Bitcoin, Blockchain and Cryptoassets
Monetary Theory Basics

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What Is Money?

Thought experiment: community without money
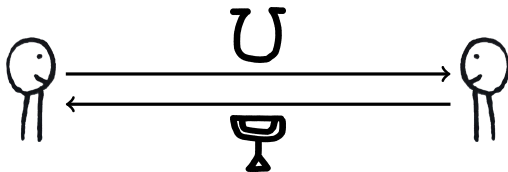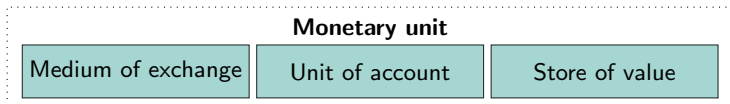
The Three Basic Functions of Money

Money performs three basic functions:

| Monetary unit		
Medium of exchange	Unit of account	Store of value

Medium of exchange: more efficient trade and optimized allocation of goods and services.

Unit of account: universal reference to simplify the comparison of value between goods and services.

Store of value: saving.

Generally Accepted Medium of Exchange

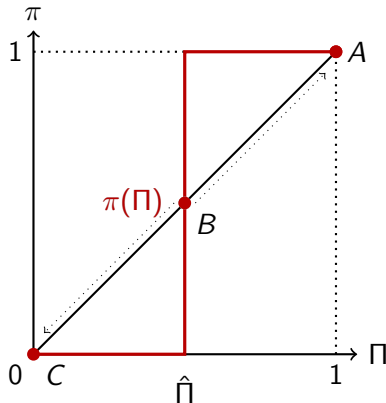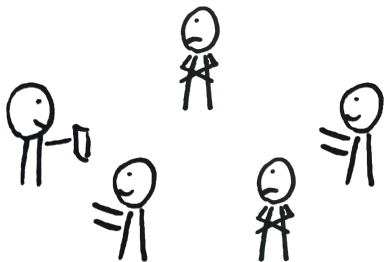Money may emerge without government intervention [1].
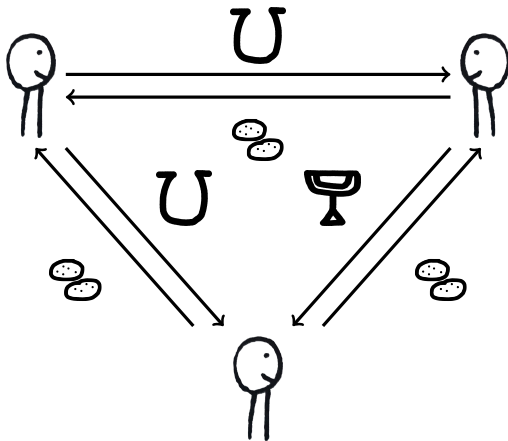
Dominant Medium of Exchange

The probability that I will accept (π) a good as a medium of exchange depends on my expectations that other people will do the same (Π).

Assumptions: $0 \leq \pi \leq 1$; $0 \leq \Pi \leq 1$; $\frac{\delta U(\pi)}{\delta \Pi} > 0 \ \forall \pi > 0$

Dominant Medium of Exchange

The acceptance of money as a coordination game:

- If $\Pi = 0$: choose $\pi = 0$
- If $\Pi = 1$: choose $\pi = 1$
- If $\Pi > \hat{\Pi} > 0$: choose $\pi = 1$
- If $\Pi < \hat{\Pi} < 1$: choose $\pi = 0$

Medium of Exchange

Double coincidence of wants: find someone who has bread **and** wants an apple.
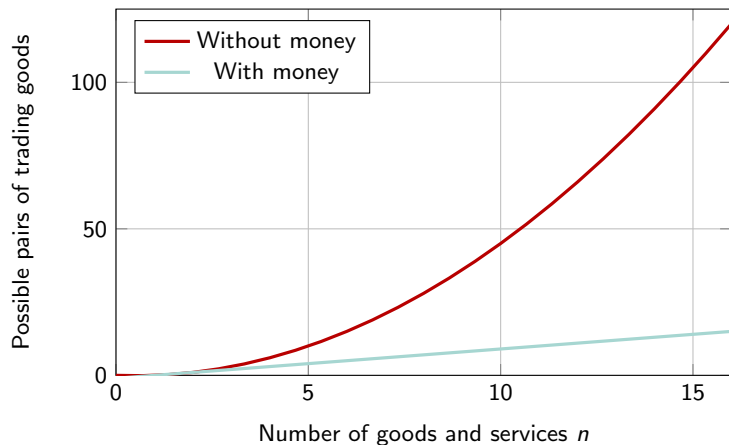

Number of trading pairs in a very simple economy:

$$\frac{n^2 - n}{2} = \frac{n(n-1)}{2}$$

$$n - 1$$

Medium of Exchange

Examples of Dominant Media of Exchange

Millstones on Yap

Shells

Cigarettes

Jewellery

Metal money

Currency

Unit of Account

The same problem occurs for the quantity ratios:

	🍞	🍖	🍎	🥔
🍞	1:1			
🍖	1:8	1:1		
🍎	1:2	4:1	1:1	
🥔	1:4	2:1	1:2	1:1

Instead, describe the price in terms of the dominant medium of exchange:

- Bread = 0.25 potato
- Meat = 2 potato
- Apple = 0.5 potato

Store of Value

Why do people save?

Data: FRED Economic Research

The Properties of Money

Storability
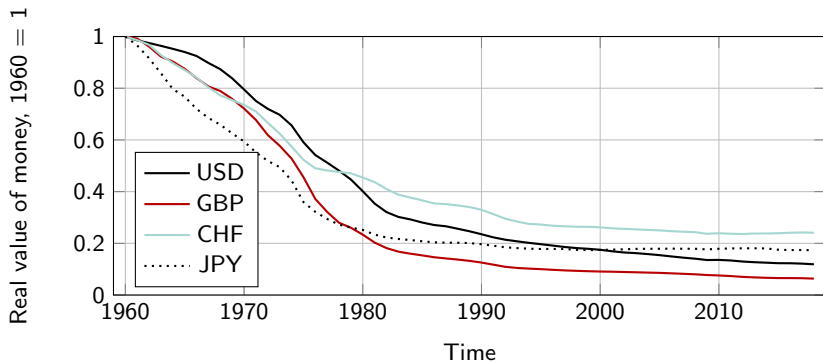
Transferability

Divisibility

Fungibility

Verifiability

Scarcity

Low Price Volatility

Monetary Value

	Intrinsic value
+	Promise of payment
+	Liquidity premium
=	Market value of monetary unit

Intrinsic value: Material value of the good which does not depend on the good's monetary function.

Promise of payment: Components which do not depend on the materialistic value of the good. Subject to issuer risk.

Liquidity premium: Option to flexibly trade the monetary unit for arbitrary goods.

Different Types of Money

	Intrinsic	Promise	Premium
Commodity money	+		(+)
Credit money		+	(+)
Fiat money			+

References

[1] Karl Menger, *On the origin of money*, The Economic Journal **2** (1892), no. 6, 239–255.