The Impact of Blockchain Technology on Finance: A Catalyst for Change

21st Geneva Report on the World Economy

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Peterson Institute Presentation  September 26, 2018
“I've been working on a new electronic cash system that's fully peer-to-peer, with no trusted third party.”
Internet Protocols: A new layer?

- Bitcoin: 2009
- SSL / TLS: 1996
- HTTP: 1990
- TCP/IP: 1974
- Ethernet: 1974

- PayPal: 1998
- Amazon: 1995
- Cisco: 1984
- America Online: 1979
What is a blockchain?

- Timestamped append-only log
- Auditable database
- Consensus protocol

Secured via cryptography:
- Hash functions for tamper resistance and integrity
- Digital signatures for consent
- Consensus for agreement

Addresses ‘cost of trust’
(Byzantine Generals problem):
- Permissioned
- Permissionless
Blockchain Technology

• Verifiably moves ‘data’ on a decentralized network

• The ‘data’ can represent value or computer code

• Thus it goes directly to the plumbing of the financial sector and money

• It can be a catalyst for change in the world of finance and money

• Broad adoption rests on addressing technical, commercial and public policy hurdles
Financial Sector Challenges => Blockchain Potential Opportunities

- Centralized intermediaries’ concentrate risks & economic rents
- Central Bank legacy payment systems
- Clearing & settlement systems’ costs & counterparty risks
- Repeated crises and instability
- Fiat currency instabilities associated with unsound policies
- Financial inclusion

- Payment system costs: $\frac{1}{2} - 1\%$ of Global GDP
- Financial sector costs: $7\ 1/2\%$ of U.S. GDP
Financial Sector Issues with Blockchain Technology

• Performance, Scalability, & Efficiency
• Privacy & Security
• Interoperability
• Governance
• Commercial Use Cases
• Public Policy & Legal Frameworks
Financial Sector Currently Favors

**permissioned** blockchains vs. **permissionless** blockchains

- Known set of participants
- No proof-of-work or mining
- No need for a native currency
- Distributed database technology

- Unknown participants
- Security based on incentives
- Native currency
- Crypto-economics
Financial Sector Potential Use Cases

- **Payment Systems** - Cross border, Large interbank, & Retail
- **Central Bank Digital Currency & Private Sector Stable Value Tokens**
- **Secondary Market Trading** – Crypto-exchanges & custody
- **Venture Capital** - Crowdfunding through Initial Coin Offerings
- **Clearing, Settlement and Processing** – Securities & Derivatives
- **Trade Finance & Supply Chain** - Digitizing paper-based processes
- **Digital IDs and Data Reporting**
Initial Coin Offerings – Crowdfunding for Investment & Consumption

• Proceeds used to build networks
• Tokens usually issued prior to being functional
• Development, while open source, is largely centralized
• Promoters allocate themselves ‘premined’ tokens
• Tokens are fungible & transferable
• Scarcity is fostered with preset ‘Monetary policy’
• Purchasers anticipate profits through appreciation
Incumbents Eying Crypto Finance

• Crypto’s market cap, trading volume, volatility and spreads are drawing attention

• So has Coinbase’s 20 million accounts, about as many as Fidelity Investments, twice Charles Schwab and nearly as many as Vanguard

• Startups more willing to beg for forgiveness while incumbents often need ask for permission

• Incumbents interested to serve customer interest; gain a share of profits; & protect their franchises
  
  • Exchanges – CME; Eurex; Intercontinental Exchange; Nasdaq
  
  • Asset Managers – Fidelity
  
  • Investment Banks – Goldman Sachs
Public Policy Framework

• Guarding Against Illicit Activity

• Financial Stability

• Protecting the Investing Public
Global Approach to Crypto Finance
Still Early Stage, but Confidence is Built upon coming within Public Policy Norms

- Guarding Against Illicit Activities
  - Broad Consensus on Policy
  - Inconsistent on Implementation

- Financial Stability
  - General Consensus to Monitor
  - Different Perspectives, though, on Level of Risk

- Protecting the Investing Public
  - Wide Range of Views on ICOs & Exchanges
  - Japan, U.S., & Others Moving to Regulate Exchanges
  - U.S. & Canada seeking to bring ICOs within Securities Laws
Crypto Public Policy Challenges

Illicit Activity, particularly on Decentralized Exchanges
Tax Compliance and Reporting
Markets Readily subject to Fraud, Scams, and Manipulation
Exchange and Wallet Custodial Arrangements
Beneficial Ownership of Crypto Assets
Remediation of Non compliant ICOs & Exchanges
Personal Data Privacy (e.g. GDPR)
Adapting Existing Laws & Regulations, where appropriate
Staying Abreast of Technological Developments
International Regulatory Arbitrage
Crypto Exchanges

• Critical gateway to implement public policy & instill confidence.

• Responsible for vast majority of crypto secondary market.

• Greater than 30 million direct members.

• Lack brokered access or meaningful market integrity rules.

• Custodial wallets are honey pots for hacks.

• Decentralized exchanges present new opportunities & policy risks
Central Bank Digital Currency

• Central Banks already issue digital reserves to commercial banks

• Stable Value Tokens are being Promoted by Private Issuers

• Strategic consideration: Should access to digital reserves be expanded?

• Design considerations:
  • Widely accessible vs. Wholesale
  • Token or Account based
  • Interest bearing or Not
  • Level of account services
Central Bank CBDC Concerns

• Potential of pro cyclical runs to CBDC
• Changes to commercial banks’ deposits and funding models
• Effects on credit allocation and overall economy
• Monetary policy implementation & transmission
• Resilience of open payment infrastructures
• Guarding against illicit activity

• Central Bank Digital Currency, though, likely will be seen in adoption
Conclusions

• Blockchain technology provides P2P alternative & addresses ‘costs of trust’
• Financial sector has had challenges of resilience, costs and inclusion
• Fiat currency has had challenges & instabilities as well

• We already live in an electronic currency age
• Money is but a social & economic consensus

• Blockchain technology - along with crypto finance - can be a catalyst for change
• Broad adoption rests on addressing technical and commercial challenges
• Public confidence is built upon coming within public policy norms

• Though Development may wildly Swing & much Hype Masquerades as Fact, the Underlying Potential of Blockchain Technology for Change is Promising
• Incumbents will invest, start-ups continue & over the long term the greater public benefit