Cryptocurrency

Sujit "Bob" Chakravorti
Chakra Advisors LLC

National Institute of Bank Management
Pune, India
December 17, 2019

How to Evaluate New Financial Products

- Compare existing products or historical products that do not exist anymore

- What are these innovations trying to improve?

- Why have previous attempts failed?

- Do these innovations pose any policy concerns?

What is Money?

- Money solves the double coincidence of wants problem

- Three main functions
  - Means of Payment
  - Unit of Account
  - Store of Value

- Private money can be linked to species, government issued, or nothing

Types of Media of Exchange

	Old	New
Value-Based	Fiat Currency	Cryptocurrency
Account-Based	Debit Cards	Venmo
Credit-Based	Credit Cards	PayPal ?

Money Flower
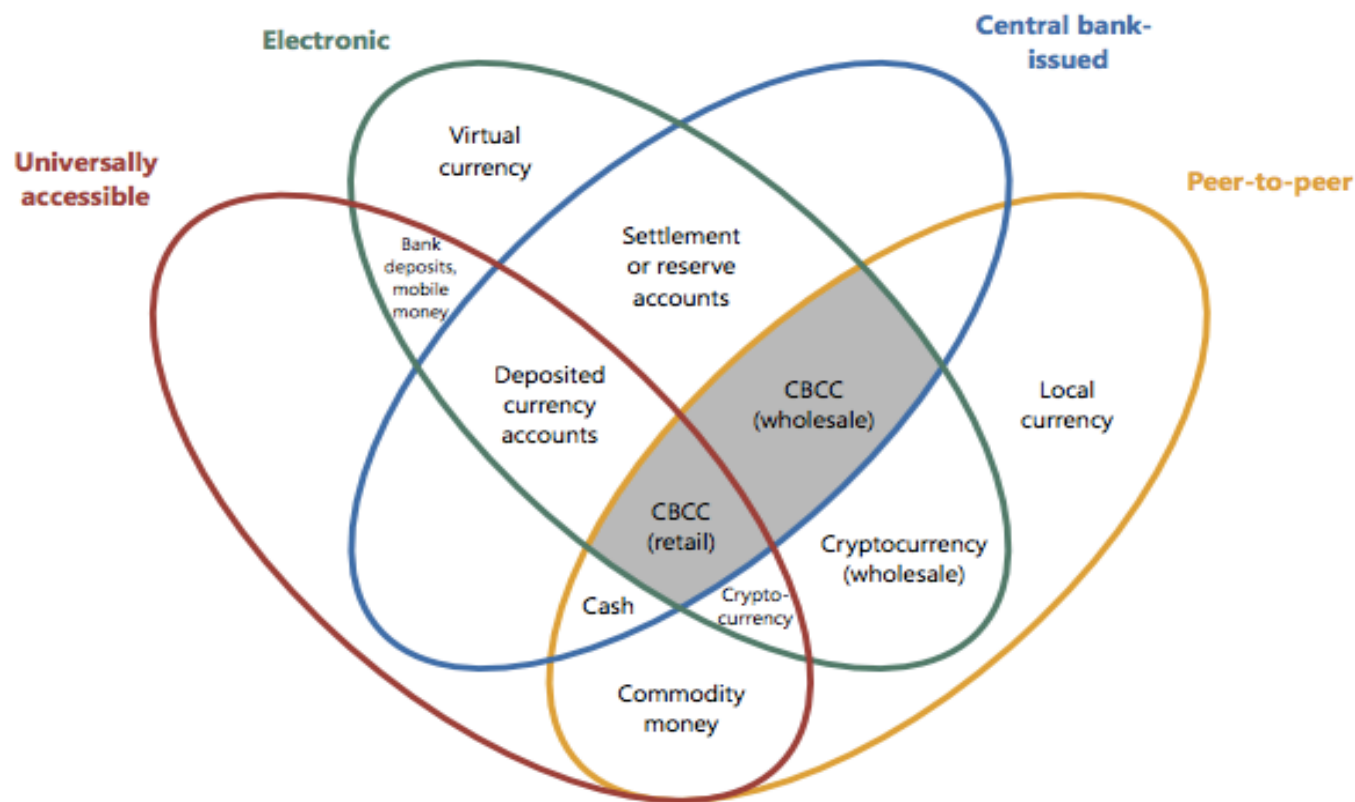
Why Move from Cash?

- Government mandate
  - Improve tax collection
  - Reduce crime

- To transact online (PayPal, Bitcoin, Stripe)

- However, ubiquity is hard to attain

Seigniorage

- Issuer of currency earns seigniorage
  - ▶ Difference between production cost and market value
  - ▶ Earnings on value outstanding

- Private issuers also benefit
  - ▶ Starbucks earns a $1 billion in interest free loans from its stored value
  - ▶ American Express travelers' checks had 7% slippage, i.e. unredeemed or lost checks

What Problem Is Cryptocurrency Solving?

- Eliminate intermediaries, such as financial institutions and governments

- Use cases:
  - ▸ Cross-border payments
  - ▸ Multinational companies doing business in countries with currency issues
  - ▸ Access to electronic payments for low and moderate households
 - ▸ Decentralized payment system without traditional intermediaries

Pessimistic on Bitcoin

- "If you were in Venezuela or Ecuador or North Korea or a bunch of parts like that, or if you were a drug dealer, a murderer, stuff like that, you are better off doing it in Bitcoin than U.S. dollars," he said. "So there may be a market for that, but it'd be a limited market." Jamie Dimon, CEO, JP Morgan Chase

- "Bitcoin is an attempt to replace fiat currency and evade regulation and government intervention. I don't think that's going to be a success … " Ben Bernanke, former Federal Reserve Chair
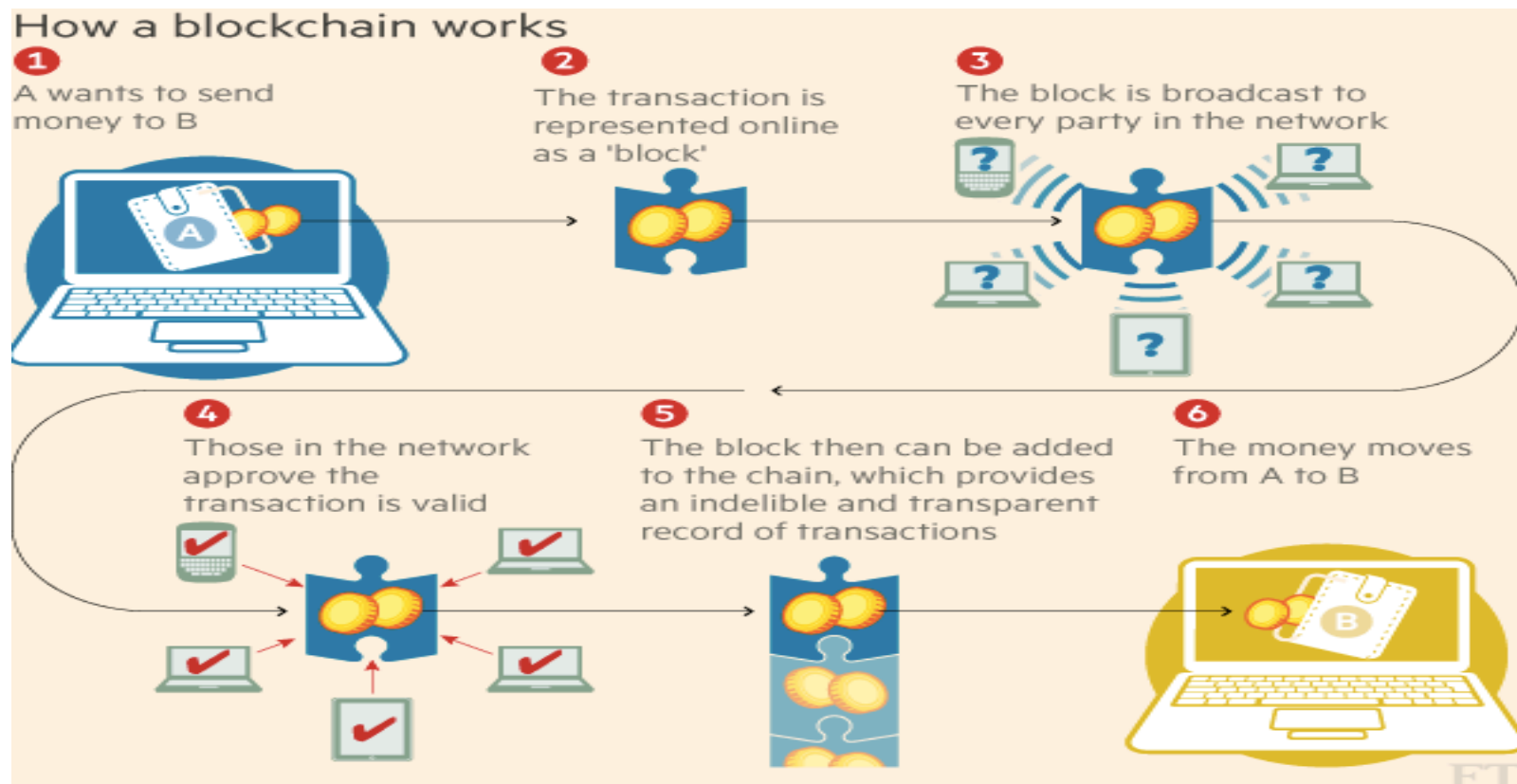
Cryptocurrency

- More than 1,000 cryptocurrencies exist today

- Bitcoin, the most well-known, started at an exchange rate of less than $.01 (5/2010) to its high of $19,783 (12/17/2017) and $10,257 (9/16/2019)

- Although volatile, cryptocurrencies can provide payments and store of value functions

- Useful when governments take extreme measures on their currency

Turnpike
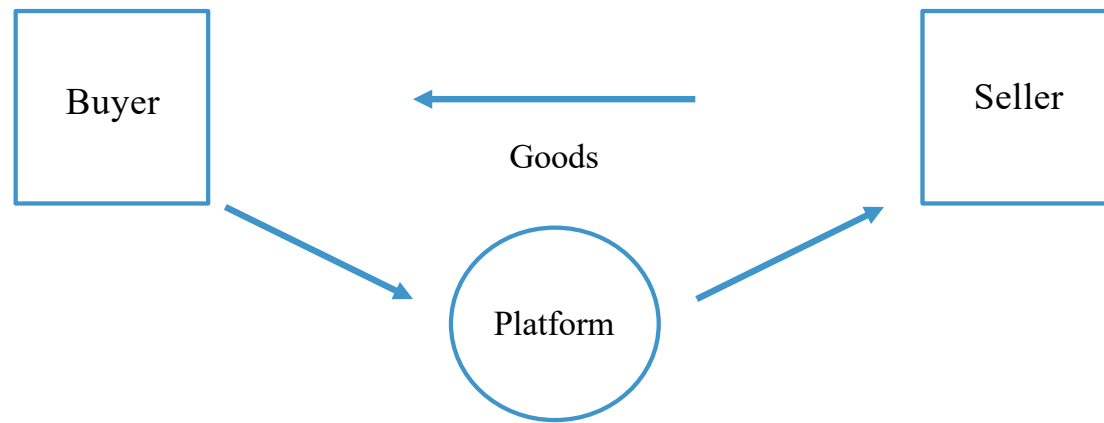
- Entry and exit do not occur in real time
- Use financial institutions to fund accounts
- To use funds outside of platform must exit turnpike
- Incentives to create faster interbank systems

How Money Moves on the Blockchain

How a blockchain works

1 A wants to send money to B

2 The transaction is represented online as a 'block'

3 The block is broadcast to every party in the network

4 Those in the network approve the transaction is valid

5 The block then can be added to the chain, which provides an indelible and transparent record of transactions

6 The money moves from A to B

FT

Source: Dirk Niepelt, "Blockchain, Cryptocurrencies, and Central Banks: Opportunity or Threat?" *World Economic Forum*, 2016

Acceptance

Taxi in Rome

A Cryptocurrency Use Case: Digital Mint

- [Digital Mint](), Chicago-based, is democratizing access to digital payments via cryptocurrencies in 24 states

- Initially, targeted at low- to moderate-income neighborhoods

- Unbanked consumers benefit from access to digital payments that are necessary for online purchases

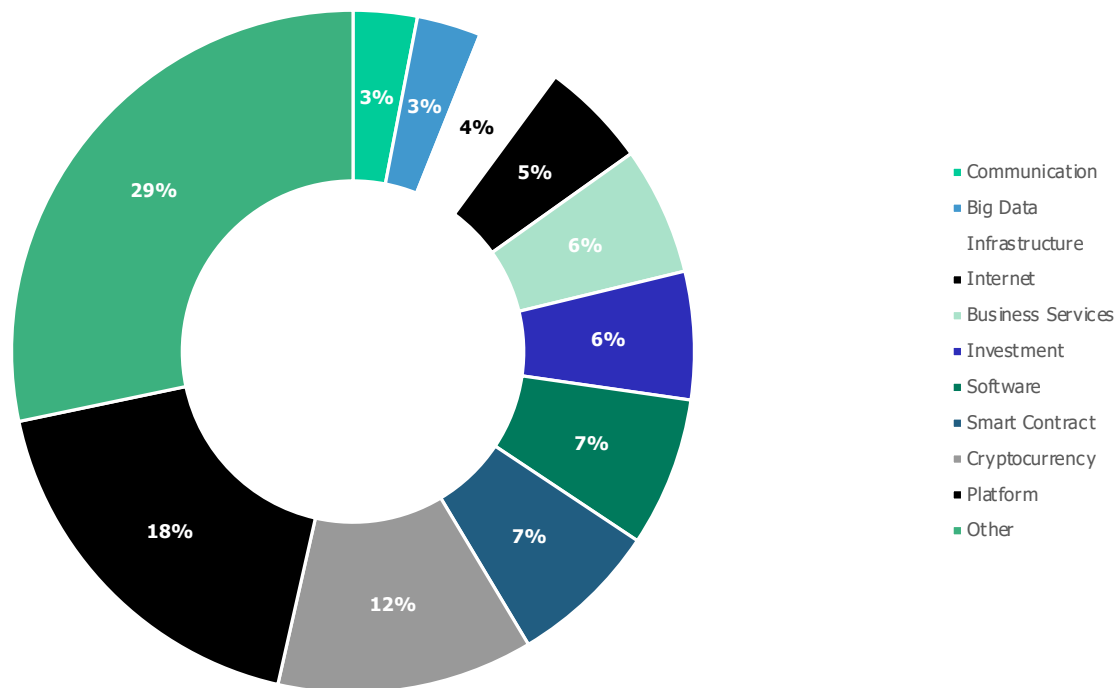- Merchants benefit from lower transactions costs than credit cards

A (Potential) Global Currency: Facebook's Libra

- Libra introduced by Facebook in June 2019 (turnpike)

- Goal: Provide a global currency to the unbanked

- Immediately faced scrutiny by U.S. Congress, Federal Reserve, G-7, BIS and others

- Creating a worldwide ecosystem potential for lending and investment in addition to payments

Cryptotokens

- A token generally backed by a cryptocurrency residing on a platform

- Purchase specific goods and services

- Raise capital like venture capital

- State-contingent smart contracts

- Many details to be worked out and regulatory uncertainties are large

Tokens by Industry Classification

Legend:
- Communication
- Big Data Infrastructure
- Internet
- Business Services
- Investment
- Software
- Smart Contract
- Cryptocurrency
- Platform
- Other

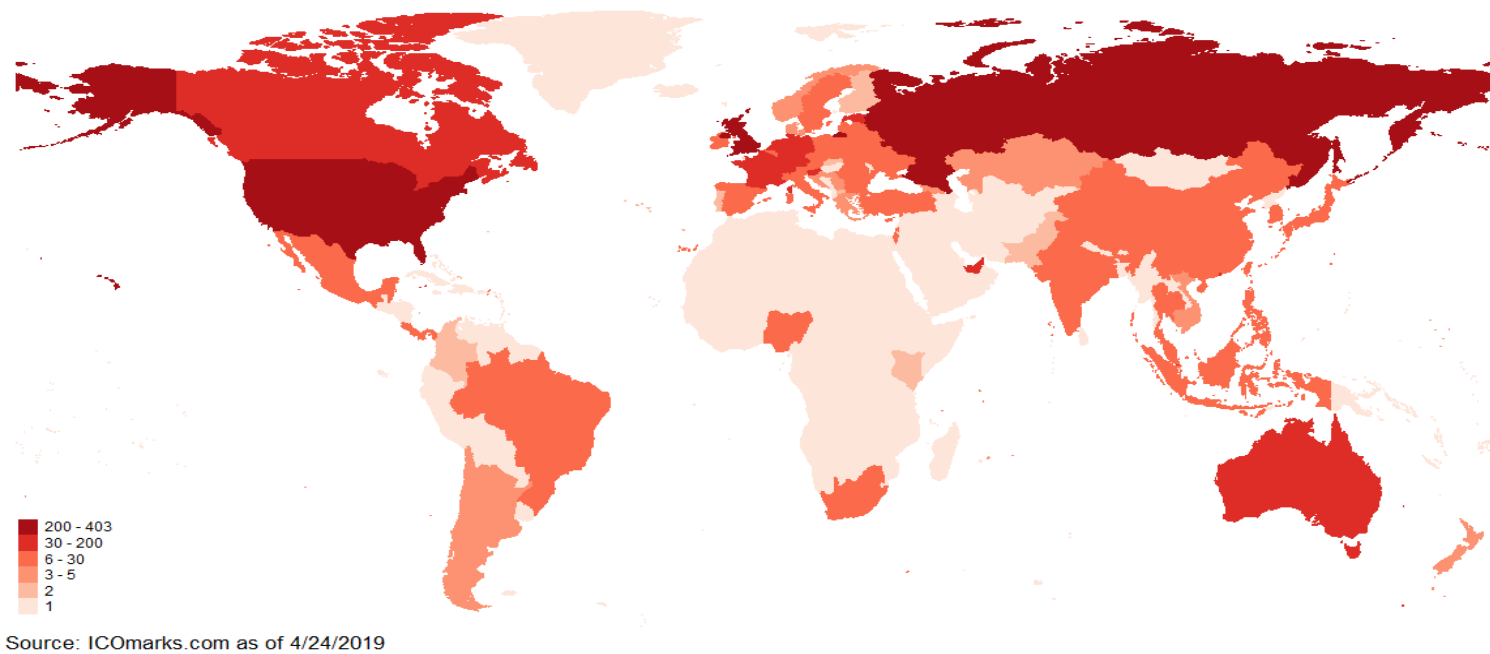Values shown on chart: 3%, 3%, 4%, 5%, 6%, 6%, 7%, 7%, 12%, 18%, 29%

Source: ICOmarks.com as of 4/24/2019

Source: Biasi and Chakravorti (2019), The Future of Cryptotokens, *International Finance Review*, forthcoming.
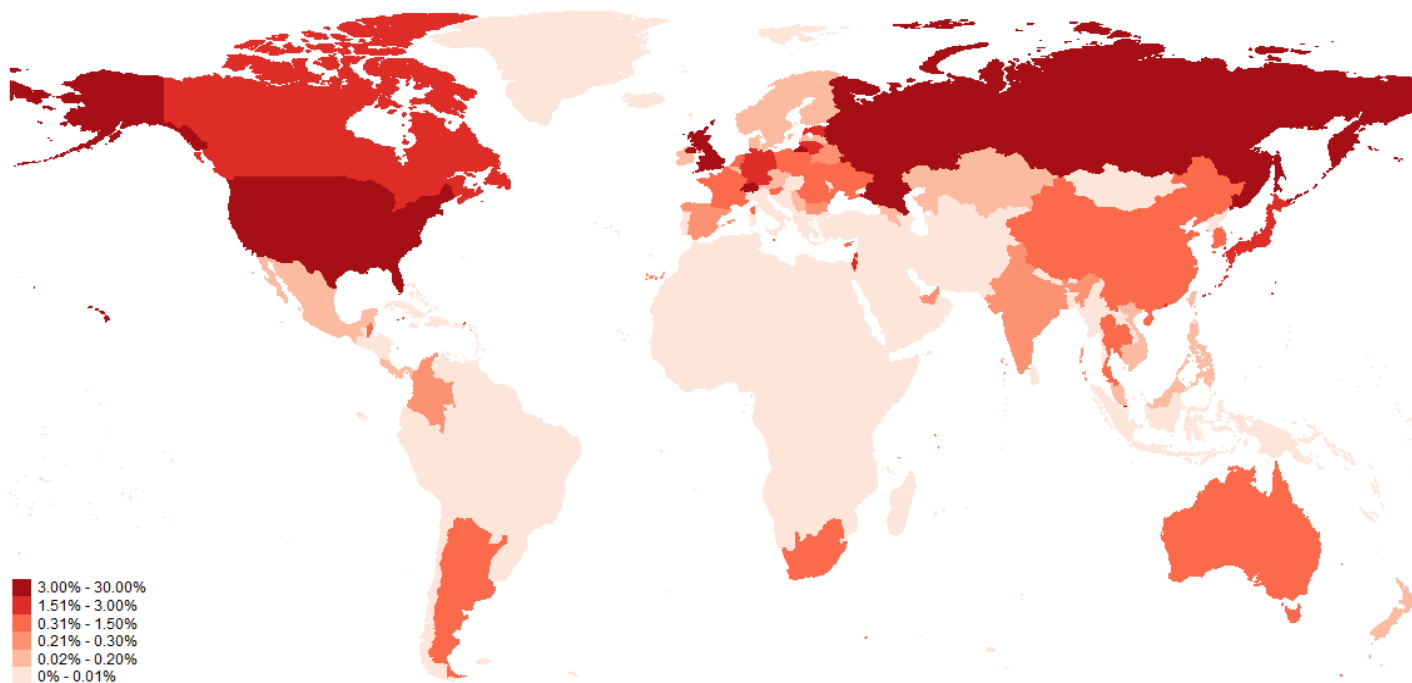
Number of Cryptotokens Issued by Country
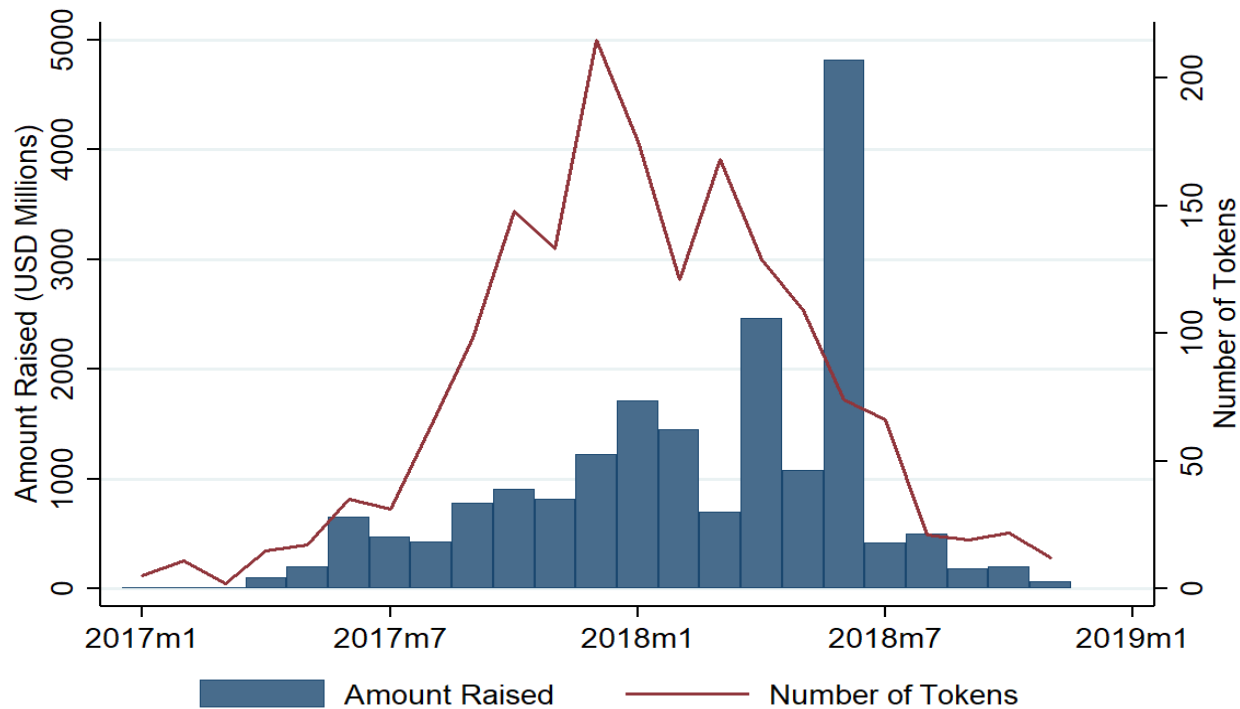

200 - 403
30 - 200
6 - 30
3 - 5
2
1

Source: ICOmarks.com as of 4/24/2019

Source: Biasi and Chakravorti (2019), The Future of Cryptotokens, *International Finance Review*, forthcoming.

Dollar Value of Cryptotokens Issued by Country

3.00% - 30.00%
1.51% - 3.00%
0.31% - 1.50%
0.21% - 0.30%
0.02% - 0.20%
0% - 0.01%

Source: ICOmarks.com as of 4/24/2019

Token Inflows by Value and Number

Source: tokendata.io as of 4/24/2019

Positive Events Correlated with Token Market Cap

Source: coinmarketcap.com as of 4/24/2019

Negative Events Correlated with Token Market Cap

Source: coinmarketcap.com as of 4/24/2019
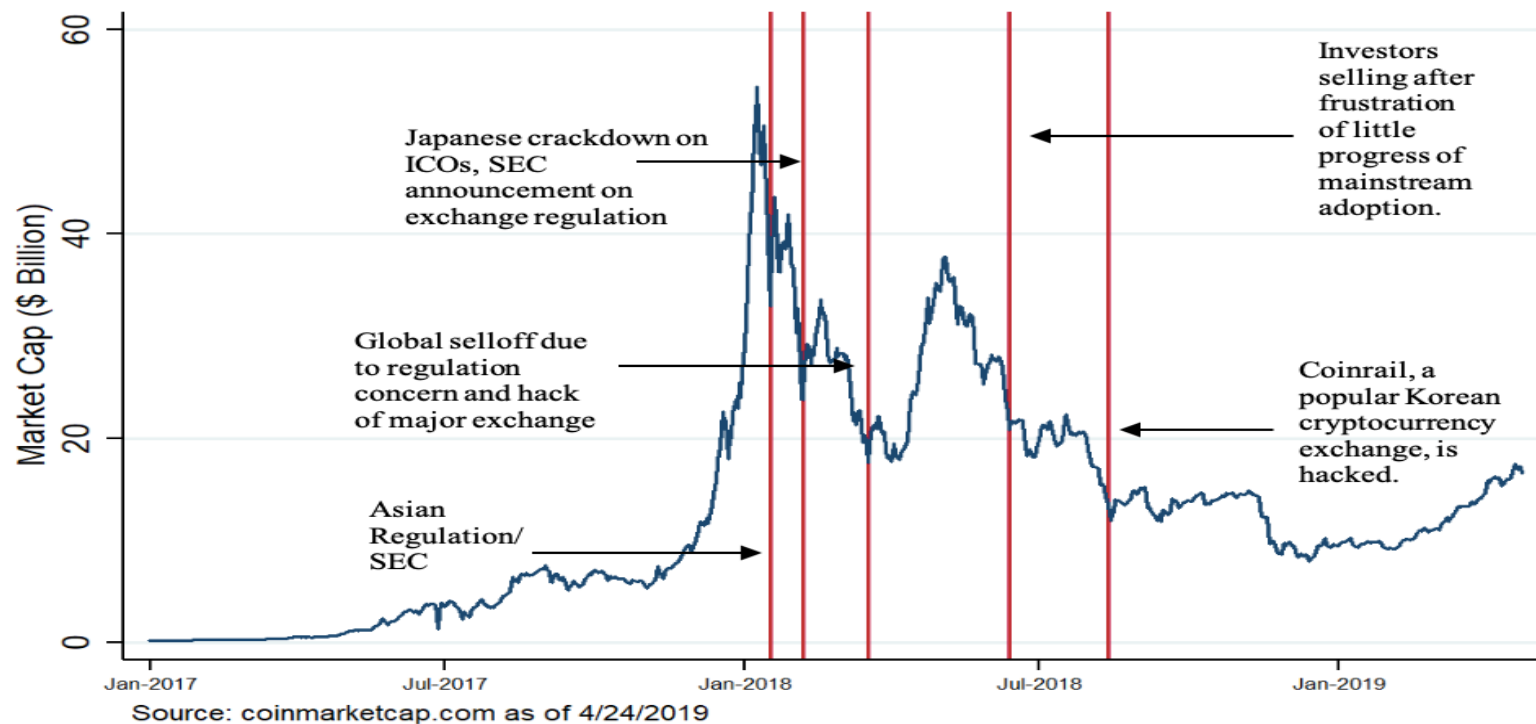
Source: Biasi and Chakravorti (2019), The Future of Cryptotokens, *International Finance Review*, forthcoming.

Token Market Cap Volatility Unadjusted and Adjusted for Ether Volatility

Source: coinmarketcap.com as of 4/24/2019
Bars denote months of January and April, 2018

Legend: Market Cap — Market Cap Adjusted

Source: Biasi and Chakravorti (2019), The Future of Cryptotokens, *International Finance Review*, forthcoming.

Smart Contracts (not new concept)

- Delivery of payment against delivery of goods and services is a key issue for many types of transactions

- Smart contracts allow for automated contingent processes based on coded programs based on agreed upon contractual terms

- Will smart contracts keep lawyers busy or unemployed?

Policy Issues

- Are these securities, donations, or something else?

- Volatility based on underlying asset or company value

- Any explicit or implicit safety net

- Culture of these products are like VC investments—only a few will succeed

Conclusion

- Cryptocurrency shows enormous promise but faces obstacles such as transaction speed, critical mass, and a consistent regulatory framework

- Initiatives like Facebook's Libra have woken up regulators

- Hybrid models for niche markets such as interbank fx markets are developing

- Genie is out of the bottle and we cannot put it back