# Macroeconomics†

## Understanding the Monetary System

Lec. **3**

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Fall 2023

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Slides primarily based on *Macroeconomics* by N. Gregory Mankiw (2022), and *Macroeconomics* by Olivier Blanchard (2020)

## *Quotation*

*"There have been three great inventions since the beginning of time: fire, the wheel, and central banking."*

—Will Rogers

# Key Questions

Note that the following questions are addressed based on the assumption of a closed economy framework, and in the long-run perspective.

- ✔ What is money?
- ✔ What is the role of banking system in determining the amount of money in the economy?
- ✔ How does a nation's central bank influence the banking system?

# Macroeconomic Policymaking

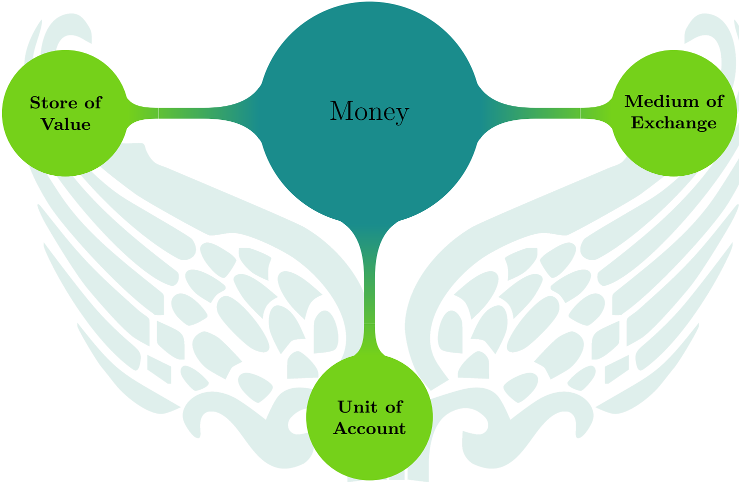
- ✔ Macroeconomic policy comprises monetary policy and fiscal policy.


  - ✗ **Monetary Policy**: Pertains to decisions about the nation's coin, currency, and banking system, managed by independent central banks such as the U.S. Federal Reserve (FED).

  - ✗ **Fiscal Policy**: Involves the government's decisions regarding spending and taxation, typically determined by elected representatives like the U.S. Congress.

- ✔ What are the conditions of monetary independency?

# Money Functions



# Why Use Money?

- ✔ An economy without money, is a **barter economy**.
- ✔ Essentially, money facilitates a broader range of transactions compared to barter. Why is this the case?
- ✔ In barter economy, all types of transactions are done in *double coincidence of wants*.
- ✔ But while using money, no such restriction is subjected.

**Currency**

The money that is used in a particular country at a particular time.

- ✔ Why don't all nations use a unit currency?

# A Classification of Money

## Fiat Money

A kind of money that lacks intrinsic value and is established by government decree, e.g., U.S. Dollar bills, Iranian Rial bills, etc.

- ✔ In the past, many societies used **commodity money** with intrinsic value.
- ✔ **Gold** is a common example of commodity money.
- ✔ The **gold standard**, where paper money is redeemable for gold, was prevalent in the late nineteenth century.
- ✔ Red Cross supplied goods, leading to inefficient allocations due to differing prisoner preferences. (barter was inefficient!)
- ✔ Cigarettes emerged as the established "currency," serving as a store of value, unit of account, and medium of exchange within the POW camp.

# Development of Money

- ✔ Commodity money (e.g., gold) for exchange due to intrinsic value.
- ✔ Governments introduce minted coins for reduced transaction costs.
- ✔ Transition to gold certificates and government-backed paper money.
- ✔ Social convention leads to fiat money's acceptance without intrinsic value.

# Development of Money (cont'd)

## Islands of Yap and Bitcoin

✔ **Islands of Yap**:

- Yap's traditional fei stones as money, evolving to legal claims.
- Value persists, resembling fiat money acceptance.
- Yap residents now use the U.S. dollar for routine transactions.

✔ **Bitcoin**

- Introduction of bitcoin as digital, decentralized currency.
- Obtained through solving problems, capped supply.
- Not commodity or fiat money; value from social convention.
- Volatility challenges its role as a store of value and medium of exchange.

# Money Supply in Monetary System

- ✔ Commodity money supply is quantity of the commodity; fiat money is government-controlled.
- ✔ Central banks (e.g., Federal Reserve) regulate money supply through monetary policy.
- ✔ Open-market operations (buying/selling government bonds) impact money supply.
- ✔ Currency, demand deposits, savings accounts, and money market funds may be included.

# Money Supply in Monetary System (cont'd)

## Money Supply

Money supply is dollars held by the public, and could be written as:

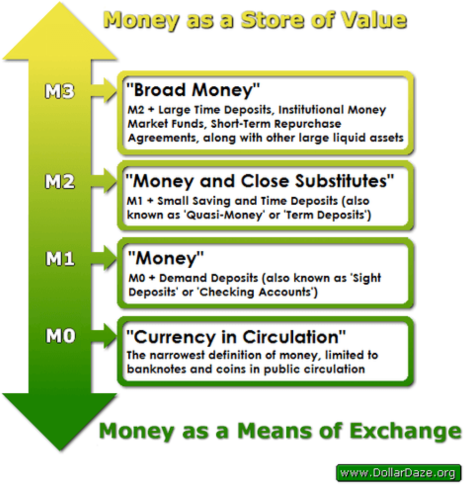
$$M = C + D$$

where

- $M$ is **money supply**,
- $C$ is **currency**,
- $D$ is **demand deposits**.

- ✔ Federal Reserve calculates three measures: C (Currency) or M0, M1, and M2.
- ✔ M1 and M2 are commonly used for studying money's effects on the economy.
- ✔ Credit cards defer payment; balance in checking accounts is part of the money supply.
- ✔ Debit cards withdraw funds directly, contributing to the money supply.

# Money Supply in Monetary System (cont'd)



# 100-Percent-Reserve Banking System

✔ **100-percent-reserve banking system** has a couple of conditions:

1. All money in the economy is in the form of currency.
2. Banks only serve as deposit holders without engaging in lending activities.
3. Banks accept deposits solely to provide a secure storage place for depositors' money.

**Bank X's Balance Sheet**

| **Assets** | | **Liabilities** | |
|---|---|---|---|
| Reserves | *$1000* | Deposits | *$1000* |

# Fractional-Reserve Banking System

- ✔ 100-percent-reserve banking is not a realistic banking system since no loans are made.
- ✔ If banks make some loans, their system will shift to the **fractional-reserve banking system**.
- ✔ In the fractional banking system, a reserve-deposit ratio must be determined.

## Reserve-Deposit Ratio

The fraction of deposits kept in reserve.

# Fractional-Reserve Banking System (cont'd)

**Bank A's Balance Sheet (after loaning)**

| Assets | | Liabilities | |
|---|---|---|---|
| Reserves | *$200* | Deposits | *$1000* |
| Loans | *$800* | | |

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**Bank B's Balance Sheet (after loaning)**

| Assets | | Liabilities | |
|---|---|---|---|
| Reserves | *$160* | Deposits | *$800* |
| Loans | *$640* | | |

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**Bank C's Balance Sheet (after loaning)**

| Assets | | Liabilities | |
|---|---|---|---|
| Reserves | *$128* | Deposits | *$640* |
| Loans | *$512* | | |

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**Bank D's Balance Sheet (after loaning)**

| Assets | | Liabilities | |
|---|---|---|---|
| Reserves | *$102.4* | Deposits | *$512* |
| Loans | *$409.6* | | |

# Reaching Equilibrium

## *Farewell & Gratitude*

# *The End of Lecture **3***

Thank You for Listening

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