Eco 10350 Principles of Macro

Lecture 10



Monetary Policy

- Most nations have a Central Bank
- Federal Reserve
 - Board of Governors has 7 governors; 1 is chair currently Jerome Powell
 - 12 regional Federal Reserve Banks each have a president
 - FOMC is Fed Open Market Committee sets interest rates
 - 7 governors plus president of NYFed plus 4 of 11 other presidents
 - Note who is NOT on FOMC not Treasury Secretary, not any politician was meant to be removed from politics
- Fed has 3 functions:
 - Monetary policy
 - Financial stability
 - Provide banking services to banks & US government

Bank Regulation

- US Banks regulated by
 - Dept of Treasury, Comptroller of the Currency
 - Fed Reserve, for bank holding companies (the big ones)
 - National Credit Union Administration (for credit unions)
 - States
- Tradeoff, banks get supervision as they get backstop against Bank Runs
- Two policies against Bank Run:
 - Deposit Insurance, for deposits < \$250,000 through FDIC Federal Deposit Insurance Corporation
 - Lender of Last Resort Fed can provide funds to a bank (other financial institution?) at discount rate

Monetary Policy

- 4 main tools:
 - Open Market Operations that change the amount of bank reserves
 - Change to Reserve Requirement (RR) rules
 - Change discount rate
 - Quantitative Easing

Open Market Operations – Monetary Policy Tool #1

- Chosen by FOMC, Fed Open Market Committee
- Executed by NYFed (which is why pres of NYFed is always on FOMC)
- Buy or Sell US Treasury Bonds to/from banks
- Often as Repos (Repurchase Agreements) not explicit interest rate
- Convert bonds (that cannot support more lending) to reserves (that can support more lending)
- Often used to smooth seasonal variation or other shortterm disruptions, and meant to be nearly invisible

Open Market Operations

- Back to bank T-tables of Assets & Liabilities
- Suppose bank is in equilibrium all lent up
- Suppose RR=5%

Assets	Liabilities
\$5m reserves \$45m bonds \$50m loans	\$100m deposits

Open Market Operations – Fed Buys Bonds

- If Fed were to BUY \$3m of bonds
- Bank has \$3m fewer in bonds
- But \$3m more in reserves (paid by Fed for those bonds)
- So now the bank has extra reserves and would like to lend these out (assuming confidence is good)
- which starts the Money Multiplier process that we went through in previous lecture...
- More reserves means more loans and more deposits; more money!

Assets	Liabilities
\$5m + \$3m reserves \$45m - \$3m bonds \$50m loans	\$100m deposits

Open Market Operations – Fed Sells Bonds

- If instead Fed were to SELL \$2m of bonds
- Bank has \$2m more of bonds
- But \$2m less in reserves (paid to Fed for those bonds)
- So now the bank has fewer reserves and would like to either borrow reserves from another bank that had extra or reduce deposits/loans
- which starts the Money Multiplier process that we went through in previous lecture...
- Fewer reserves means fewer loans and fewer deposits; less money!

Assets	Liabilities
\$5m - \$2m reserves \$45m +\$2m bonds \$50m loans	\$100m deposits

Bank needs reserves so would like to borrow from another bank(s) that have extra reserves. Or they might reduce loans by slowing pace of new loans or rollovers, getting more reserves. Or can sell loans to another bank and get reserves.

Open Market Operations

- When Fed **buys** bonds this **raises** the money supply
- When Fed **sells** bonds this **lowers** the money supply

Change to RR Reserve Requirement – Monetary Policy Tool #2

- This is a drastic change so US Fed rarely conducts monetary policy with this tool
- Other Central Banks might use it
- A higher RR means banks must keep more reserves for any given amount of deposits, so fewer loans & less money
- This reduces the Money Multiplier (since that is 1/RR)
- For example a 6% RR here:
- (Fed could combine higher RR with Open Market Ops to smooth transition)
- Vice Versa for lower RR banks can make more loans, create more money

Assets	Liabilities
\$5m + \$1m reserves \$45m bonds \$50m - \$1m loans	\$100m deposits

Fed requires o% on first few \$m of deposits, then 3% then 10%, as banks get bigger; can nudge these limits for regulation

Changing the Discount Rate – Monetary Policy Tool #3

- If a bank has too few reserves, it can borrow additional reserves from the Fed
- Additional reserves borrowed from "discount window"
- Borrowed with collateral of bank's loans, although at a discount
- This is ultimate backstop against a bank run
- So this example bank, with 5%RR, has too few reserves and too many loans
- Can fix this by borrowing reserves
- Discount was often at penalty rate
- To encourage banks to borrow from each other (or just sell off a block of loans)
- No longer commonly used

Assets	Liabilities
\$4m reserves \$45m bonds \$51m loans	\$100m deposits

Quantitative Easing– Monetary Policy Tool #4

- new & unconventional
- First used in Japan after their 1990s slowdown
- Quantitative Easing (QE) is Fed buying bonds to put reserves into banking system
- Ordinarily this would lower the Fed Funds Rate
- But Fed Funds Rate has a lower bound, can't go much below zero
- So quantity of reserves keeps increasing and increasing
- Fed buys securities other than US Treasuries, such as mortgage-backed bonds (that had been securitized)

Fed Monetary Policy

- Mostly Fed uses open market operations to change the Fed Funds Rate
- Fed Funds Rate is the interest rate at which banks lend each other reserves overnight
- Most other interest rates depend on that
- FOMC sets target Fed Funds Rate
- Cheap (low) rate means borrowing is easy; expensive (high) rate means difficult

Interest Rates

- Fed Funds Rate (spot & futures contracts)
- LIBOR (being deprecated) now SOFR Secured Overnight Financing Rate (overnight borrowing with Treasuries as collateral) – often these are repos, based on market transactions not surveys
- Treasury rates US federal government & related agencies borrow at different maturities given by yield curve (which we discussed earlier)
- Corporate rates variety of ratings for borrowers
 - 3 primary agencies rate: Moody's, S&P, and Fitch
 - Top is Aaa or AAA (sub'ed as Aa1 or AA+ or similar)
 - Lower could be Baa1 or BBB+ but these are still "investment grade" and so can be bought by many regulated firms
 - Even lower are non-investment grade, aka high-yield bonds, aka "junk bonds"
- Mortgage rates, eg "Prime Rate"
- Other consumer rates (auto, personal)
- Bond surface is function of maturity and risk

Effect of Monetary Policy

- Fed changes Fed Funds Rate
- These changes percolate to other interest rates, changing the cost of borrowing for firms & consumers
- As cost of borrowing rises, firms and consumers borrow less & vice versa
- Some sectors are more sensitive to borrowing costs
 - housing is very sensitive, so construction industries feel it soon
 - in corporate finance, firms decide on investments if it meets a "hurdle rate" determined by cost of funds
 - can shift exchange rates
- From AE models, AE = C+I+G+X-M, changes in rates can directly affect I
 - Equations like $I = I_0 + fR$ where R is the interest rate and f is some parameter
- Lower rates shift AD outward; higher rates shift AD inward
- Depending on slope of AS, these shifts change output & prices

How does Fed choose rates?

- Fed has dual mandate to pursue high employment and low inflation
- If Phillips Curve is downward sloping then there are tradeoffs, can't have both
- "Taylor Rule" tries to model Fed Funds as simple linear function of Output Gap (sometimes measured by Unemployment Rate) and Inflation Rate
- Not meant to be a rule of how to always make policy but a rule-of-thumb or simple baseline
- Hits problems if Taylor Rule implies interest rate < o
- Fed usually tries to avoid surprises
- Fed has tried to give forward guidance and communicate about what info would change their choice

Monetary Policy Choices

- In US, monetary policy is insulated from politics and chosen by an autonomous agency
- Same in Europe since ECB was set up to be independent; Bank of England was made autonomous; Bank of Japan has autonomy
- Politicians sometimes don't like that and want more influence; some countries have central bank that reports to
 president or prime minister directly
 - worry about "Political Business Cycle" that politicians want good economy right around election time
- Any Central Bank has issue of responsiveness changes in rates take 9-18 mo to have effect, might not have easily-predictable effect; Milton Friedman talked about "Fool in the Shower" problem
- Monetary Policy effects change by confidence about future choices by Central Bank, reputation of Central Bank
- open question about how Central Bank should respond to Bubbles in asset prices (stocks, house prices)