Digital Banking and Fintech
Challenges and Threats for the Banking System
Banco de Portugal Workshop

Fintech, Virtual Currencies and Beyond: Initial Considerations

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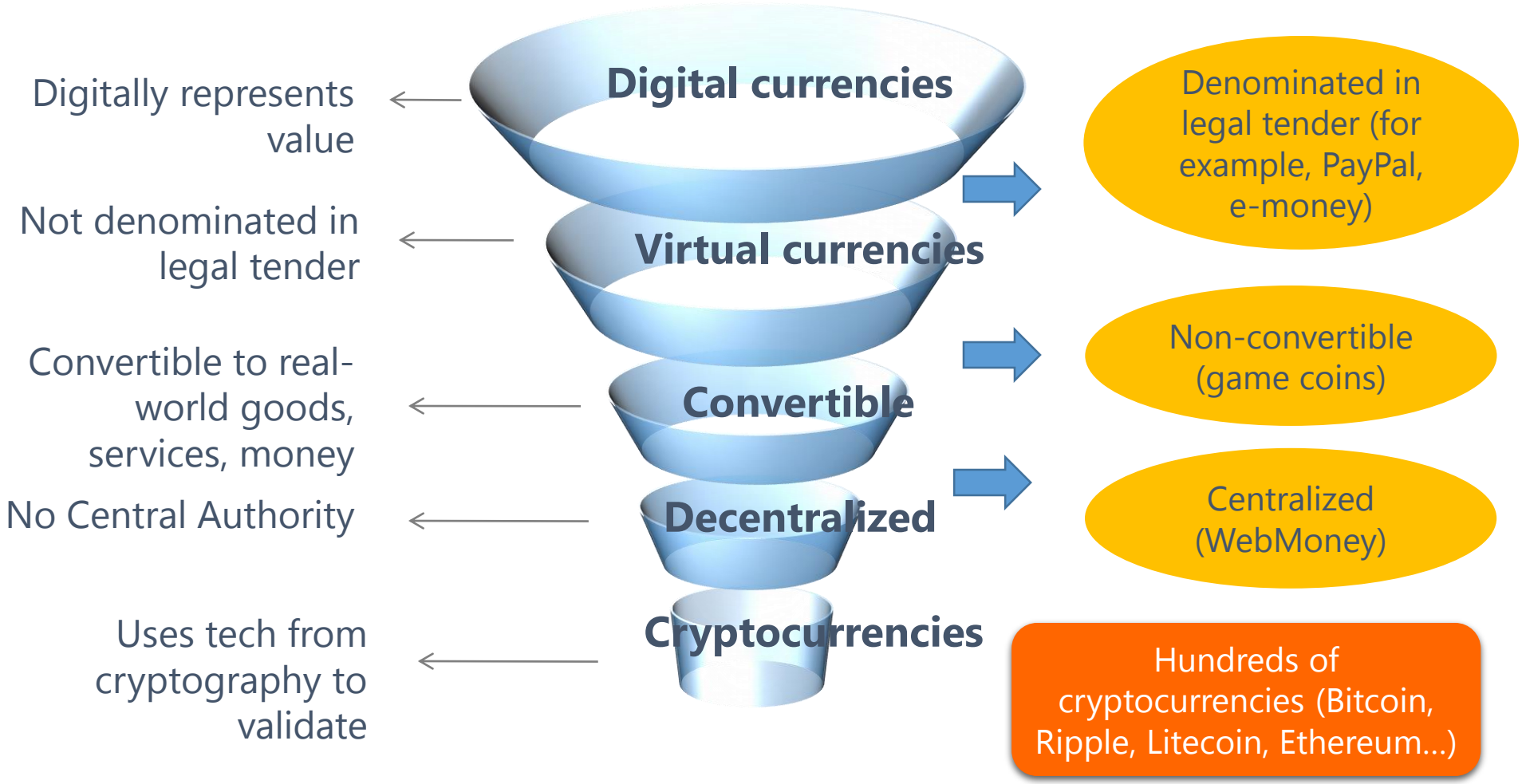
Background: Development in finance and Technology

Prominent fintech categories

Payments, clearing & settlement	Deposits, Lending & Capital Raising	Market Provisioning	Investment Management
Mobile and Web Based Payments	Crowdfunding	E-aggregators	Robo advice
Digital Currencies	Peer to Peer lending	Smart contracts	E-trading
Distributed ledger uses	Digital currencies	Big Data	Smart contracts
	Distributed ledger uses	Cloud computing	
		Digital ID verification	

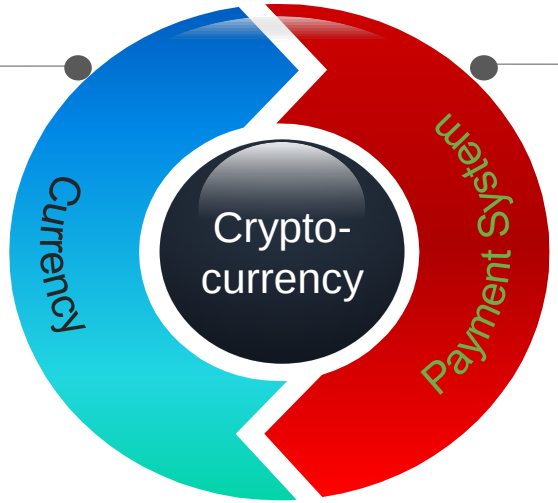
Source: FSB

What are virtual currencies?



Source: IMF staff.

Two distinctive roles of cryptocurrencies



Currency

- "Private money"
- No personal or national backing
- Not legal tender, not legally "money"
- Computer algorithm determines supply. Usually inflexible.

Payment System

- Innovative payment system (distributed ledger, blockchain)
- Largely open and anonymous (can be made closed with known identity)

Are virtual currencies money?

They do not yet completely fulfill the economic roles of money

Store of value

- High price volatility
  - No intrinsic value
  - No national or private backing
  - Inflexible supply
  - Unpredictable demand, hoarding
  - No lender of last resort

Medium of exchange

- Small size
  - Total market value US$ 11 billion
  - US$ currency in circulation US$ 1½ trillion
- Limited acceptance (not legal tender)

Unit of account

- Still limited use

What is Blockchain

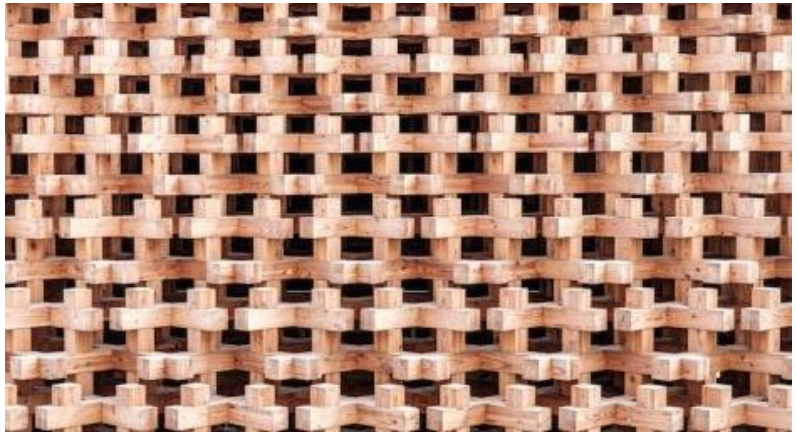
A blockchain is a time-stamped, un-forgeable proof of ownership;

Keeps a complete record or database that contains the entire logged history of transactions on the system.

Each transaction processor on the system maintains their own local copy of this database

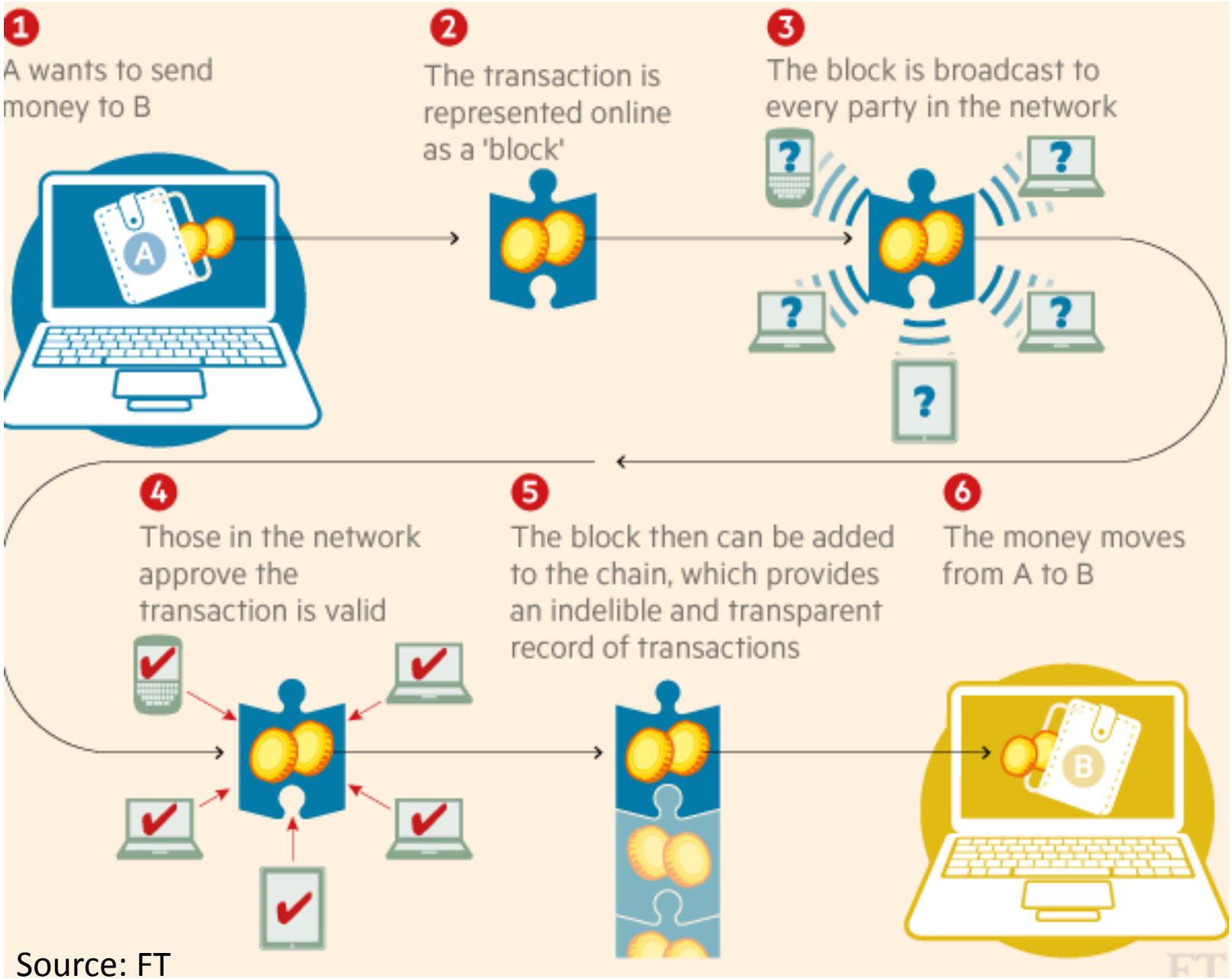
A consensus formation algorithms enable every copy to stay in sync

Blockchain (Continued)



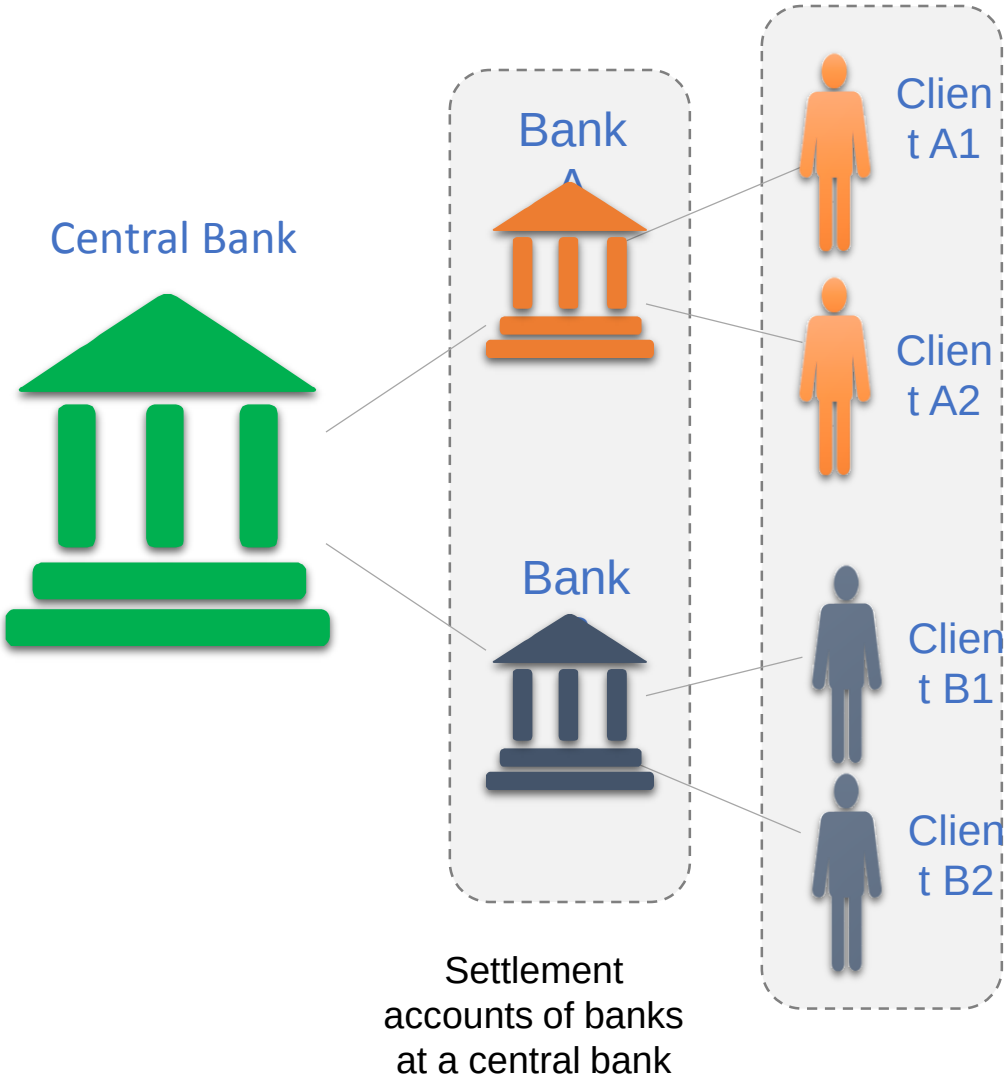
- Blockchain use in smart, self-executing contracts—for instance, travel insurance that pays automatically if a flight is cancelled, or a car loan that disables the ignition if payments are missed.
- Allows applications that permit direct transfers between market participants rather than through a third-party central ledger, traditionally the role of banks and central banks.

How the Blockchain works



Source: FT

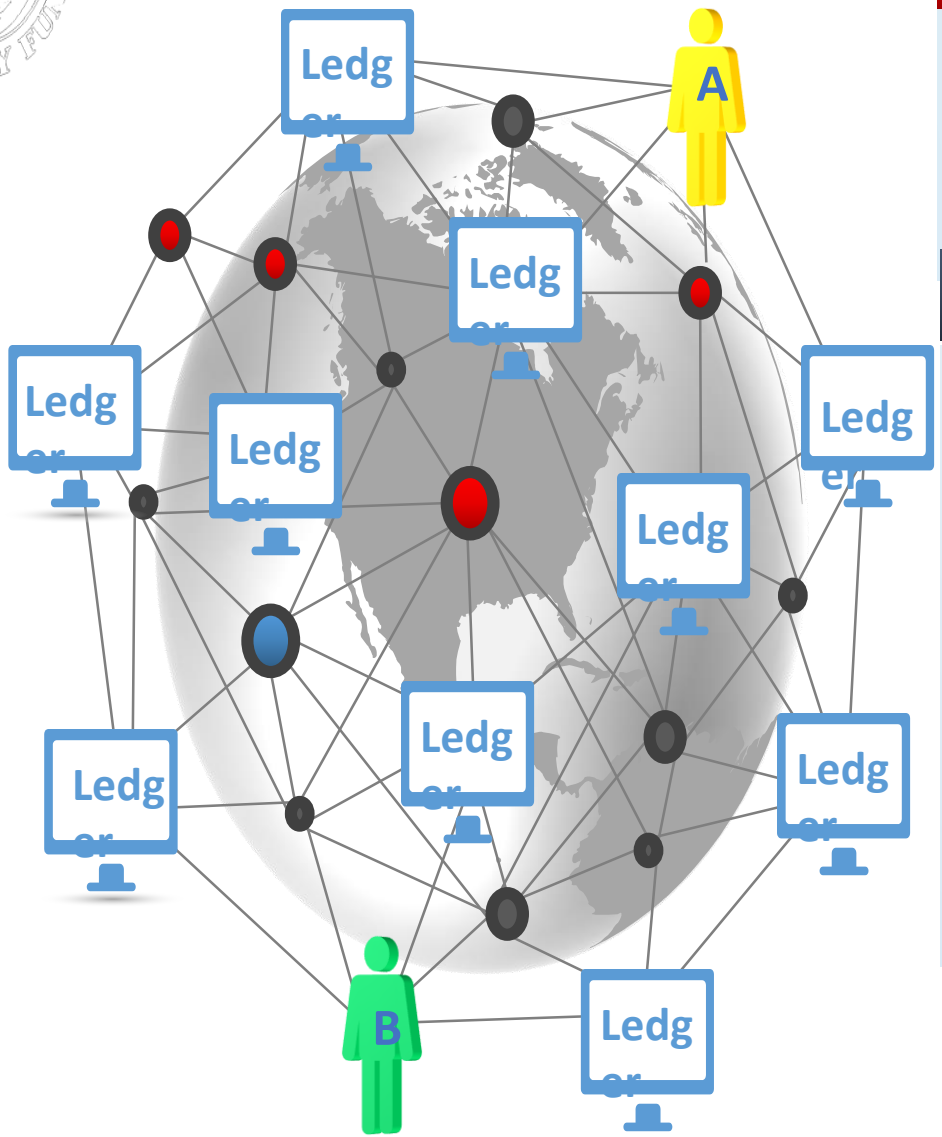
Centralized payment systems….this is what we have now



Central bank

- Interbank payment from A to B: central bank moves money from A's account to B's
- Maintains central record (ledger) of interbank transactions
- Trust in the central bank is key

Distributed ledger system (Blockchain)—How does it work?



Distributed ledger?

Copies of transaction records (ledgers) on multiple computers in the network.

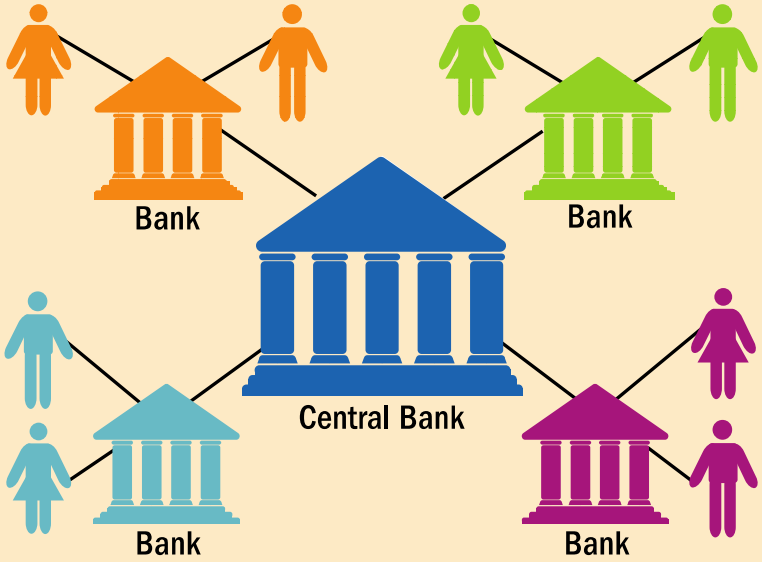
A sends Bitcoin to B

- Transaction settled by a multitude of individuals ("miners") providing computing resources to the network
- Miners use techniques from cryptography to validate transactions.
- "Trust" is created by making tampering attempts prohibitively expensive for miners through costly competition

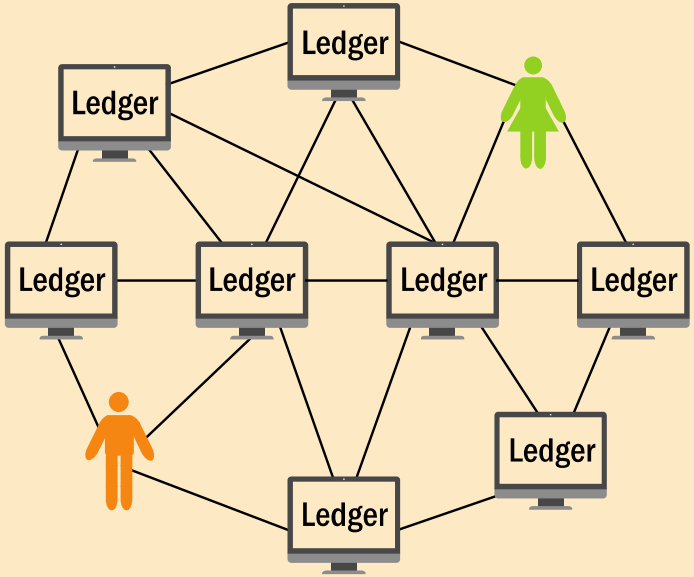
Spreading the burden

In traditional banking, the central bank tracks payments between clients; in blockchain banking, transactions are recorded on multiple network computers and settled by many individuals.

Centralized payment system



Blockchain (distributed ledger) system



Source: IMF F&D magazine, June 2016

The blockchain lets people who have no particular confidence in each other collaborate without having to go through a neutral central authority. Simply put, it is a machine for creating trust.

Economist Oct. 31st, 2015

Financial Inclusion

- Promises to fill the gap where traditional finance was unable or unwilling to tread.
- For example, mobile technology has allowed many citizens in remote regions or in developing countries to gain access to financial services for the first time.
- have targeted consumers that traditional financial institutions had underserved or pulled back from. These Peer-to-peer (P2P) lenders match lenders directly with borrowers over the Internet.
- With little overhead, they may be able to offer higher returns to lenders and lower interest rates to borrowers than traditional financial institutions

Green Finance

Opportunities for greater decentralization in the transition to sustainable development.

Supporting venture capital and social impact funds to fund start-ups with specific sustainable development ambitions

Promise of substantial efficiency gains in the financial sector particularly in the areas of payments, financing, investments, asset management and insurance

Its potential for deepening financial inclusion are key drivers of investment.

Risks and Regulatory Challenges

Virtual Currency

- Immediate risks
  - financial integrity
  - consumer protection
  - tax evasion
  - exchange and capital controls

- Less immediate risks: financial stability and monetary policy

VCs are difficult to regulate

Definitional Challenge

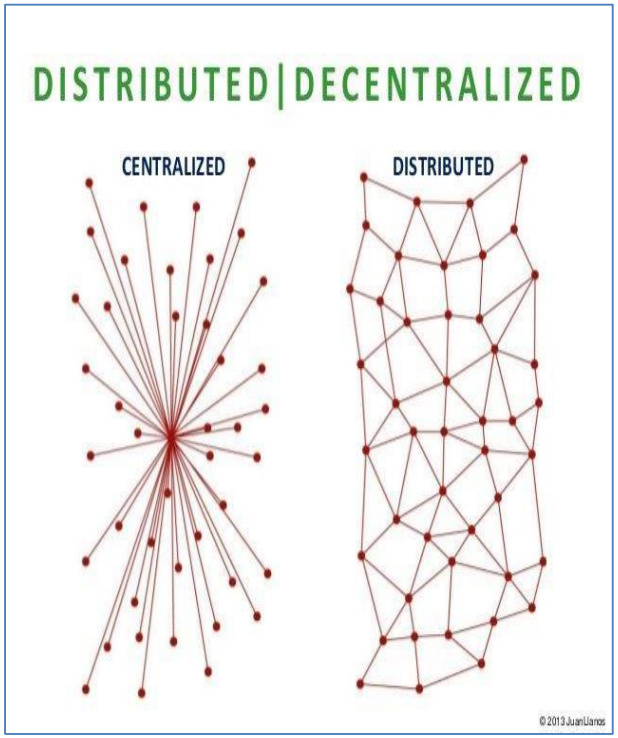
VCs combine properties of currencies, commodities, and payment systems

Difficult to monitor

Lack of statistical data

Transnational Reach

Asserting jurisdiction and enforcing laws and regulations in a “virtual” (online) environment



Cryptocurrencies pose additional challenges

Pseudo-anonymous and Opaque

Decentralized nature - No central authority to regulate

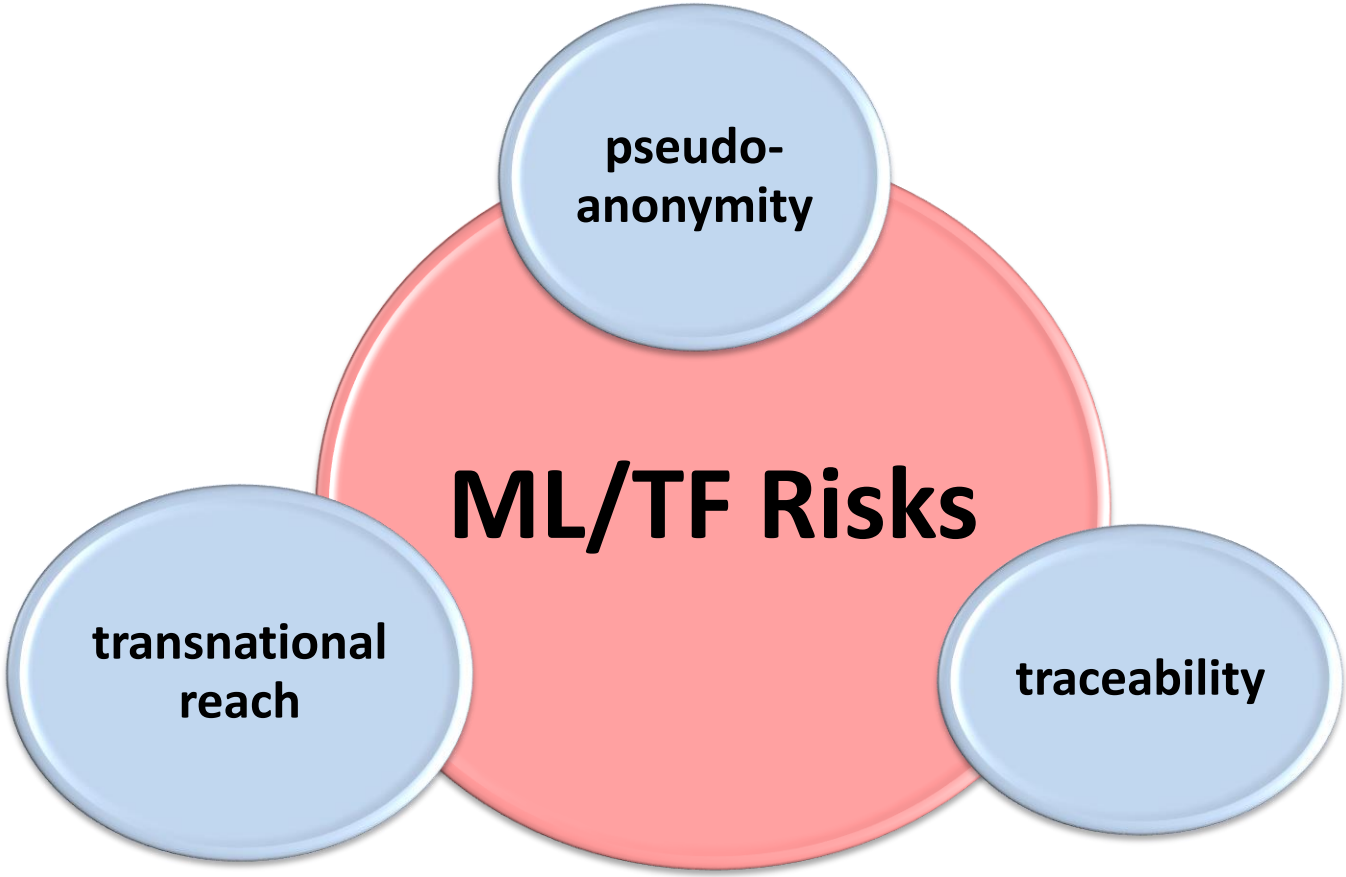
Risks

- Disruption of business models of established financial institutions, and could lead to a migration of activities outside the regulated sector.

- Increased adoption could also lead to unintended consequences in financial markets.

- Virtual Currencies in particular may also pose risks related to money laundering, terrorist financing, tax evasion, circumvention of capital controls and other forms of illicit activity

Financial Integrity-AML/CFT



* Risks are particularly acute in the case of cryptocurrencies

Regulation

- Wide-scale implementation has been limited due to:
  - Uncertainty over the regulatory environment;
  - Lack of standardization of emerging technologies.

- Central banks posture on fintech will play an important role in its expansion.

Regulatory responses have varied

- Banning
- Clarifying the applicability of existing legislation
- Issuing warnings to consumers
- Imposing licensing requirements on certain VC market participants
- Prohibiting financial institutions from dealing in VCs
- Prosecuting violators

Moving forward:

- National authorities need to further calibrate regulation that addresses the risks without stifling innovation
- Role for international bodies and, in due course, standards to facilitate the development of appropriate policy responses

What should Regulators do?

- Do not fear the new technology

- Fintech developments. Sooner or later it will catch up;
- **Monitor closely**
- Dedicate resources to develop knowledge base and tools to understand, analyze, and disseminate fintech information.

- Expand knowledge across departments
- Engage with market participants and innovators in this space.
- Ensure legal mandate to act or react if payment system mandate is insufficient

Regulator Approach

- Adopt a technology agnostic approach.
- Insuring neutrality to the technology being adopted gives greater flexibility to the market to determine the way forward.
- Strike the right balance between managing the risks of fintech and avoiding stifling innovation through overregulation.
- Ensure level playing field.

Approach

- Strike the right balance between managing the risks of fintech and avoiding stifling innovation through overregulation.

- A key emerging risk is regulatory arbitrage and the lack of a common regulatory standard and approach.

- Effective policy coordination will therefore be required at the national and international levels to ensure an effective policy response, a level-playing field, and effective implementation

- In the long-term, regulation would need to address market conduct issues such as AML/CFT and financial integrity, consumer and investor protection, tax evasion and fraud

- but also the financial soundness of fintech startups and initiatives.

- Traditional regulatory models may need to be reconsidered to effectively capture emerging technologies

The world of tomorrow is full of bright promise.

Obrigado