

# Regulatory Reforms and the Evolution of Banking, Money and Payments

*TOWARDS PSD3: THE DYNAMICS OF DIGITALIZED  
PAYMENT SERVICES MARKET*

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## *Moss v. Hancock* [1899] 2QB 111, 116

“Money” is “**that which *passes freely from hand to hand* throughout the community in final discharge of debts**”

... being accepted equally without reference to the character or credit of the person who offers it and without the intention of the person who receives it to consume it ...”

• See also: *Reference Re Alberta Statutes* [1938] SCR 100, 116 [Duff CJ]

“... money as commonly understood is not necessarily legal tender. Any medium which by practice fulfils the function of money and which everybody will accept in payment of a debt is money in the ordinary sense of the words...”

### FFEATURES

- Unit of account;
- Medium of exchange; and
- ▶ Storage of value

# Evolution of Money (means of payments)

## **OBJECTS:**

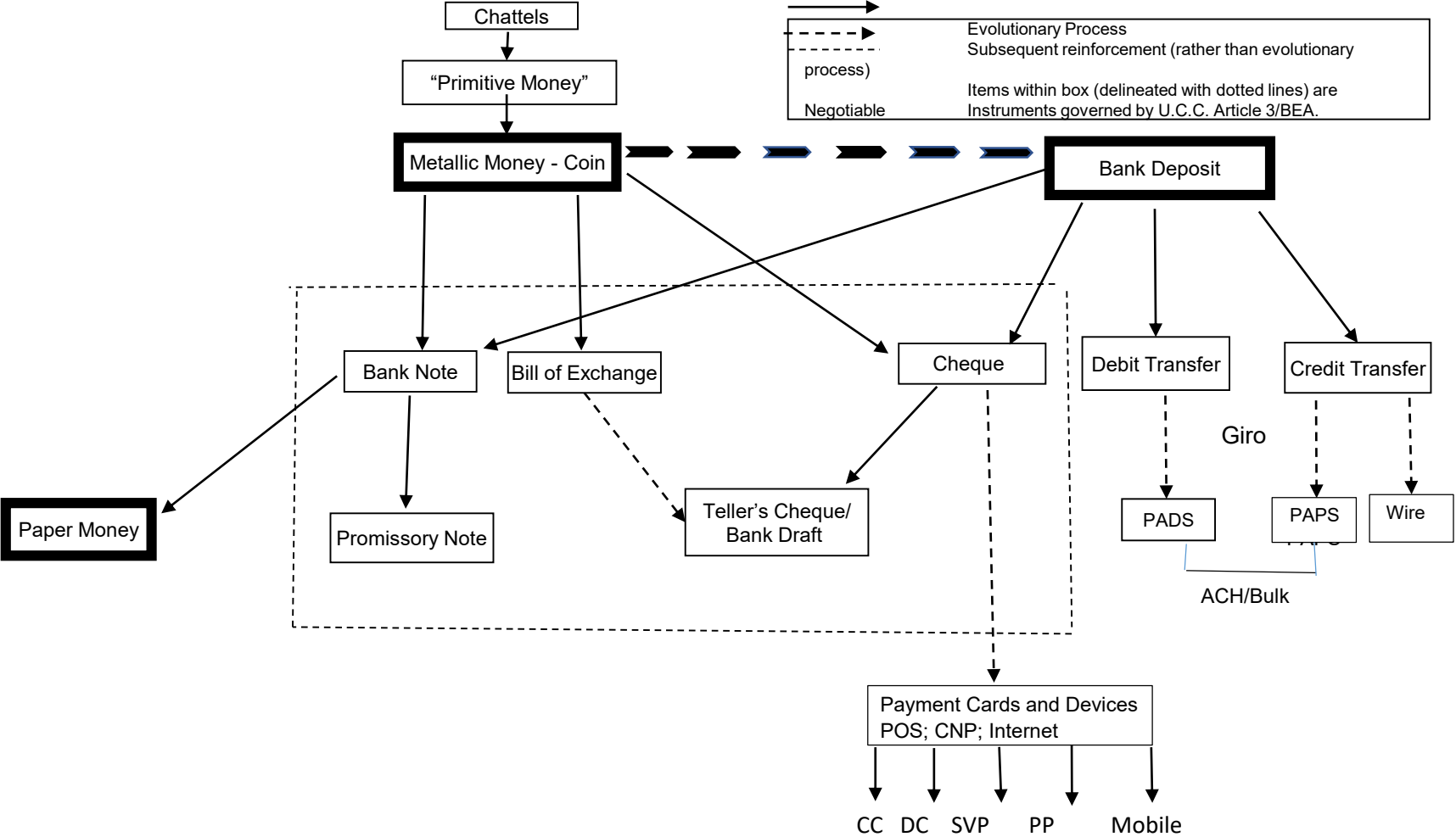
- Bartered goods
- 'Primitive money'
- Weighted and standardized pieces of metal
- Coins
- **Banknotes**

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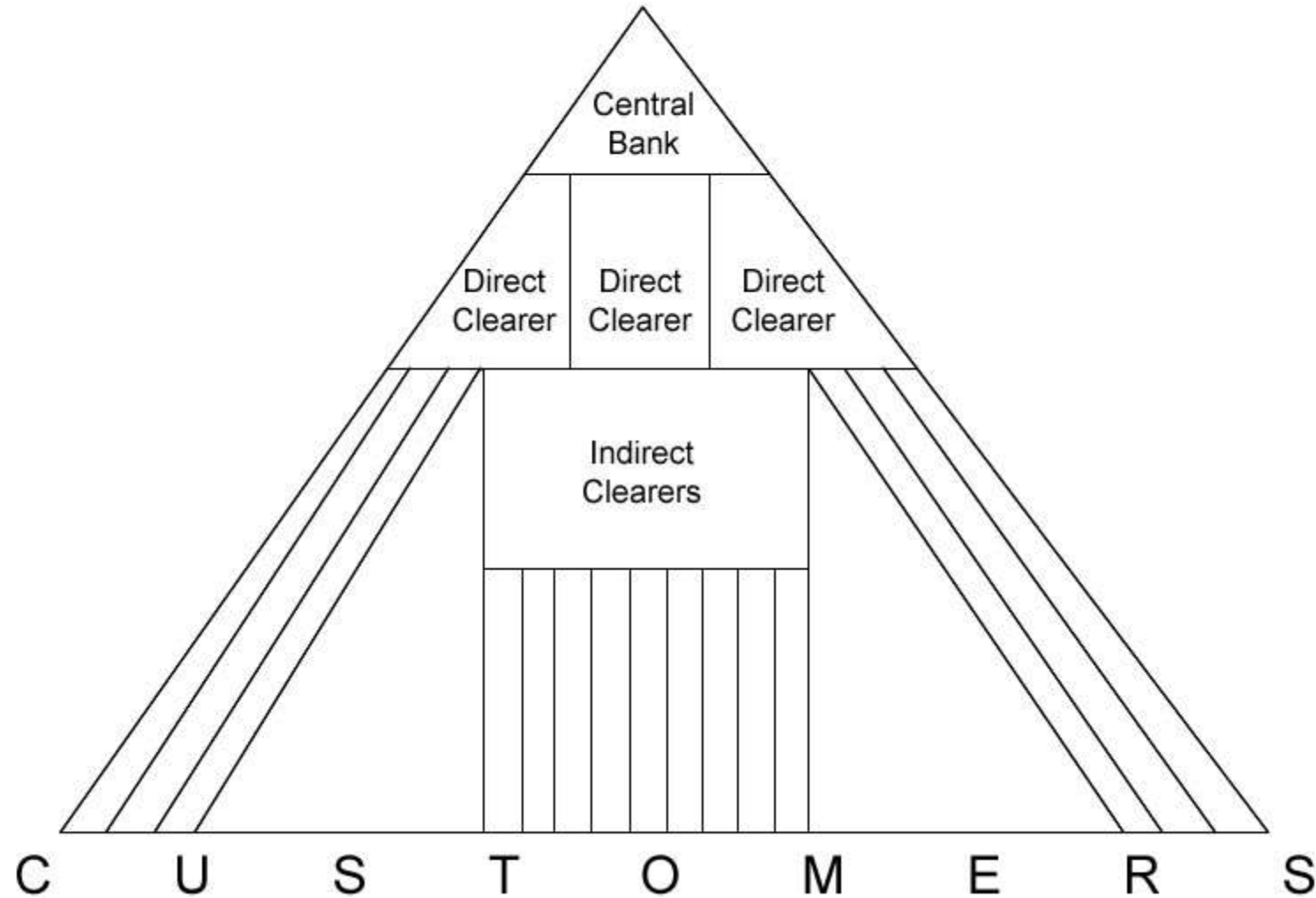
## **MONETARY VALUE ON A LEDGER**

- 'Bank Money'
- E-money
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- Digital Currency

# Evolution of 'Conventional' Money (*means of payment*) and Payment Mechanisms (*methods of payment*)



# Participants in the Domestic Payment System



## Deposit of Money into a Bank Account

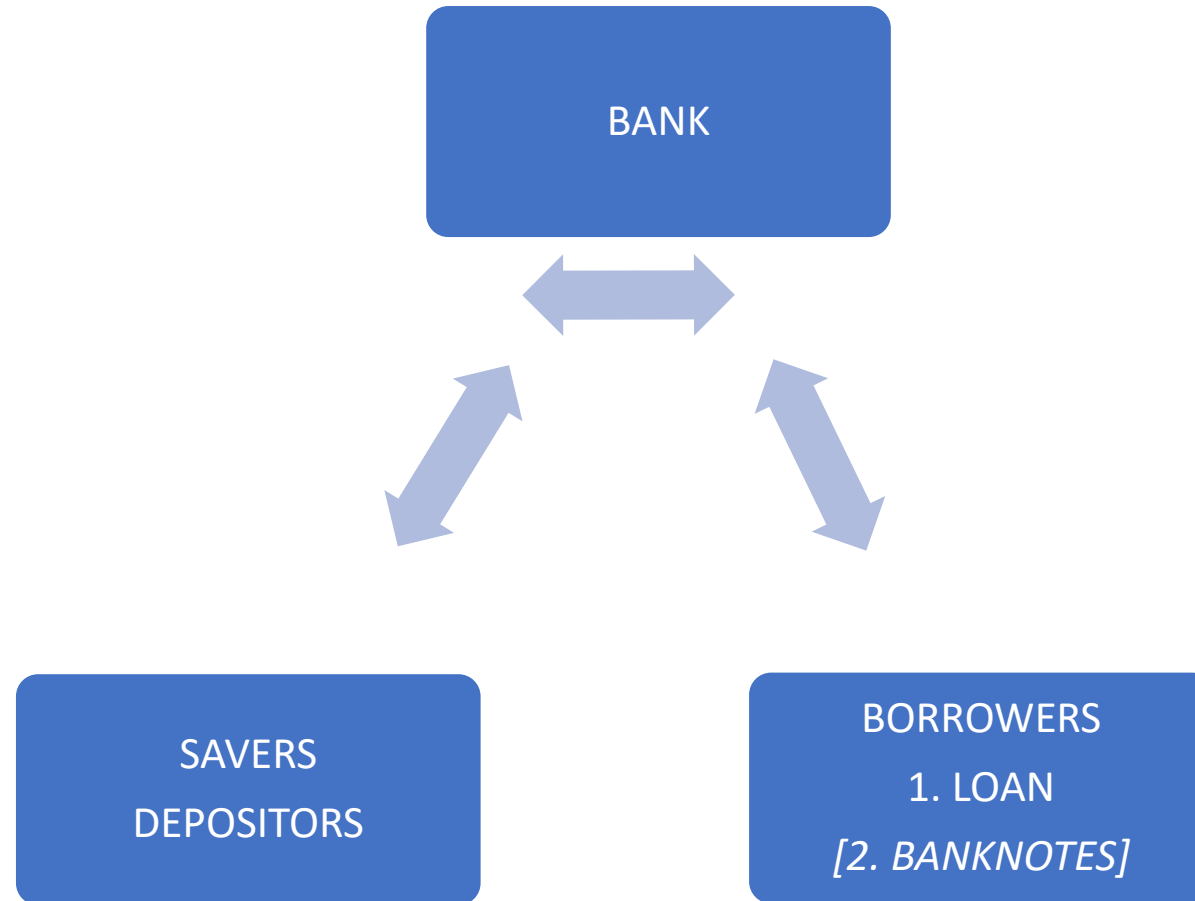
### *Foley v. Hill*

(1848) 2 HLC 28; 9 ER 1002 (HL)

- Money, when paid into a bank, ceases altogether to be the money of the [depositor]; **it is then the money of the banker, who is bound to return an equivalent by paying a similar sum to that deposited with him when he is asked for it. ...**  
[The banker] is known to deal with it as his own; he makes what profit of it he can, which profit he retains to himself ...

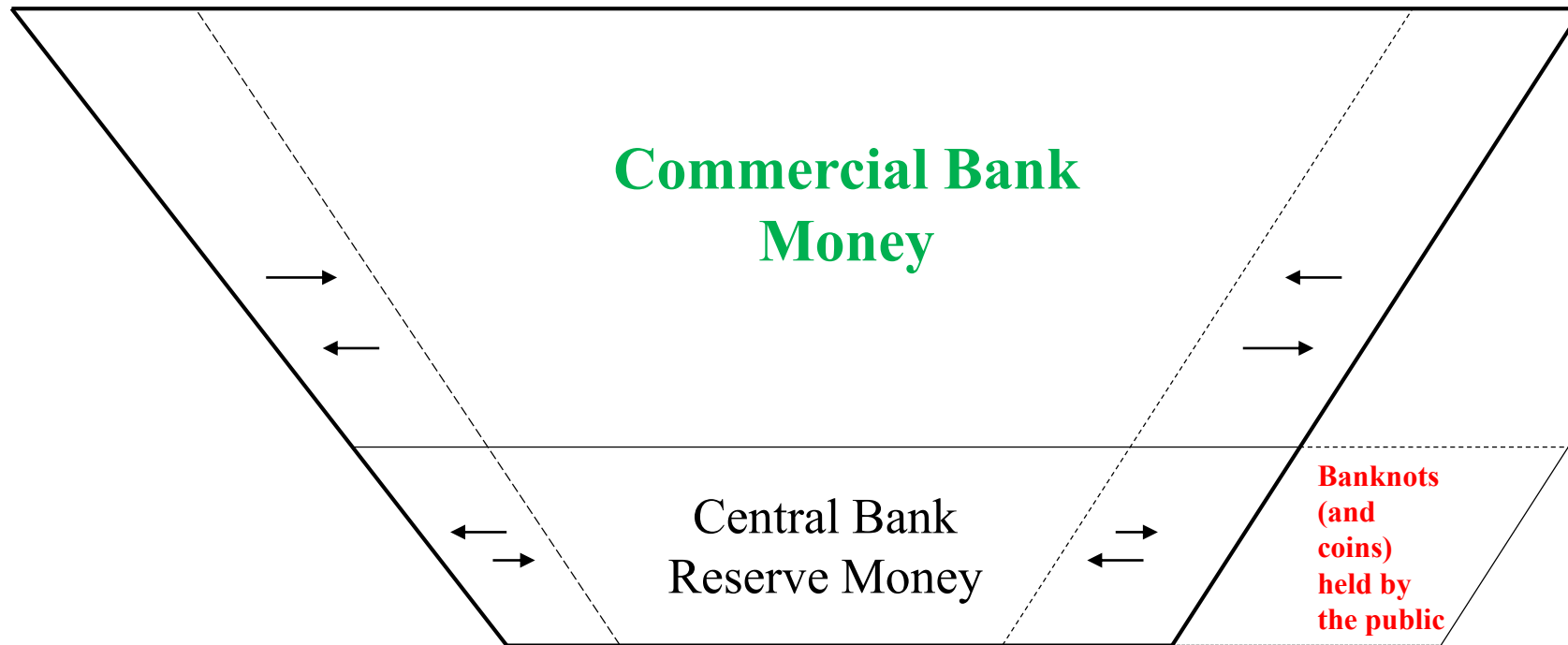
# BANKING

## Financial Intermediation and Money Creation



# Regulation of Money Supply

Two types of 'obligations' : Account based product  
(Credit to an account) and (tangible) objects



## Notes

- 1) Amount of Commercial bank money **increases** with the **increase** in the amount of central bank money [CeB **buys** gov. securities; interest rate go **down**]
- 2) Amount of commercial bank money **decreases** with the **decrease** in the amount of central bank money [CeB **sells** gov. securities; interest raets go **up**]

## Definition

1. **Monetary base** = central bank reserve money + banknotes (and coins) held by the public
2. **Money supply** = commercial bank money + banknotes (and coins) held by the public



Why Central Banks Should  
Start Issuing Electronic Money  
DIGITAL  
CASH

Ben Dyson & Graham Hodgson *'FULL RESERVE BANKING'*

Figure 2.1.2: Indirect Access via Digital Cash Account Providers

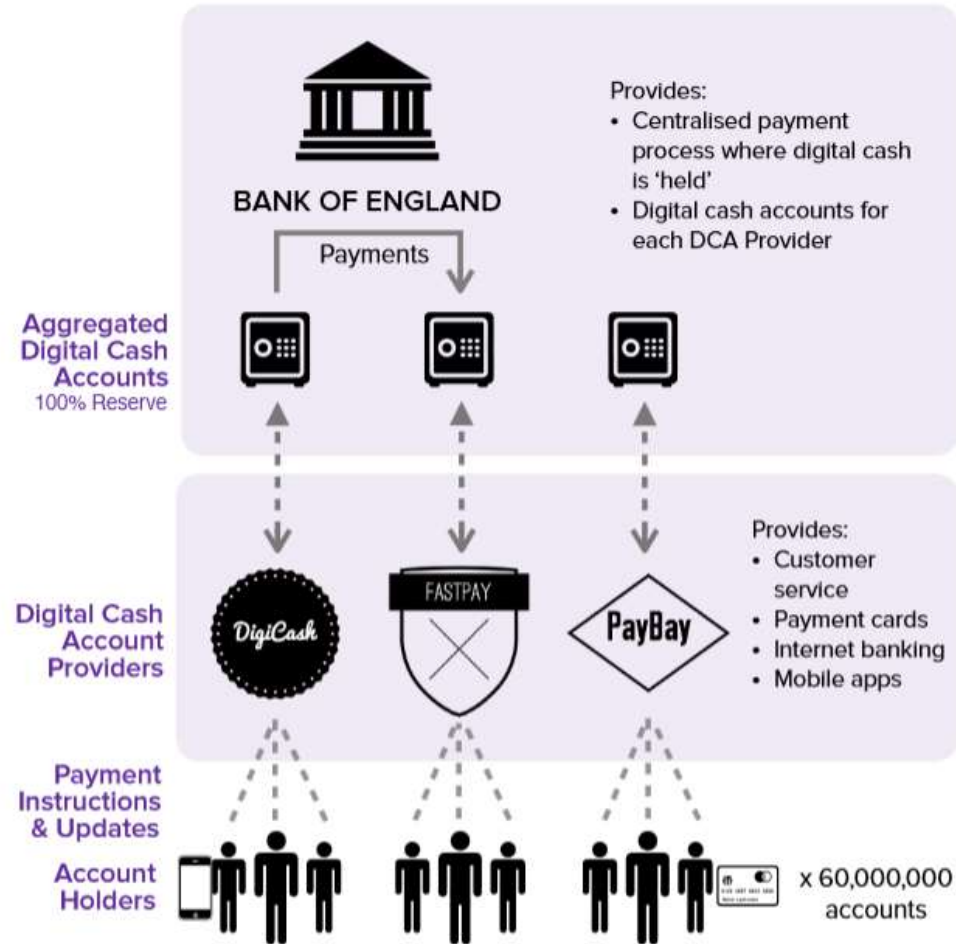
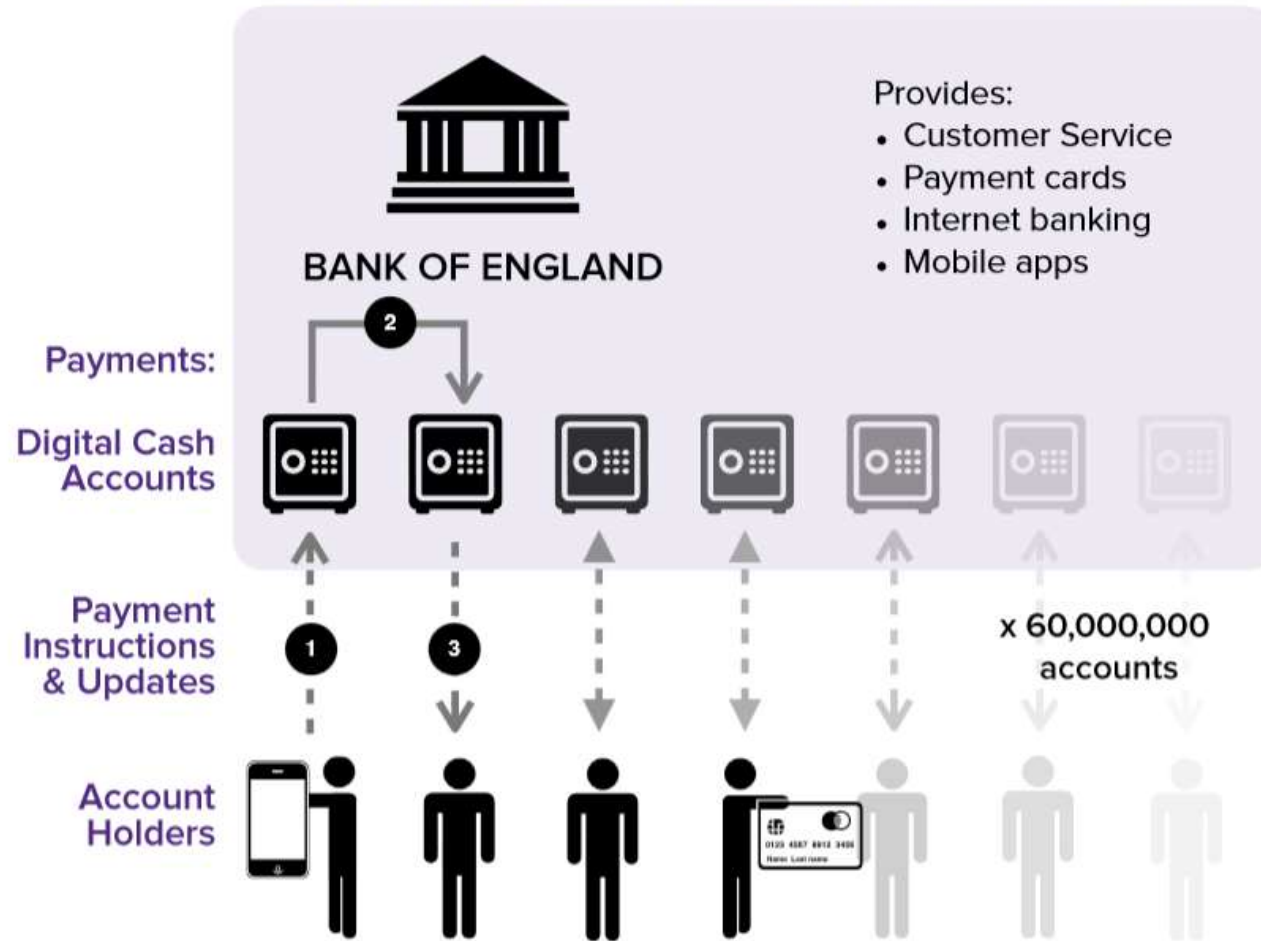


Figure 2.11: Direct Access to Accounts at the Bank of England



# What is a Banknote?

- As a matter of **FORM**, a **banknote** is an unconditional promise in **writing** *signed* *by a banker* who commits to pay a certain sum on demand to the **bearer**, being the holder in *possession* who presents it for payment. It is *transferrable* *from one person to another* by *delivery*, ....
- **Functional Equivalence**
  - *Signed* -- *electronically*
  - *possession* -- *Control*
  - *Delivery* – *transfer of control.*

# Digital Coin Defined

- It is “an entity that amounts to a string of bits.” The string must have a numerical value and, in order to prevent double spending, it must have a unique identity”

Gideon Samid, *Tethered Money: Managing Digital Currency Transactions*, (Elsevier, 2015)

- It can be issued either privately [**VIRTUAL CURRENCY**] or a central bank [**CBDC**]
- What specific regulation and legislation are required?

# The digital coin as an E-banknote:

- The digital coin is an 'entity' or 'item'-- hence a **token**-- albeit intangible – NOT a mere 'digital representation of value' which is broad enough to cover an account-based product.
- It is a distinct entity consisting of data in the form of a unique string of bits which must have a numeric value and an identity.
- A digital coin may be either 'self-anchored' [having its own unit of account] or a self-referential - 'claim-check' ('stablecoin') [a claim to a specified amount of a commodity or fiat currency]
- A bearer digital coin issued by a central bank is an **rCBDC**: it is a claim check to 'money' in the national monetary unit just as a paper banknote is => It is an e-banknote.

Which is the optimal DESIGN for an e-banknote to become a 'banknote' meeting all such requirements?

Types of digital currency/e-banknotes: basic classification:

### *Two principal competing designs*

- A '**cryptocurrency**' is a digital currency in which encryption is used to generate units of currency and verify the execution of payment transactions [usually decentralized– though as a Stablecoin or CBDC – at least hybrid – even if exchanged over a blockchain centrally issued ]
- '**Bitmint'ed' currency**; created by quantum randomness premised on unpredictability [centrally minted; decentralized distribution and transfer]
- Quantum-Cyber resilient Centrally-Minted [CM] and Decentralized-Exchanged [DEX] –not necessarily over a blockchain
- BitMint's project in China:
- The BitMint digital currency was approved for implementation by the People's Bank of China (PBOC), and the Bank of Shanghai built it.
- <https://www.digfingroup.com/bitmint-q-pay/>
- and [http://finance.ce.cn/bank12/scroll/201812/24/t20181224\\_31100575.shtml](http://finance.ce.cn/bank12/scroll/201812/24/t20181224_31100575.shtml)

# STABLECOIN

A digital currency denominated in, namely pegged to, or claimed at par with, either an official currency's unit of account (as well as a basket of such currencies) or the value of a specified amount of a designated commodity,-- whether or not it is backed by a reserve of such currency or commodity.

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Principal use: crypto-assets trade; international payments

# STABLECOIN CATEGORIES

## ALGORITHM-BASED STABLECOINS

- . Each falling into this category maintains a stable value via protocols that adjust quantity in response to change of demand. Not being collateralized, or at least being inadequately collateralized, algorithm-based stablecoins are the most fragile

## ASSET-LINKED STABLECOINS

- . Each asset-linked stablecoin purports to maintain a stable value by referencing a commodity, digital asset, fiat currency or a basket of any of the above.
- Stablecoins using the blockchain do not have one of their own and are built on an existing blockchain(s). Bitcoin, Ethereum and Tron are some of the most popular.
- Asset-linked stablecoins using the blockchain are either off-chain or on-chain.
  - **Off-chain stablecoins** are backed by fiat currency and/or high-quality liquid assets (“HQLA”). “They are off-chain because transactions are validated and authenticated by an independent third-party outside of the main blockchain network before they are reintegrated back into the main blockchain.”
  - **On-chain stablecoins** are backed by digital assets which are riskier and thus tend to be overcollateralized. They are ‘on-chain’ because they “are carried out on a blockchain from start to finish where they are verified and recorded on a public distributed ledger that cannot be changed after they are validated



# STABLECOINS DEPOSIT AND STORAGE

- Exchanger as a mere debtor – fractional reserve? No contractual duty to have any reserve? [Exchanger as banker?]
- Exchanger as ‘bailee’ of SPECIFIC [identified] stablecoins owned by depositor?
- Exchanger as an ‘irregular depositary’ – depositors as joint owners?
- Exchanger as a debtor giving a security interest in the reserve– depositor as a secured creditor?
- Exchanger as owner providing pro-rata ‘stablecoin entitlements’ to depositors?

# STABLECOIN RISKS

- Issuer's insolvency [e.g, lack of full reserve]
- Exchange's insolvency
- Systemic risk\*/financial stability [e.g. insolvency of reserve holder: use as instruments of finance makes it easier for leverage to build up by the creation of collateral chains, that is, “multiple claims on the same underlying collateral.” This is a process which “is not unlike fractional reserve banking, with collateral requirements replacing reserve requirements”
  - **\*Systematically important:** size, risk profile of activity, interconnectedness and interdependencies with real economy; substitutability.
- Weak (or even lack of) interoperability
- Compliance with securities regulation (extra cost)

# Regulation of Virtual Currency Businesses Act in the United States

<http://www.uniformlaws.org/Act.aspx?title=Regulation%20of%20Virtual-Currency%20Businesses%20Act>

Covering the business of exchanging, transferring, or storing virtual currency or engaging in virtual currency administration, in relation to:

- Licensing,
- Examinations,
- Enforcement
- Disclosures and other protections
- Policies and Procedures

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• **“Virtual currency” is “a digital representation of value that (i) is used as a medium of exchange, a unit of account, or a store of value and (ii) is not legal tender, whether or not denominated in legal tender.”**

• “Legal tender” means “a medium of exchange or unit of value, including the coin or paper money of the United States, issued by the United States or by another government.”

# CBDC- Central Bank Digital Currency

- A stablecoin issued by the central bank<sup>20</sup>
- A digital coin issued by the central bank for a specified number of the national monetary currency units;
- A ‘claim’ from the issuing central bank to that number of units, exactly as a paper banknote issued by the central bank is a ‘claim’ to the number of such units in which it is expressed.
- From this perspective, such a coin is an e-banknote, since like the stablecoin, it is ‘written’ electronically and transferable by control, which is functionally equivalent to the transfer by physical delivery of a paper banknote

- THANK YOU!

- QUESTIONS?

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