of txn's  
Spread / rev per txn

##### Power Comes From

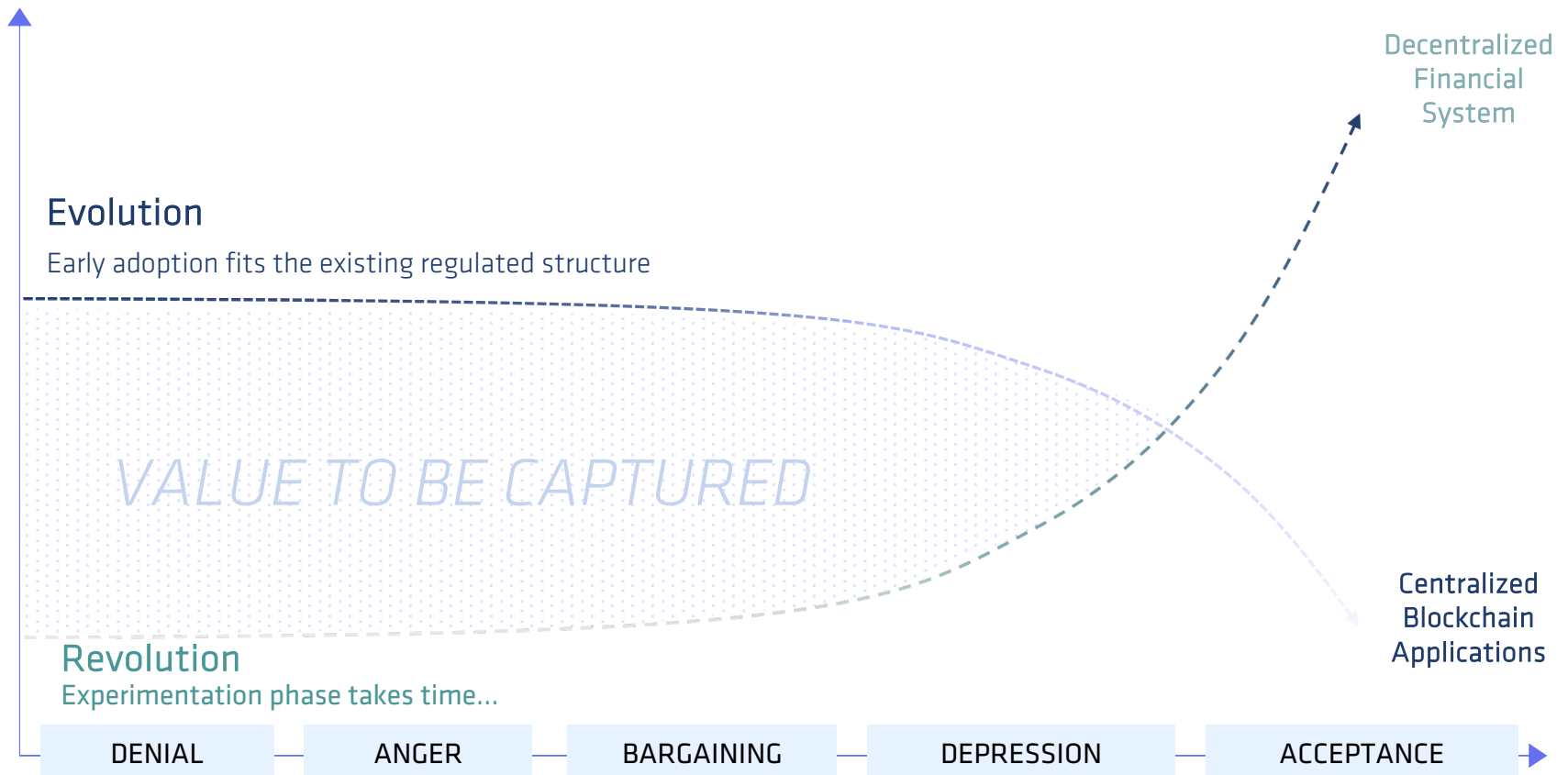
Having the most ways to extract fees

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While the early internet was all about monetizing eyeballs via advertising, crypto companies today monetize their role as financial intermediaries

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### 3 BUSINESS MODEL INNOVATION 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

## 4 INDUSTRY M&A HAS BEEN MOSTLY INTERNAL

| Acquirer   | Target   | Founded | Date Acq. | Exit          |
|--|--|---------|-----------|---------------|
|  CIRCLE   | <b>POLONIEX</b>  | 2014    | Sep '17   | \$400 M       |
|  | seedInvest   | 2012    | Oct '17   | Not disclosed |
|  |  trigger                            | 2015    | Oct '18   | Not disclosed |
|  coinbase                                       | <b>Earn</b>  | 2013    | Apr '18   | \$120 M       |
|  | Distributed Systems  | 2015    | Aug '18   | Not disclosed |
|  |  venovate                           | 2013    | 2018      | Not disclosed |
|  BK Medical Group<br>Aesthetic Clinic Singapore |  bithumb                            | 2013    | Oct '18   | \$353 M       |
|  NEXON  | <b>Bitstamp</b>  | 2011    | Oct '18   | Not disclosed |
|  Huobi  |  PHL<br>PANTRONICS HOLDINGS LIMITED | 1983    | Aug '18   | \$70 M        |
|  gojek   | coins.ph                           | 2014    | Jan '19   | \$72 M        |
|  STELLAR                                      |  Chain                            | 2014    | Sep '18   | \$200 M+      |
|  kraken                                       |  crypto facilities                | 2014    | Jan '19   | \$100 M+      |

M&A activity to date has been focused on consolidation amongst existing industry players, with minimal external participation

## 4 NEXT BIG BANG WILL SEE BUILD, BUY, AND PARTNER

|                | Pros  | Cons  |
|----------------|---|---|
| <b>Build</b>   | <ul style="list-style-type: none"><li>• Greatest degree of control</li><li>• Own the IP</li><li>• Own the profitability</li></ul>   | <ul style="list-style-type: none"><li>• Long time to market</li><li>• Risk in market shifts</li><li>• High development costs / opportunity cost</li><li>• High switching costs / sunk costs</li></ul> |
| <b>Buy</b>     | <ul style="list-style-type: none"><li>• Speed time to market</li><li>• Own the IP</li></ul>   | <ul style="list-style-type: none"><li>• Acquisition costs</li><li>• Integration costs and risks</li><li>• Loss of key people</li></ul>  |
| <b>Partner</b> | <ul style="list-style-type: none"><li>• Shortest time to market</li><li>• Least resource intensive</li><li>• “Try before you Buy”</li><li>• Lowest opportunity cost</li></ul> | <ul style="list-style-type: none"><li>• Very little control</li><li>• Integration costs and timelines can get out of control</li><li>• Share margin</li><li>• Share profitability</li></ul>           |

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

## 4 CORPORATES HAVE TO CATCH UP ON “DIGITAL”

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

| FINANCE   | ENERGY   | MANUFACTURING  | SOFTWARE  | ENTERTAINMENT   |
|---|--|--|---|---|
| J.P.Morgan  |  <b>Shell</b>               | <b>FOXconn</b> <sup>®</sup>  |  Microsoft       |  <b>COMCAST</b>              |
| <br>mastercard.                              |  <b>Exelon</b> <sup>®</sup> |                    |                  |  <b>NEXON</b>                |
|  <b>WESTERN UNION</b>                        |  innogy                     | <b>htc</b>   | <b>ORACLE</b> <sup>®</sup>  | <br>warner   music   group   |
|  <b>Fidelity</b> <sup>®</sup><br>INVESTMENTS | CONSUMER   |  <b>SAMSUNG</b>    | <b>IBM</b>  |  <b>Spotify</b> <sup>®</sup> |
|  <b>NEW YORK LIFE</b>                       |  <b>AB InBev</b>            | <br><b>TOYOTA</b> | <b>aws</b><br> |                            |
|  <b>Mars</b>                                | <b>Walmart</b>            |  |   |   |

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



## 4 TECH M&A CYCLE WILL CONTINUE - \$500B SPARE CASH

### RECENT M&A ACTIVITY

| Merger                       | Value |
|------------------------------|-------|
| IBM – Red Hat                | \$34B |
| Broadcom – CA Tech           | \$19B |
| Blackstone – Thomson Reuters | \$17B |
| Walmart – Flipkart           | \$16B |
| Vantiv – Worldpay            | \$13B |
| SAP – Qualtrics              | \$8B  |
| Microsoft – GitHub           | \$8B  |
| Cisco – App Dynamics         | \$4B  |
| Paypal – iZettle             | \$2B  |

### CORPORATES FLUSH WITH CASH

| Company                | Spare Cash<br>(Net of Debt) |
|------------------------|-----------------------------|
| Berkshire Hathaway     | \$122B                      |
| Alphabet               | \$117B                      |
| Apple                  | \$102B                      |
| Microsoft              | \$51B                       |
| Facebook               | \$43B                       |
| <i>Spare Cash Pile</i> | <b>\$435B</b>               |

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

## 4 SIGNIFICANT WORK NEEDED BEFORE M&A READY

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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.

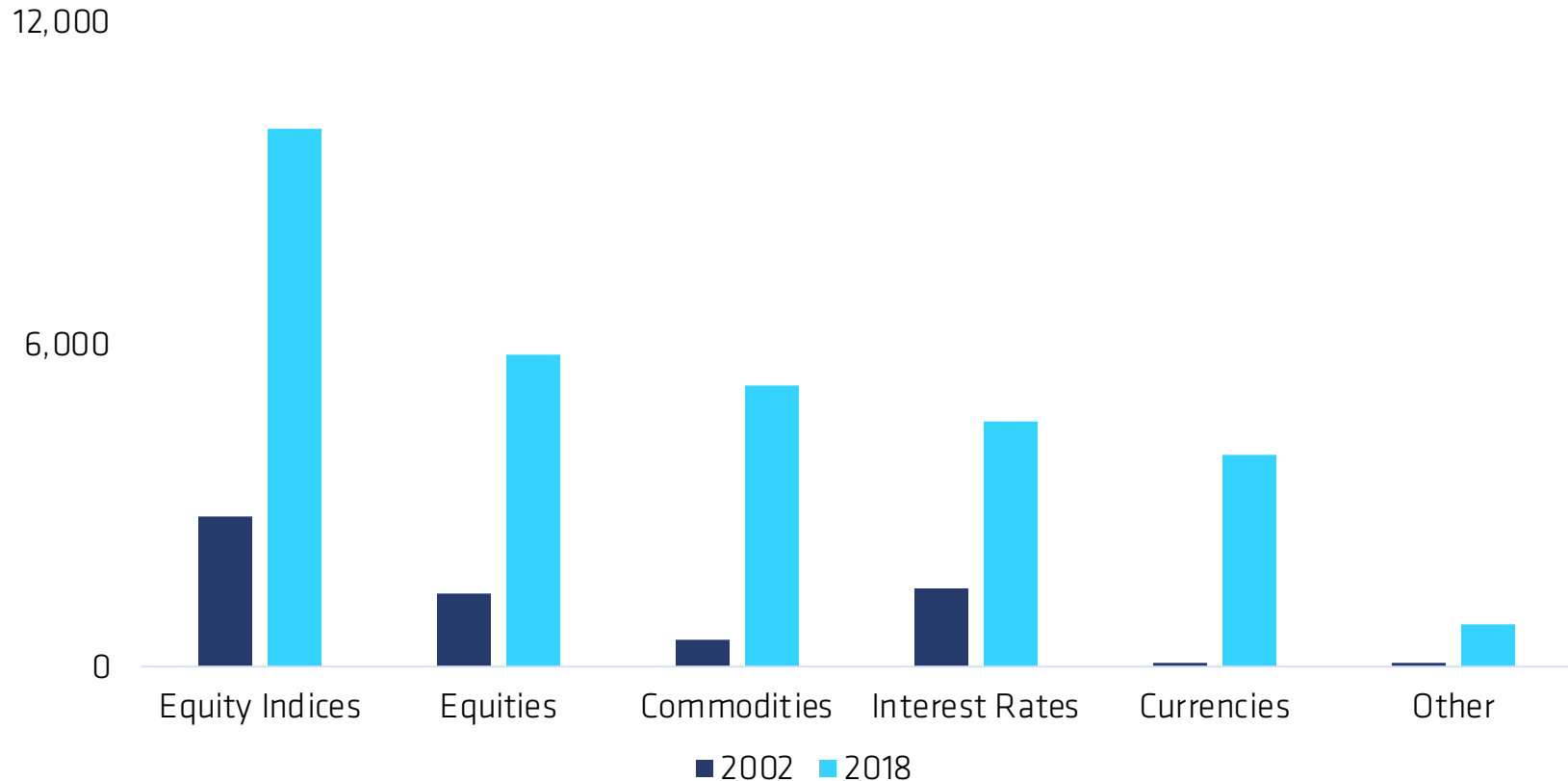
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We anticipate a more robust M&A market could materialize but significant industry consolidation will likely come first to clean up market fragmentation

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## 5 FUTURES AND OPTIONS MARKETS ARE GROWING

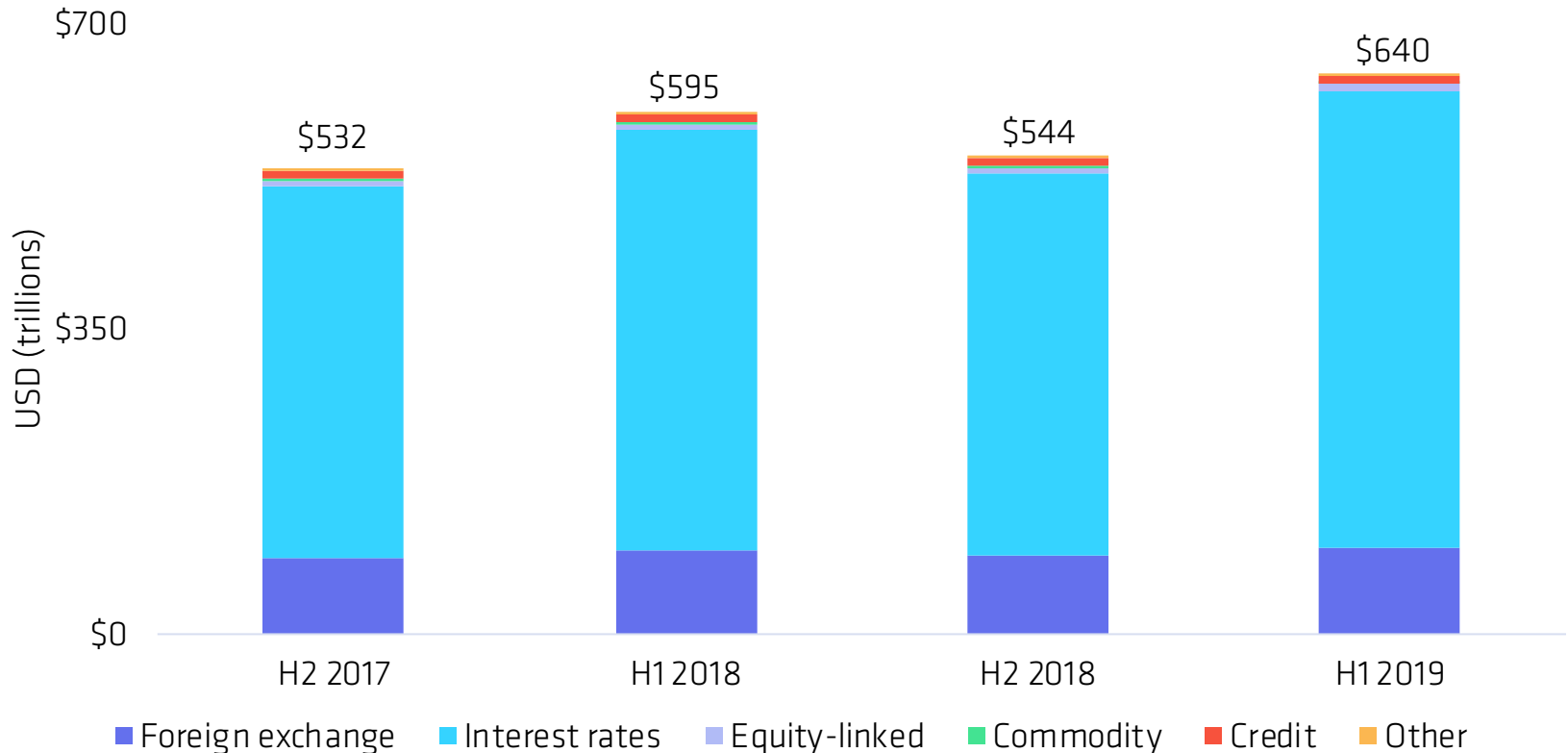
### GLOBAL FUTURES AND OPTIONS TRADING VOLUME



Futures and options are popular with traders of all types, and have grown materially over the last 20 years

## 4 GLOBAL OTC DERIVATIVES MARKET ARE MASSIVE

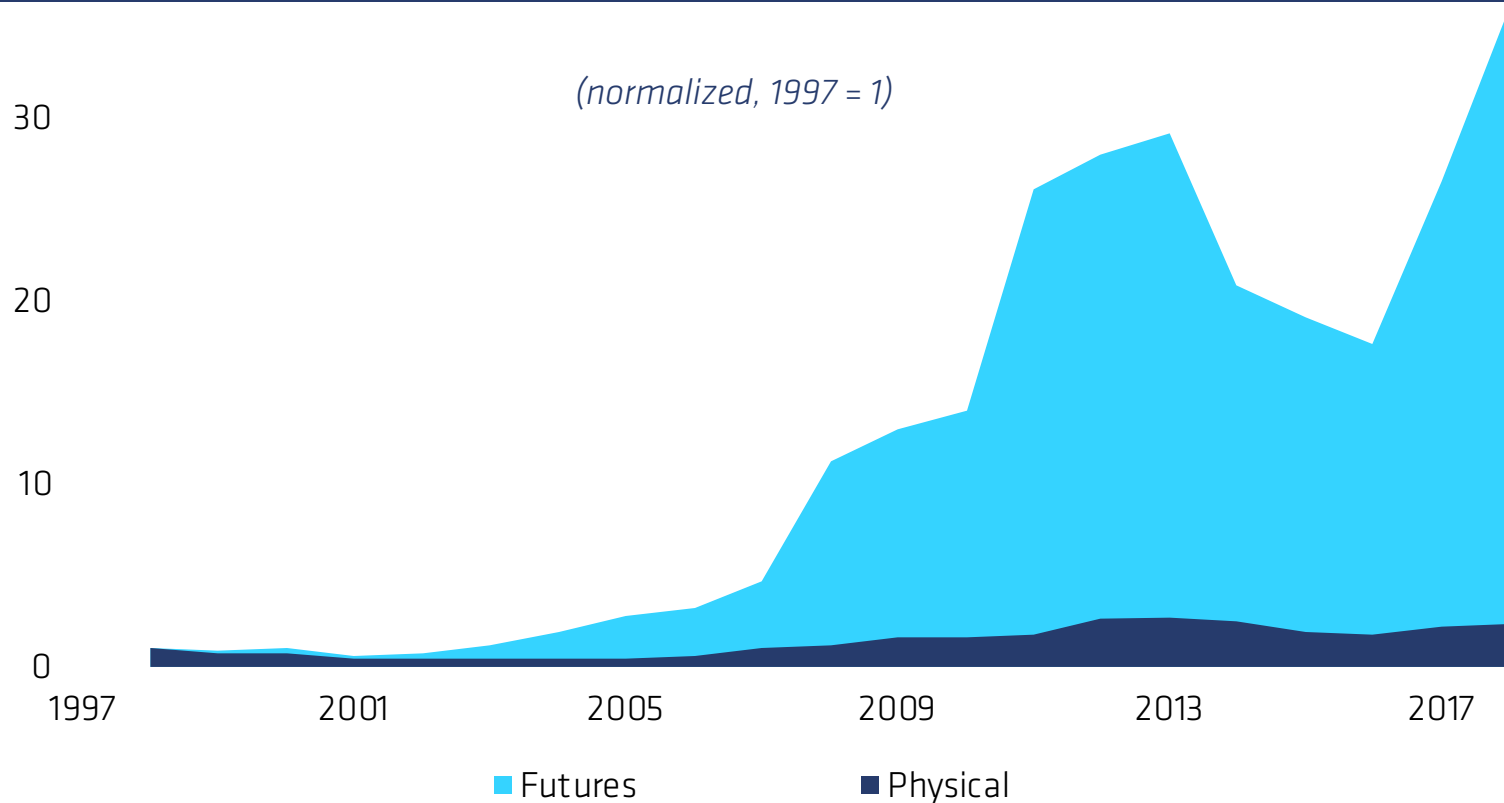
### NOTIONAL AMOUNTS OUTSTANDING



\$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

## 5 DERIVATIVES DRIVE SPECULATIVE MARKET GROWTH

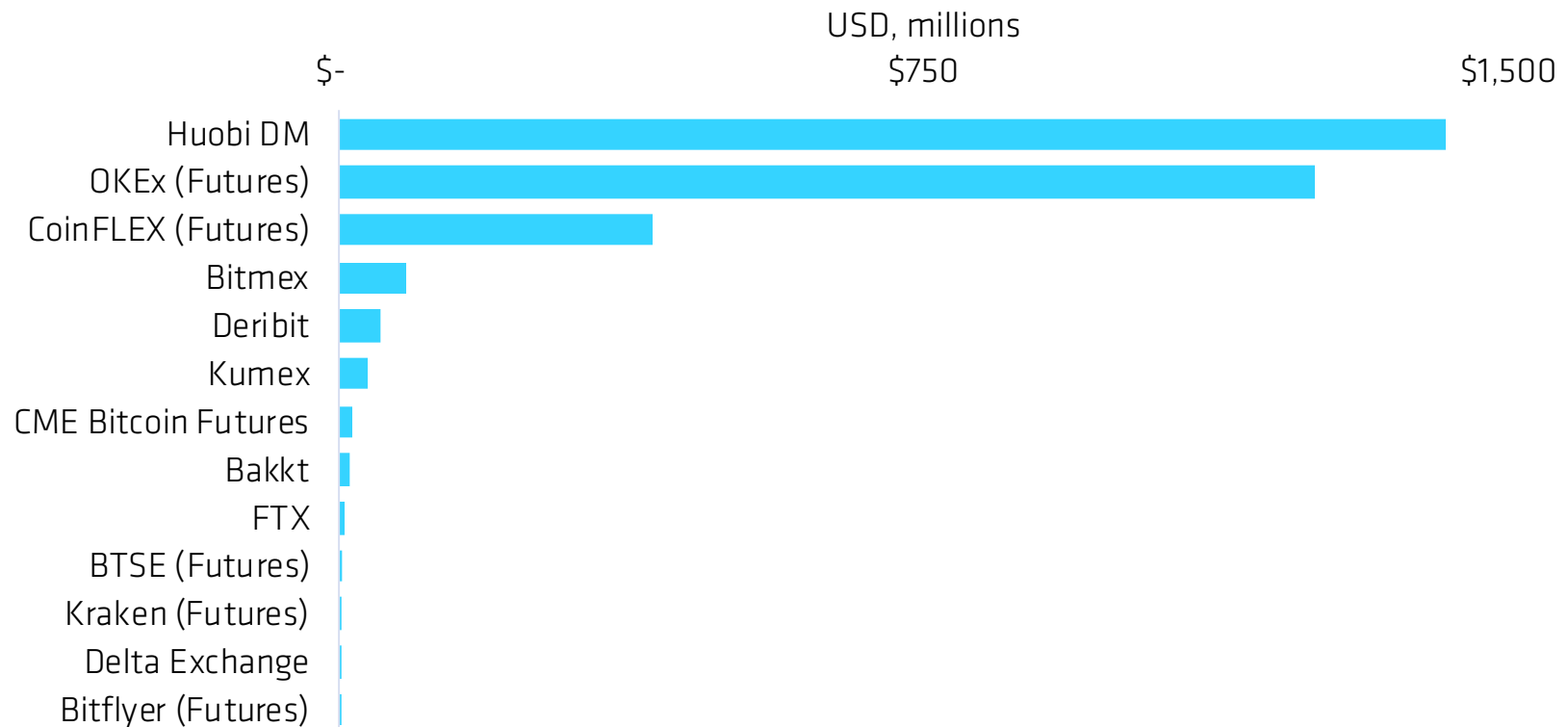
### GOLD TRADE VOLUME GROWTH VIA DERIVATIVES



The gold market grew exponentially once cash-settled (paper) futures were introduced – the futures market is now 30x the physical gold market

## 4 FUTURES TRADING VOLUMES TOP \$1B DAILY

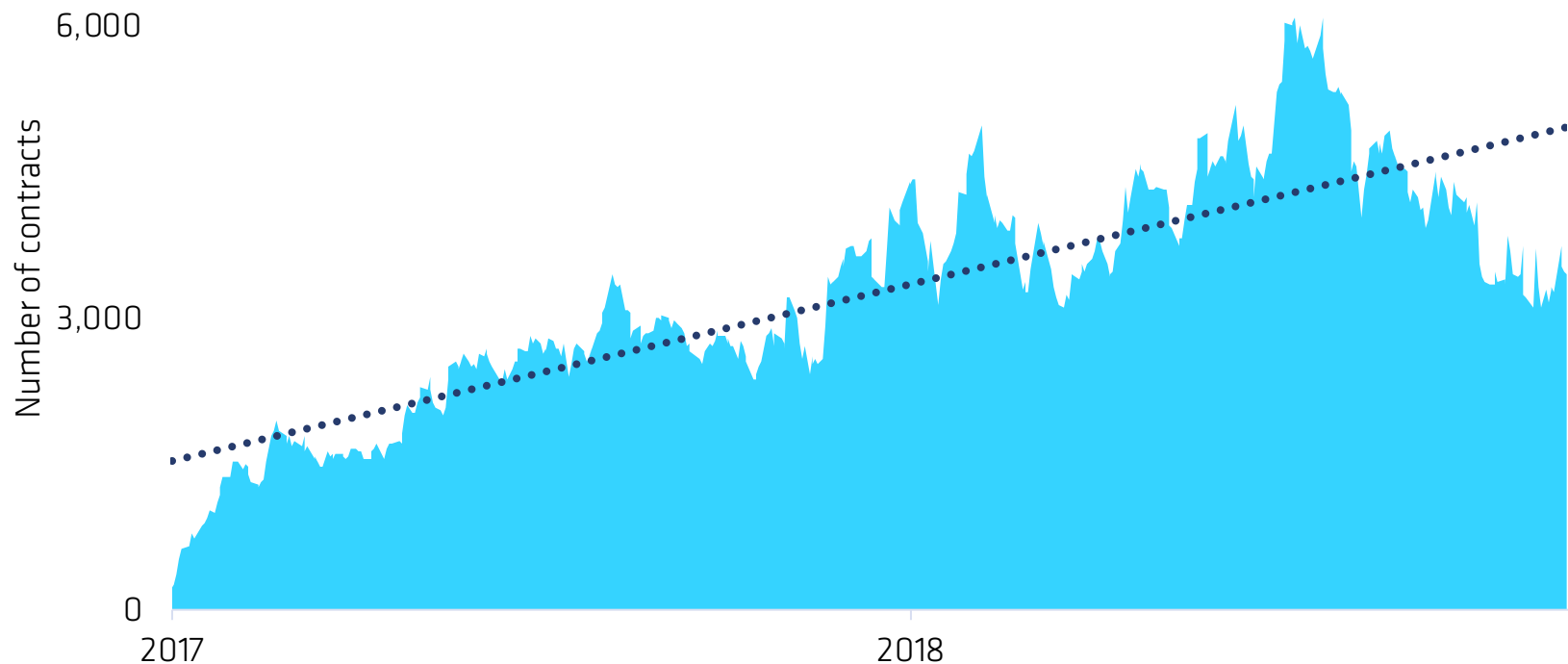
### 24h BTC Futures Trading Volume on Nov. 11 2019



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

## 5 REGULATED USD SETTLED FUTURES

### CME BITCOIN FUTURES: DAILY OPEN INTEREST SINCE LAUNCH



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

## 5 DERIVATIVE RISKS

### DERIVATIVE RISK CONSIDERATIONS

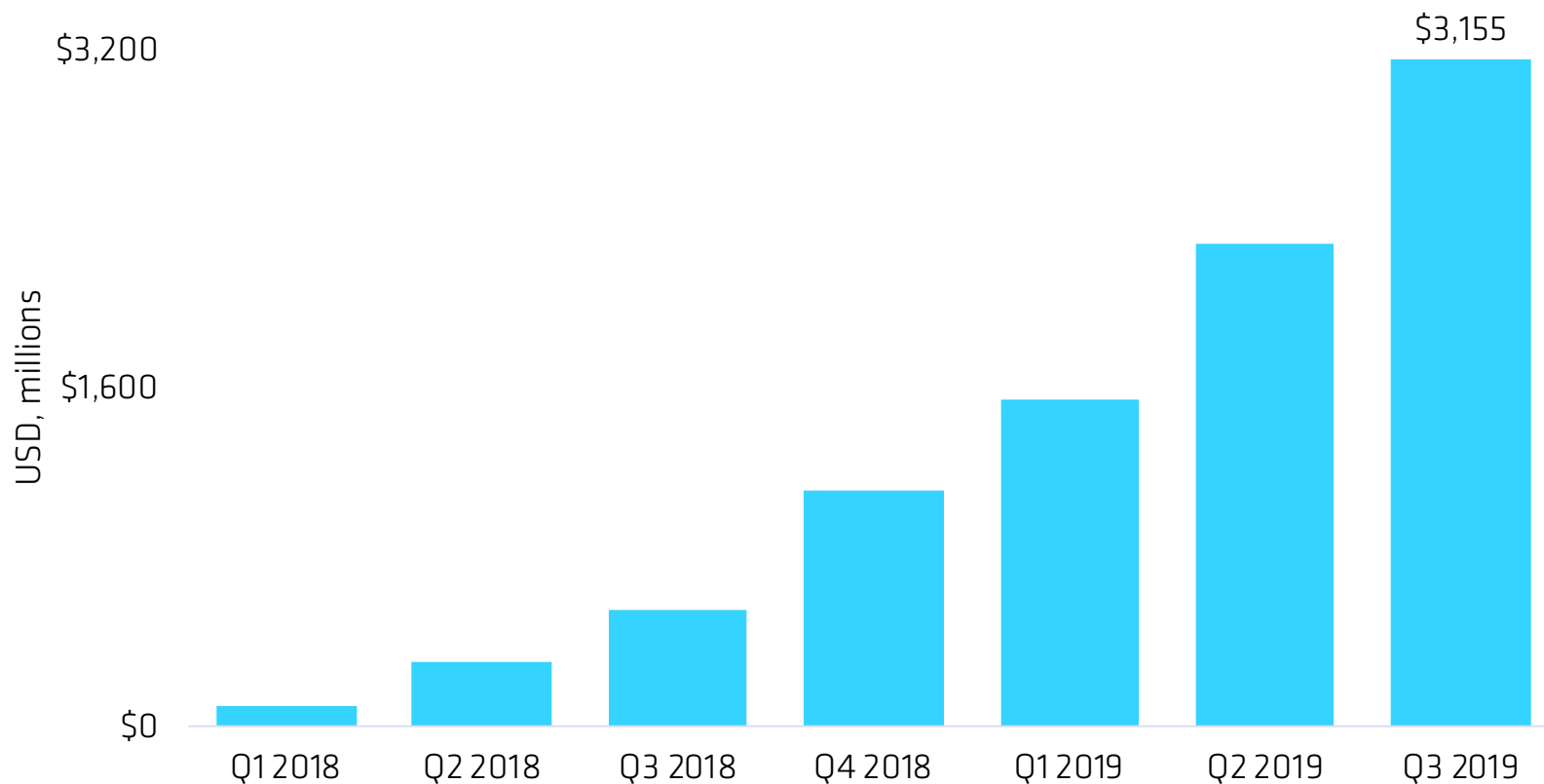
| RISK                    | DESCRIPTION  |
|-------------------------|--|
| Mark-to-market exposure | <ul style="list-style-type: none"><li>• The close out process may result in realized mark-to-market exposure on the underlying contract</li></ul>  |
| Liquidity risk          | <ul style="list-style-type: none"><li>• Sourcing sufficient liquidity in the market (notional/maturity) to replace the required position that has been closed out following the counterparty's default</li></ul>   |
| Operational risk        | <ul style="list-style-type: none"><li>• Managing close-out of a portfolio</li><li>• Notifying counterparty that default has occurred</li><li>• Replacing transactions in the market</li><li>• Accurately margining transactions</li><li>• Managing on-going valuation disputes</li></ul> |
| Legal Risk              | <ul style="list-style-type: none"><li>• Enforceability of netting/collateral enforcement arrangements</li></ul>  |
| Collateral Risk         | <ul style="list-style-type: none"><li>• Insufficient haircuts on collateral</li><li>• Collateral too closely correlated with counterparty risk</li></ul>   |
| Settlement Risk         | <ul style="list-style-type: none"><li>• 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</li></ul>  |

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



## 5 LENDING IS A GROWING SEGMENT

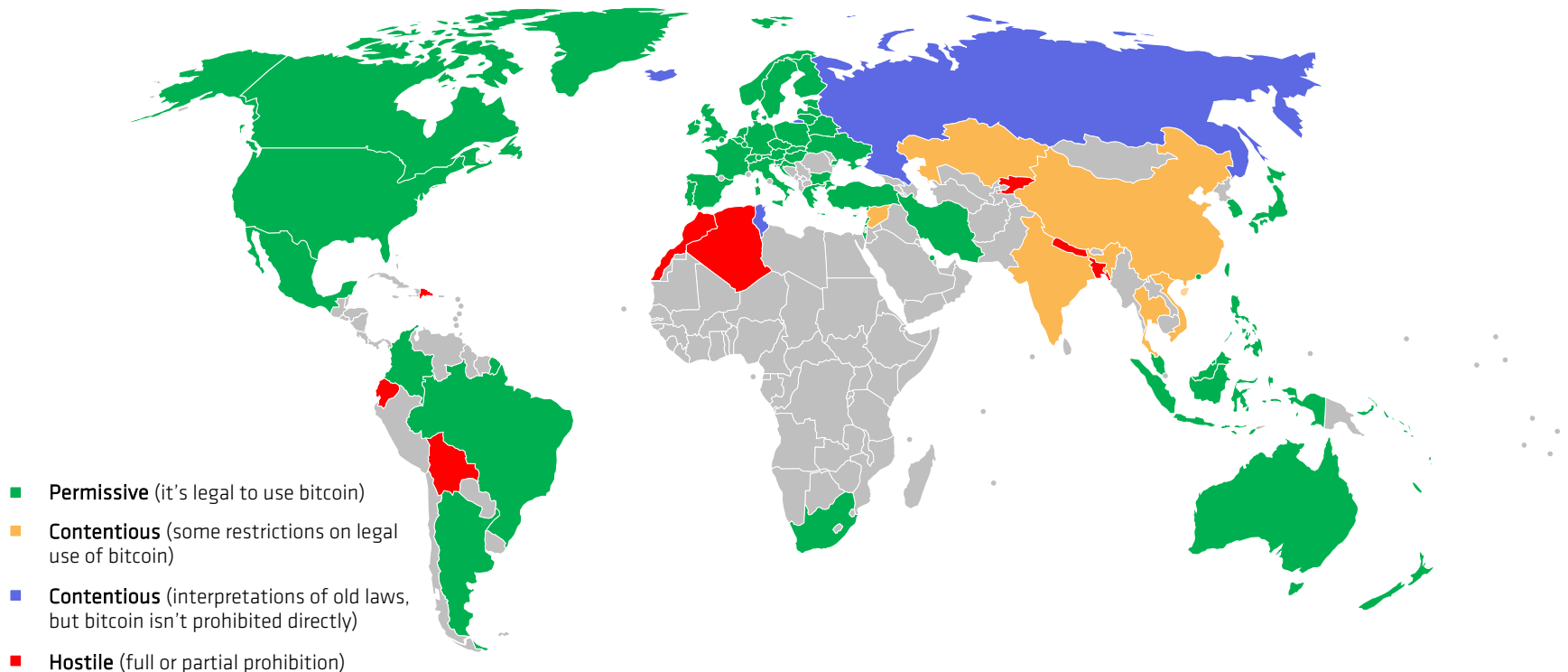
### GENESIS CAPITAL CUMULATIVE ORIGINATIONS



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

## 6 CURRENT BITCOIN LEGAL LANDSCAPE

### BITCOIN LEGALITY AROUND THE WORLD



The lack of global coordination in bitcoin regulation makes it challenging to deploy solutions on a global scale

## 6 WE EXPECT INCREASED REGULATION

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### 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

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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

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## 7 REMEMBER THIS SCENE FROM MR ROBOT?

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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.

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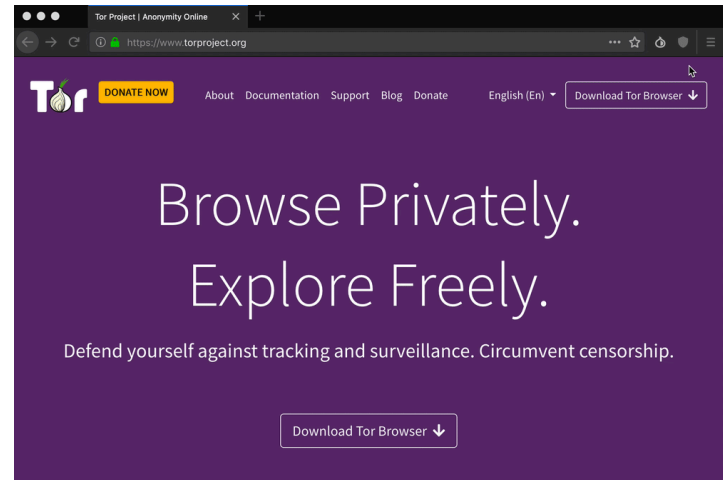
## 7 EXPECT SURVEILLANCE MONEY, AND SOON

| CORPORATE   | COIN TYPE & PEG                   | DESCRIPTION   | # USERS                               |
|---|-----------------------------------|---|---------------------------------------|
|    | 1 Libra = 1 unit of stable basket | Libra coin backed with a pool of assets, Libra Foundation, and Calibra wallet         | 2,700M                                |
|    | 1 JPMCoin = 1 USD                 | Internal use only, for now – used to settle “smart contract” bonds                    | 30,000 middle market, 1,700 corporate |
|    | 1 Rakuten Coin = TBD              | The online giant’s \$9B loyalty program will be rolled out on a blockchain            | 102.6M                                |
|    | 1 S Coin = TBD                    | Will allow for mobile phone payments, and also allows others to mint their own tokens | Unknown                               |
|  | 1 TON = 1 TON                     | Telegram’s TON token allows in application use  | 250M                                  |

Surveillance capitalism has already permeated our financial lives and will be unstoppable once tokenized payments are integrated into popular platforms

## 7 BUT EXPECT TOOLS FOR THE RESISTANCE, TOO

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Many companies are working to build tools to protect personal privacy and freedom of expression in all forms using technology

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There is no final one; revolutions are infinite.

*- Yevgeny Zamyatin, Sci-Fi Author*

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# GET IN TOUCH

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