ECON 562
Macroeconomic Analysis & Public Policy

Module 7: Central Banks

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Introduction

- Central Banks
- The Federal Reserve (The Fed)
- Monetary Policy
- Monetary Aggregates

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Module 7a: Central Banks

Central Banks

- Central banks are the monetary authorities within national governments.
- They have policy, regulatory, and operational functions.
- The first two central banks were the Swedish Riksbank (1668) and the Bank of England (1694).
- The current central banking system of the United States was established in 1913.

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Module 7b: The Federal Reserve (The Fed)

The Federal Reserve

The Federal Reserve System has 3 parts:

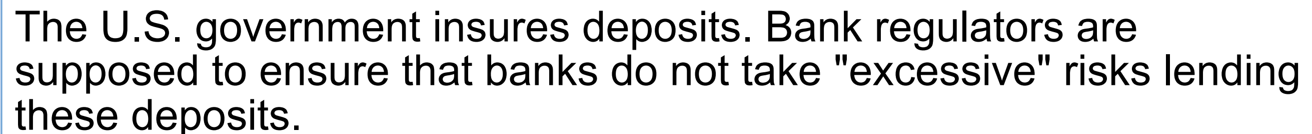
1. Federal Reserve Board of Governors ("Federal Reserve Board")
2. 12 Regional Federal Reserve Banks, one for each "district"
3. The Federal Open Market Committee ("FOMC")

The System has 3 responsibilities:

1. Provide financial services (i.e. check processing)
2. Supervise and regulate banks
3. Conduct monetary policy

The Federal Reserve

Bank supervision is fundamental for a sound financial system.



The U.S. government insures deposits. Bank regulators are supposed to ensure that banks do not take "excessive" risks lending these deposits.

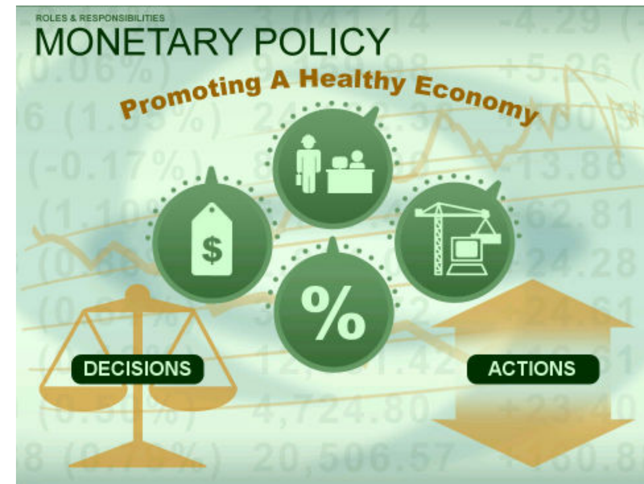
The 2007 financial crisis has illustrated (again) that banking panics appear to precede bad economic outcomes. Appropriate bank supervision reduces the probability of a banking panic.

Large financial institutions may control, directly or indirectly, a significant portion of the financial transactions in the United States and thus may be "too big" to fail. "Stress tests" are aimed at reducing the probability of a government bailout of those institutions.

The Federal Reserve

The 12-member FOMC (8 permanent members and 4 temporary members) is responsible for the setting of monetary policy.

- The 8 permanent members: All 7 members of the Federal Reserve Board and the president of the Federal Reserve Bank of New York.
- The 4 temporary members are rotating Federal Reserve bank presidents that serve one-year terms.
- The Chairman of the Federal Reserve Board is also the Chairman of the FOMC.



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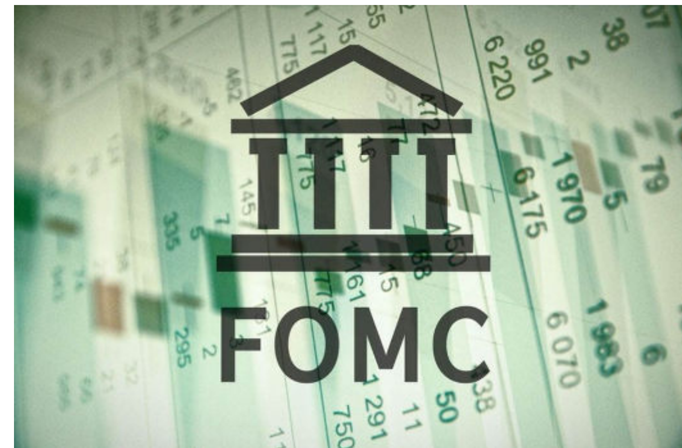
Module 7c: Monetary Policy

Monetary Policy

- The main policy tool of the FOMC is the setting of the "Federal Funds Rate," the overnight right at which banks can borrow bank reserves.

- The FOMC adjusts the Fed Funds rate through "Open Market Operations."



Monetary Policy

To lower the Fed Funds rate:

- The FOMC buys U.S. Treasuries from brokers or dealers and pays them by depositing reserves into their accounts.
- This increases the supply of reserves, the increase in the supply implies that the market interest rate on reserves falls.

To increase the Fed Funds rate:

- The FOMC sells U.S. Treasuries to brokers and dealers and collects payment from their reserve accounts.
- This reduces the total amount of reserves in the economy, causing the interest rate on reserves to increase.

Monetary Policy

What does the FOMC consider when deciding on the appropriate Federal Funds Rate?

- The Federal Reserve Act in 1977 says the FOMC has a dual mandate "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."
- Because long-term interest rates can remain low only in a stable macroeconomic environment, these goals are often referred to as the dual mandate to promote *maximum employment* and *price stability*.

Monetary Policy

- So how does the FOMC determine the Fed Funds rate to satisfy its dual mandate?
- The FOMC meetings are held behind closed doors, and the FOMC has never announced a formal policy.
- Just recently, after the Financial Crisis of 2007, it announced a 2% inflation target.
- However, the FOMC appears to set interest rates with the dual mandate in mind as a function of two variables, the output gap and the consumer-price inflation rate.
  - The output gap, is a measure of the economy's deviation from "maximum employment."
  - The inflation rate relates to the goal of "stable prices."

Monetary Policy

Academics and analysts commonly use the "Taylor Rule“ to characterize monetary policy, it is represented by:

$$r_t^{ff} = \pi^* + \bar{r}^{ff} + \theta_1 \left[100 * ln\left(\frac{GDP_t}{GDP_t^*}\right)\right] + \theta_2(\pi_t - \pi^*),$$

- r_t^{ff} -- nominal Federal Funds, annualized percent
- π_t -- four-quarter consumer-price inflation, annual percent
- $100 * ln\left(\frac{GDP_t}{GDP_t^*}\right)$ -- percent "output gap
- $\bar{r}^{ff}$ -- The inflation-adjusted annualized Federal Funds rate when the output gap is zero and inflation is equal to its target rate.
- π^* -- FOMC's "target rate" of consumer-price inflation, annual percent
- θ_1 and θ_2 are coefficients that measure how the FOMC adjusts the Fed Funds rate in response to changes in the output gap or the inflation rate.

Monetary Policy

All together. Suppose inflation decreases below its target level.

The Taylor rule suggests the FOMC will reduce the Fed Funds rate.

- To reduce the Fed Funds rate, the FOMC buys Treasury bills to banks and increases bank holdings of reserves in exchange.
- Banks can lend out excess reserves, so any increase in reserves also increases the quantity of loanable funds.
- Loanable funds are allocated as loans that go as spending into the economy.

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Module 7d: Monetary Aggregates

Monetary Aggregates

Since Central Banks control the money supply, episodes of very high inflation are associated to "too" much printing of money.

How to measure the money supply? Three definitions of the stock of money are commonly used, M0, M1, and M2.

- M0 is the stock of currency plus reserves held by banks in their accounts with the Federal Reserve. M0 is sometimes called the "monetary base."
- M1 is currency in circulation, demand and other checkable deposits, and travelers checks. This is typically what people think of as "money."
- M2 is equal to M1 plus close substitutes: money market accounts, savings accounts, and (small) time deposits.