LECTURE 22
FINANCIAL MARKETS AND MONETARY POLICY
April 18, 2019

I. OVERVIEW

II. THE MONEY MARKET, THE FEDERAL RESERVE, AND INTEREST RATES
   A. The market for money
      1. What is money?
      2. Money demand
      3. Money supply
      4. Equilibrium
   B. How does the Federal Reserve control the supply of currency?
   C. The effects of a change in the money supply
   D. The Federal Reserve’s ability to influence the real interest rate
      1. The short run
      2. The long run

III. MONETARY POLICY AND SHORT-RUN MACROECONOMIC FLUCTUATIONS
   A. Example: An increase in the real interest rate
   B. Reasons that the Federal Reserve might move interest rates
   C. Monetary policy mistakes in the Great Depression
      1. The initial decline in spending and output
      2. The collapse of the money supply
      3. Consequences

IV. FINANCIAL CRISSES
   A. Financial intermediation
   B. How a financial crisis starts
   C. How a financial crisis spreads: contagion
   D. The effects of a financial crisis on planned aggregate expenditure
   E. The impact of a financial crisis on output
LECTURE 22

Financial Markets and Monetary Policy

April 18, 2019
Announcement

• Problem Set 5 is due now.
I. Overview
Determination of Short-Run Output: The “Keynesian Cross”

\[ Y = PAE \]

\[ Y_1 \]
Two More Things that Can Shift PAE

- **Monetary Policy:** Actions taken by the central bank to affect nominal and real interest rates.

- **Disruptions in Financial Markets:** Specifically, a financial crisis.
Two Key Ideas Concerning Monetary Policy in the Short Run

• By changing the money supply, the central bank can change the real interest rate.

• A change in the real interest rate shifts the PAE curve in the Keynesian cross diagram, and so changes output in the short run.
II. The Money Market, the Federal Reserve, and Interest Rates
Economists’ Definition of “Money”

- Assets that can be used to make purchases.
- Concretely, you can usually think of money as meaning currency.
The Nominal Interest Rate and Money Demand

• Because you don’t earn interest on cash, the opportunity cost of holding money is what you could earn on other assets.

• That is, the opportunity cost of holding money is the nominal interest rate.

• So: Money demand is a decreasing function of the nominal interest rate.
The Demand for Money
Money Supply

• At any point in time, the amount of currency available is just a number.

• Determined by the central bank.

• That is, we take the quantity of money supplied as given.
The Supply of Money
Equilibrium in the Market for Money
How Does the Federal Reserve Change the Money Supply?

• **Open market operation**: The buying and selling of government bonds by the central bank.

• **When the Federal Reserve sells bonds**, the money supply decreases.

• **When the Federal Reserve buys bonds**, the money supply increases.
A Decrease in the Money Supply

![Graph showing a decrease in the money supply with MS1 and MD lines, and an intersection at M1 and i1.](image)
The Fed’s Ability to Influence the Real Interest Rate—the Short Run

• By changing the money supply, the Fed can change the nominal interest rate, i.

• Recall: \( r = i - \pi \) (or \( r = i - \pi^e \)), and there is inflation inertia (inflation only changes slowly).

• So: When the Fed changes i, it changes r.
In the Short Run, Nominal and Real Interest Rates Generally Move Together

Source: FRED.
The Fed’s Ability to Influence the Real Interest Rate—the Short Run versus the Long Run

• As we have just seen, the Fed can affect the real interest rate in the short run.

• However, in the long run, \( r \) must be at the level that equilibrates \( S^* \) and \( I^* \).

• The Fed cannot keep \( r \) away from this level indefinitely.

• We will discuss next week what prevents the Fed from doing this.
III. Monetary Policy and Short-run Macroeconomic Fluctuations
The Real Interest Rate and Planned Aggregate Expenditure (PAE)

Recall: \[ PAE = C + I^p + G + NX. \]
An Increase in the Real Interest Rate

\[ Y = \text{PAE} \]

\[ \text{PAE}_1 \]

Diagram showing the relationship between PAE and Y.
Monetary Policy

• Actions taken by the central bank to affect nominal and real interest rates.

• **Contractionary monetary policy:** Federal Reserve actions to increase nominal and real interest rates.

• **Expansionary monetary policy:** Federal Reserve actions to decrease nominal and real interest rates.
Why Might the Central Bank Undertake Expansionary or Contractionary Monetary Policy?

• To offset some other force that is shifting the PAE line (countercyclical monetary policy).
  • We’ll discuss an example next time (monetary policy in the Great Recession).

• To pursue some other objective.
  • We’ll discuss this extensively next week (the Fed’s concern with inflation).

• A mistake.
  • Example: Monetary policy in the Great Depression.
Industrial Production, 1927–1934

Source: Federal Reserve Bank of St. Louis, FRED.
The Money Stock, 1923–1933

Source: Federal Reserve Bank of St. Louis, FRED.
Real Interest Rate, 1923–1933

Source: Federal Reserve Bank of St. Louis, FRED.
Monetary Contraction in the Great Depression

PAE\_2 shows the effects of the fall in autonomous consumption.
Industrial Production, 1927–1934

Source: Federal Reserve Bank of St. Louis, FRED.
IV. FINANCIAL CRISSES
Financial Intermediation

• The process of getting saving into productive investment.

• Financial intermediaries are the markets and institutions that do this.

• Financial intermediaries include banks, investment banks, money market mutual funds, pension funds, etc.
What Is a Financial Crisis?

• A time when:
  • A number of financial institutions are in danger of failing.
  • People lose confidence in many financial institutions.

• As a result, there is widespread disruption of financial intermediation.
How Individual Financial Institutions Can Fail

- Defaults and changes in asset values can reduce the value of an institution’s loans and securities.
- If the value of the loans and securities falls to the point where they are worth less than the institution’s obligations to its depositors and lenders, the institution is insolvent.
- A belief that the institution is in danger of becoming insolvent can cause depositors to withdraw their funds and lenders to stop lending—which can cause the insolvency to occur.
House Prices, 1987–2015

Source: Federal Reserve Bank of St. Louis, FRED.
First Mortgage Defaults
Percent of Outstanding Balances Entering Default Each Month

Source: S&P/Experian Consumer Credit Indices

Contagion of Crises across Financial Institutions
Deposits in Failed or Suspended Banks, 1927-1933

Source: Federal Reserve.
Effects of a Financial Crisis on PAE
Credit Spreads during the 2008 Financial Crisis

Tightening Loan Standards during the 2008 Financial Crisis

Net Percent of Domestic Respondents Tightening Standards for Commercial and Industrial Loans

Source: Federal Reserve, Senior Loan Officer Opinion Survey, January 2018.
Decline in the Number of Banks in the Great Depression

Michigan Survey of Consumer Sentiment

Source: Federal Reserve Bank of St. Louis, FRED
The Effects of a Financial Crisis on Output

\[ Y = \text{PAE} \]

\[ \text{PAE}_1 \]

Graph showing the relationship between \( Y \) and \( \text{PAE} \) with a financial crisis impact indicated by the change from \( \text{PAE} \) to \( \text{PAE}_1 \) at \( Y^* \).
Percentage Change in Real GDP

Source: Federal Reserve Bank of St. Louis, FRED
The Average Aftermath of a Financial Crisis

But, how much output falls after a crisis is highly variable.

- The ability and willingness of policymakers to use fiscal and monetary policy matters a lot.