Principles of Macroeconomics: Intro to Monetary Policy

Class 21

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Overview

- Announcements:
  - LC 13/15, GH 13/15 due Friday at 11:59pm
- Topics:
  - What is money?
  - The Federal Reserve
  - Market for Money
- Readings:
  - Chapters 15.3-15.4

What is Money?

Money – an asset used for payment. Think in terms of liquidity:

- Liquid Assets $\rightarrow$ assets easily turned into money
  - Cash (currency in circulation)
  - Deposits from banks at the Federal Reserve (electronic cash)
  - Checking deposits at banks (as good as cash)
- Less liquid: Can be converted to cash relatively easily, but with a delay
  - Savings accounts
  - Money market accounts
  - CDs
  - Stocks, bonds, etc.
- Illiquid: Difficult to turn into cash
  - Real estate
  - Physical capital

Official Definitions

So how do the Federal Reserve officially define money?

- Monetary base (M0/MB): cash + bank deposits at the Federal Reserve
- M1: M0 + checking/savings deposits + money market deposits at banks
- M2: M1 + small-denomination time deposits (not including IRAs) + money market mutual fund balances

Why Money?

(1) Medium of exchange
- Barter vs. cash economy
- Resolves double coincidence of wants (trade!)

(2) Store of value
- Money partly holds its purchasing power over time
- Inflation erodes the store of value
- Other assets store value, but are generally illiquid

(3) Unit of account
- Money is nice for setting prices
- Allows coordination by buyers and sellers

Fiat Money

The US has a fiat money system – "paper" money only as legal tender

- The dollar is inconvertible
  - We cannot convert dollars to gold
  - Before, under the gold standard, we could theoretically exchange dollars for gold
- The dollar is designated as legal tender
  - The only legally accepted means of payment
  - Think taxes: the government will only accept dollars for tax payments
- The government has a monopoly on dollar creation

Basically – money is a social convention

- Dollars have value because we all believe they have value

The Federal Reserve

The Federal Reserve is the central bank of the United States

- Established by Congress in 1913
- Organized around the Board of Governors in Washington, DC and 12 regional banks
- Governors appointed by President, confirmed by Senate
- Regional Fed presidents appointed by independent local boards
- Federal Open Market Committee (FOMC) sets monetary policy
  - Consists of 7 governors + rotating set of regional bank presidents
  - Fed Chair has the most influence

Goal of the Federal Reserve

The Fed has three goals (Federal Reserve Act of 1977):

- Maximum employment
- Stable prices
- Moderate long-term interest rates

Stable prices and moderate long-term interest rates are often viewed as complementary, so the dual mandate is:

- Maximum employment
- Stable prices

Central Bank Independence

The doctrine of central bank independence:

- The central bank should be free from direct political influence to effectively conduct monetary policy

Treasury-Fed Accord of 1951

- Separate government debt management from monetary policy – Fed can pursue its goals independently

In practice though, the Fed has only had operational independence since 1979

Independence allows:

- Resistance of political pressures to overstimulate the economy
- Prevent monetization of government debt
- Stabilize inflation expectations

Remember: The Fed is still accountable to political authorities eventually through appointments

So What does the Fed Actually Do?

The main lever the Fed has is to set short-term interest rates

- Banks hold reserve deposits at the Federal Reserve
- Some banks have lots of reserves, some don't have enough
- Banks lend reserves to each other through the Federal Funds market
- The "Federal Funds Rate" is the interest rate in this market
- This is the short-term rate the Federal Reserve targets

How does the Fed Control the Federal Funds Rate

Pre-2008, bank reserves were very low:

- Open market operations (OMOs) $\rightarrow$ Fed buys and sells short-term Treasury notes from banks
- This increases/decreases bank reserves
- This changes the money supply
- Which changes the interest rate

Post-2008, banks have lots of reserves at the Fed

- The Fed sets interest rates directly on the reserves held at it (IORB)
- The Fed pays a different, lower interest rate (ON RRP) to non-bank institutions (think money market funds)
- The Federal Funds rate settles between these two rates
  - Lending banks will not lend at an interest rate lower than IORB
  - But lending non-banks will not lend at less than ON RRP
  - In practice, non-banks lend more often, so the FFR settles between IORB and ON RRP

What Else Does the Fed Do?

Supports the financial system:

- Serves as the lender of last resort
  - Bank runs occur when depositors all want to pull cash out at the same time
  - Banks don't usually have all that cash (they lend it!)
  - Fed provides short-term loans to solid, regulated banks (at an interest rate called the discount rate)
  - Stabilizes the banking system
- Regulates and supervises banks
- Administers a system for payment clearing among banks

And What Else?

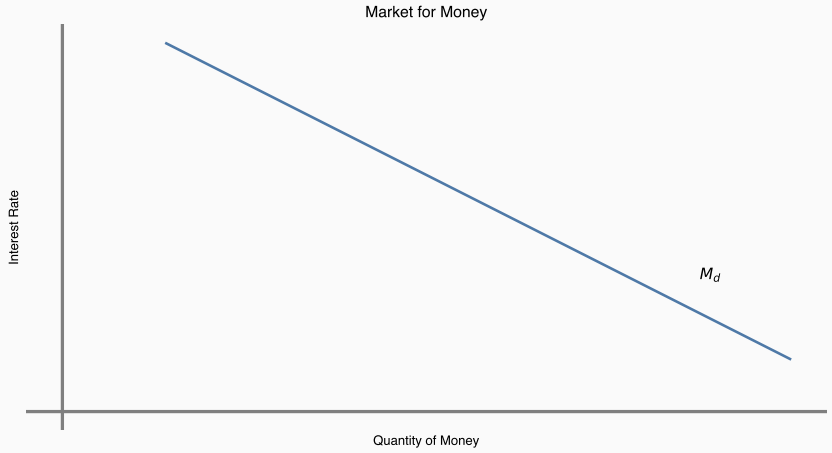
The Fed conducts economic research

- Many PhD economists doing research on all sorts of questions (both micro and macro questions)
  - An example that I am a coauthor on: The Uneven Welfare Costs of the Volcker Disinflation
- Many regional economists studying local issues
- Many undergraduate RAs – pathway to a good PhD program

Demand for Money

- Demand for money is decreasing in the interest rate
  - If r is high, there is a high cost to holding money (could invest it!) $\rightarrow \downarrow M$
  - The interest rate on holding money is basically zero (benefit is liquidity)
- Demand for money is increasing in economic activity
  - The value of your spending is nominal GDP: PY
  - If you want to spend a lot, you will need to hold a lot of money
- So: $M_d = L(r)PY$
  - $L(r)$ is a function decreasing in r
  - Given PY, then in (M, r) space, the demand curve is downward sloping

Money Demand Curve



Shifters: P, Y, or shocks to $L(r)$

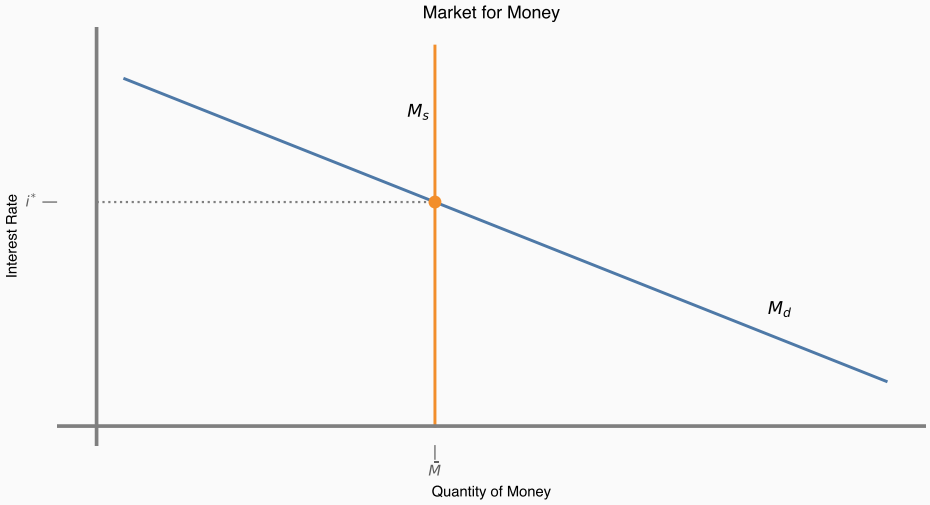
Supply of money is entirely controlled by the Fed (OMOs, setting interest rates, etc)

- The supply of money is exogenous – not dependent on the interest rate

In equilibrium, $M_s = M_d$, so:

$$M_s = L(r)PY$$

Market for Money



Connecting to the Loanable Funds Market

Recall that we already had a market that determined the interest rate – the loanable funds market. How do we reconcile these two models?

- Suppose that the money supply increases exogenously
  - In the market for money, M_s shifts right and the interest rate falls
  - The quantity of money held increases
- A fall in the interest rate shifts AD to the right
- An increase in AD increases GDP
- An increase in GDP increases the total amount of savings
- More savings shifts the aggregate savings curve to the right, resulting in more loanable funds at the lower interest

Note that this is in the short-run – we will talk about the long-run on Thursday

Summary

- What is money?
- The Federal Reserve
- The market for money

- Read chapters 15.3-15.4