



Session 02

Money - Current limitations

Blockchain Protocols and Decentralized Applications

Metal Money



Bronze Spade - China

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Bronze Aes Rude - Rome

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Cooper Plate - Sweden

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Gold Aureus - Rome



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Bronze Yuan - China



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Silver Dekadrachm - Greece

Minted Money



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Paper Money



Jiaozi Promissory Note - China



5 Pound Note - England

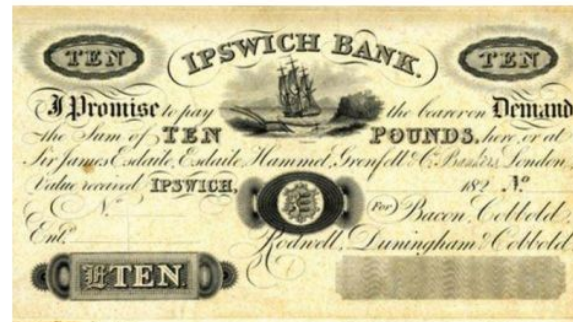


Continental Note – U.S.

Private Bank Notes



Australia



United States



Canada



England

Ledgers



Proto Cuneiform
Uruk, ca 3000 B.C

1747 ¹⁾ M ^r Bailey Washington D ^r				1747 ²⁾ Pers. Contra. C ^r L S D			
Sept 10 th	To two books	2/6	2 6	Sept 25 th	By a two fork Gunter	1/8	1 8
	To m ^d D ^r Leomberg	2/6	2 6	Sept 11 th	By cash paid Robert Washington	1/8	1 8
July 25 th	To Cash P. M. Lane for 500 th Sticks	1 -	1 -	July 16 th	By cash paid	2/6	2 6
1753	2. To cash of 1/2 per letter 2. To cash of 1/2 per letter			Sept 19 th	By 7 th of horse		
Aug 10 th	1 penny of 1/2 per head of 50 small cattle			Nov 5 th	By 3 rd of 1/2 per horse		

Personal Ledger
George Washington
1747



Ledgers - characteristics

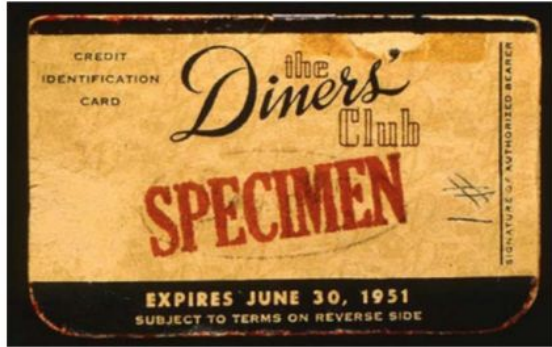
- Immutable
- Consistent
- Timestamp
- Ownership
- Accuracy
- Details of Transaction



Fiat currency

- Social consensus for trading
- Issued by Central Banks
- Used by Commercial Banks & population
- Relies upon system of Ledgers
- Accepted for transactions and taxes

Credit cards



First General Merchant Card
Diners' Club
1949



American Express
First Plastic Card
1959



Bank of America
First General Purpose
Credit Card
1966

Credit card processing



Slide Card Imprinter
1950s

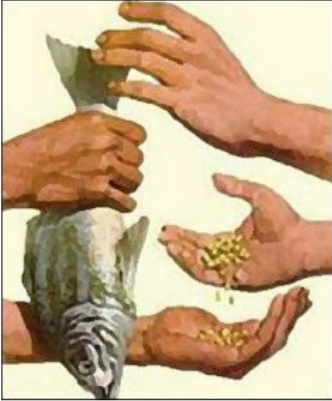


Visa Imprinter
1979



Payment Terminal
2018

Role of Money



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Medium of Exchange



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Store of Value

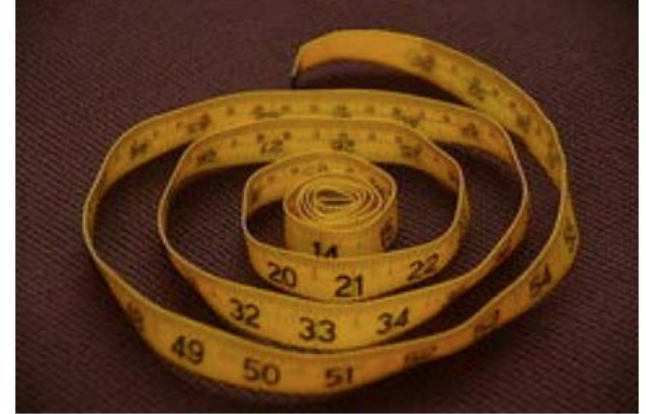


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Unit of Account



Characteristics of Money

- Durable
- Portable
- Divisible
- Fungible
- Acceptable
- Stable
- Hard to counterfeit



Early digital currencies

- DigiCash (David Chaum) – 1989
- Mondex (National Westminster Bank) - 1993
- CyberCash (Lynch, Melton, Crocker & Wilson) – 1994
- E-gold (Gold & Silver Reserve) – 1996
- Hashcash (Adam Back) – 1997
- Bit Gold (Nick Szabo) – 1998
- B-Money (Wei Dai) - 1998
- Lucre (Ben Laurie) – 1999



Why did Early Digital Currencies Fail?

- Merchant adoption
- Centralization
- Double spending
- Consensus

Digital & Mobile Payments



1998



1999



2003



2007



Mobile App

2011



2011



微信支付
WeChat Pay

2013



2014

But still something is missing...

- Centralized
- Single point of failure
- System prone to failure

How to move value using peer-to-peer without any trusted central intermediary?



Bitcoin: A Peer-to-Peer Electronic Cash System

- From: Satoshi Nakamoto vistomail.com> Subject: Bitcoin P2P e-cash paper
Newsgroups: gmmane.comp encryption.general Date: Friday 31st October
2008 18:10:00 UTC
- “I've been working on a new electronic cash system that's fully peer-to-peer,
with no trusted third party.”



Software Stack - Programmable transactions





Finance today

- Moving - How are you moving money?
- Trading - How are you making digital payments?
- Pricing - Who decides the rates of exchange?
- Investments (Store of Value)
- Credit (Borrow)



Conclusions

- Money is a Social & Economic Consensus
- Fiat Money is but the Current Lead in a long Evolution of Money
- Fiat Currency has had Challenges & Instabilities as well
- Ledgers are a method for Recording Economic Activity & Financial Relationships
- Central Banking and Financial Sector are built upon a series of Ledgers
- We now Live in an Electronic Currency Age
- Many Efforts have been made at Cryptographic Digital Currencies
- Nakamoto's 'Bitcoin: A Peer to Peer Electronic Cash System' paper & related Blockchain