OUTLINE — November 7, 2018

- Fiscal Policy, wrap-up
  - Concerns regarding deficit spending
- The Fed & Monetary Policy
  - Money and Reserves and Bank Lending

PS4 due Mon/Tues Nov. 26/27
MT2 reflection due, bCourses, Tues 11/13

Monday 11/12 = Veterans' Day Holiday
No lecture, sections, office hours Monday
No sections Tuesday

Fiscal Policy Complications

- Concerns
  - This is summary slide
  - Read book re automatic stabilizers vs discretionary policy
- Structural vs. cyclical deficit (did this Monday)
- Are we shifting only AD, or AD & PPF?
- How does government pay its bills when run a deficit?
  - By borrowing
- Impact on interest rates
  - "Crowding out" of investment?

Automatic vs Discretionary Policy

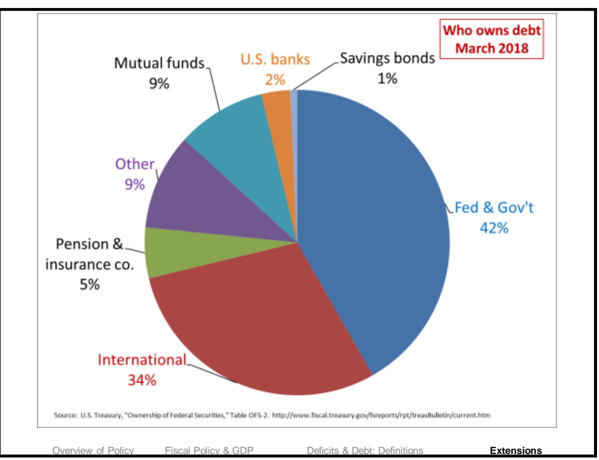
Automatic stabilizers	Discretionary fiscal policy
Leaving this to the book (read the book!)	

Are we shifting only AD, or AD & PPF?

- To shift PPF, need more inputs or higher productivity
- Some fiscal policy can shift both AD & PPF
  - Example: infrastructure spending
- But much fiscal policy shifts only AD
  - Example: tax cuts, transfer payments, some types of G
- When $Y_E < Y_{FE}$, expansionary fiscal policy helps close the output gap
- When $Y_E = Y_{FE}$ already, expansionary fiscal policy pushes economy beyond PPF
  - $Y_E > Y_{FE}$ typically leads to problems with inflation

How pay bills when run a deficit?

- Federal government does **not** "print money" to pay its bills
  - Deficit? **Federal government borrows**
    - Annual borrowing = (G + TR) – TA
  - Borrow by issuing "Treasuries" = I.O.U. from government
  - "Maturity" = how many months/years until fully repaid
    - Bills: Called "T-Bills"; Short-term, mature in 1 year or less
    - Notes: Mature in 2 to 10 years
    - Bonds: Long-term, mature in 20 to 30 years
- Who lends?
  - Everyone (see pie chart from Nov. 5)



ID #A01693790 $1,000

Payable to bearer on or after November 7, 2019

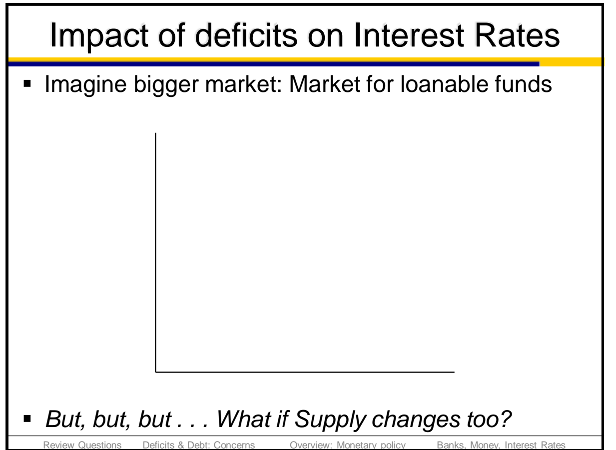
One Thousand and no/100 U.S. Dollars

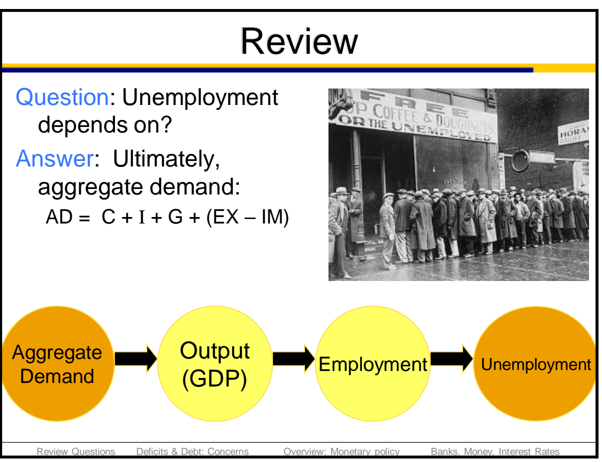
Steven Mnuchin, Secretary of the U.S. Treasury

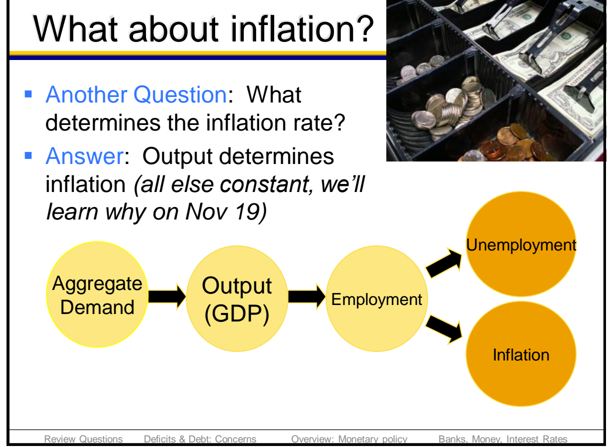
$1,000 ID #A01693790

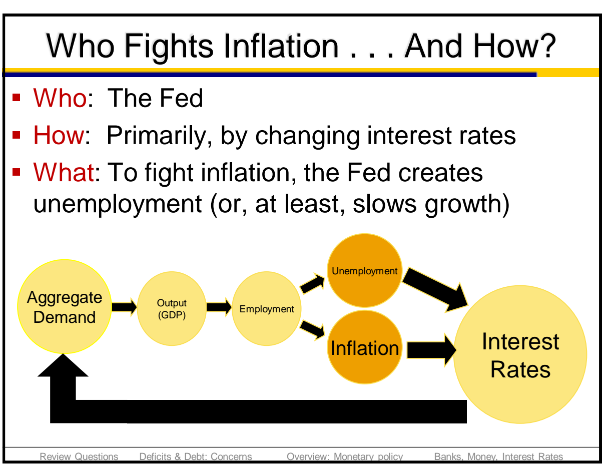
T-bill prices and interest rates

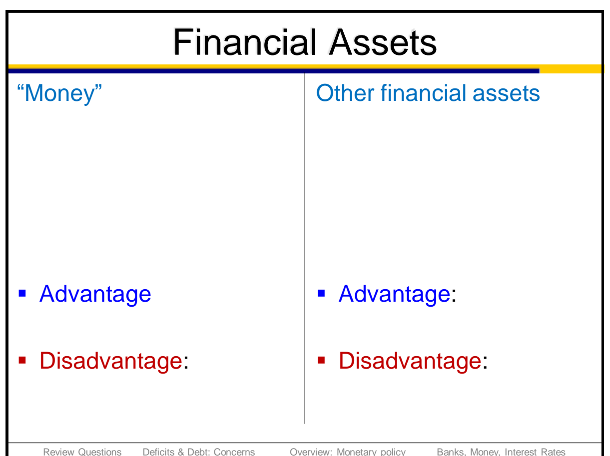
- Market for Treasury bills
- Interest rate paid by borrower (government) = rate of return earned by lender (bond-holder)

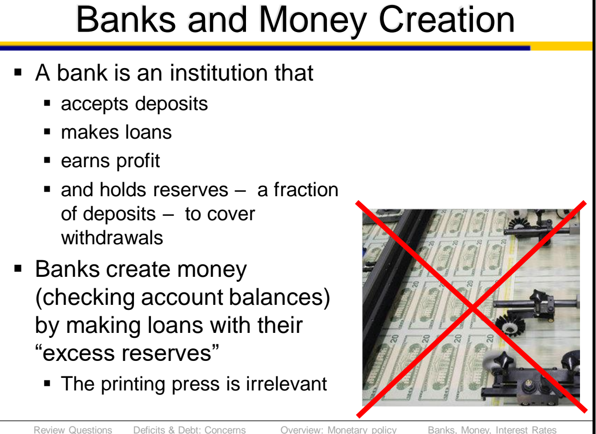

Impact of deficits on Interest Rates
Imagine bigger market: Market for loanable funds
But, but, but . . . What if Supply changes too?
Review Questions
Deficits & Debt: Concerns
Overview: Monetary policy
Banks, Money, Interest Rates

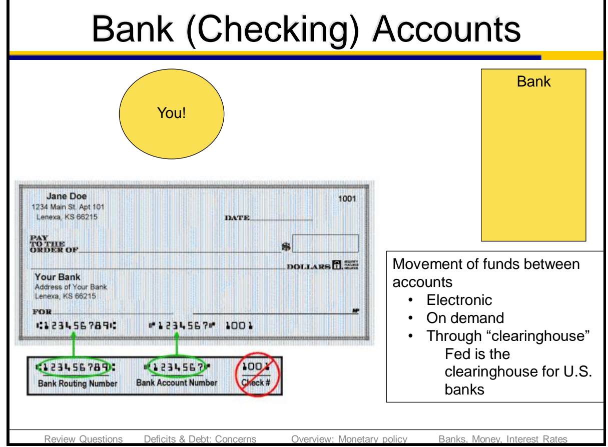

Review
Question: Unemployment depends on?
Answer: Ultimately, aggregate demand:
AD = C + I + G + (EX – IM)
Aggregate Demand
Output (GDP)
Employment
Unemployment
Review Questions
Deficits & Debt: Concerns
Overview: Monetary policy
Banks, Money, Interest Rates

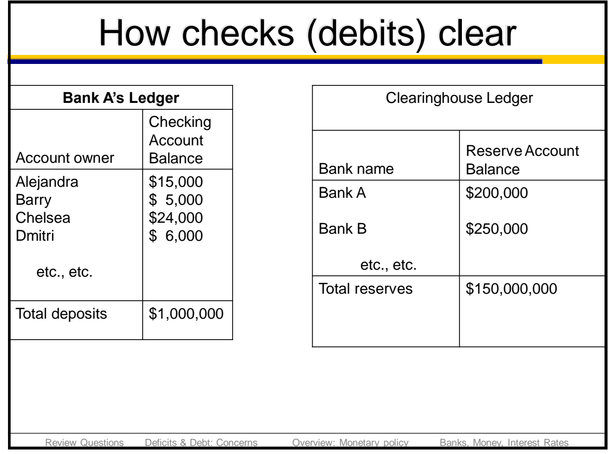

What about inflation?
Another Question: What determines the inflation rate?
Answer: Output determines inflation (all else constant, we'll learn why on Nov 19)
Aggregate Demand
Output (GDP)
Employment
Unemployment
Inflation
Review Questions
Deficits & Debt: Concerns
Overview: Monetary policy
Banks, Money, Interest Rates

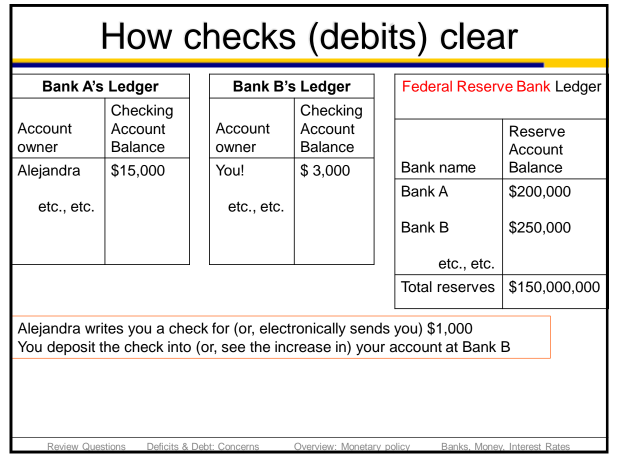

Who Fights Inflation . . . And How?
Who: The Fed
How: Primarily, by changing interest rates
What: To fight inflation, the Fed creates unemployment (or, at least, slows growth)
Aggregate Demand
Output (GDP)
Employment
Unemployment
Inflation
Interest Rates
Review Questions
Deficits & Debt: Concerns
Overview: Monetary policy
Banks, Money, Interest Rates


Financial Assets
"Money"
Other financial assets
Advantage
Disadvantage:
Advantage:
Disadvantage:
Review Questions Deficits & Debt: Concerns Overview: Monetary policy Banks, Money, Interest Rates


Banks and Money Creation
A bank is an institution that
accepts deposits
makes loans
earns profit
and holds reserves – a fraction of deposits – to cover withdrawals
Banks create money (checking account balances) by making loans with their "excess reserves"
The printing press is irrelevant
Review Questions Deficits & Debt: Concerns Overview: Monetary policy Banks, Money, Interest Rates


Bank (Checking) Accounts
You!
Bank
Jane Doe
1234 Main St, Apt 101
Lenexa, KS 66215
1001
DATE
PAY TO THE ORDER OF
$
DOLLARS
Your Bank
Address of Your Bank
Lenexa, KS 66215
FOR
Bank Routing Number
Bank Account Number
Check #
Movement of funds between accounts
Electronic
On demand
Through "clearinghouse"
Fed is the clearinghouse for U.S. banks
Review Questions Deficits & Debt: Concerns Overview: Monetary policy Banks, Money, Interest Rates


How checks (debits) clear
Bank A's Ledger
Account owner
Checking Account Balance
Alejandra $15,000
Barry $ 5,000
Chelsea $24,000
Dmitri $ 6,000
etc., etc.
Total deposits $1,000,000
Clearinghouse Ledger
Bank name
Reserve Account Balance
Bank A $200,000
Bank B $250,000
etc., etc.
Total reserves $150,000,000
Review Questions Deficits & Debt: Concerns Overview: Monetary policy Banks, Money, Interest Rates



How checks (debits) clear

Bank A's Ledger	
Account owner	Checking Account Balance
Alejandra	$15,000
etc., etc.	

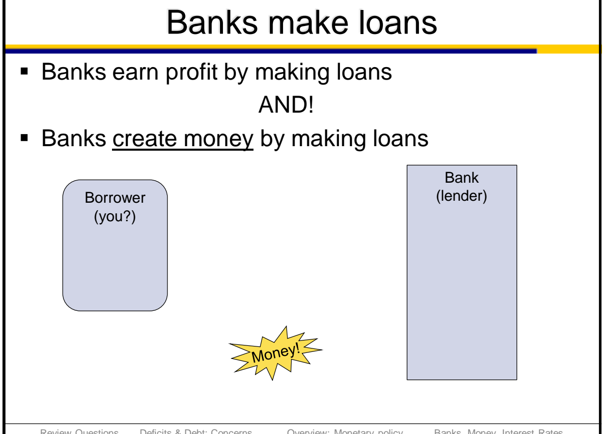
Bank B's Ledger	
Account owner	Checking Account Balance
You!	$ 3,000
etc., etc.	

Federal Reserve Bank Ledger	
Bank name	Reserve Account Balance
Bank A	$200,000
Bank B	$250,000
etc., etc.	
Total reserves	$150,000,000

Alejandra writes you a check for (or, electronically sends you) $1,000
You deposit the check into (or, see the increase in) your account at Bank B

Bank "Reserves"

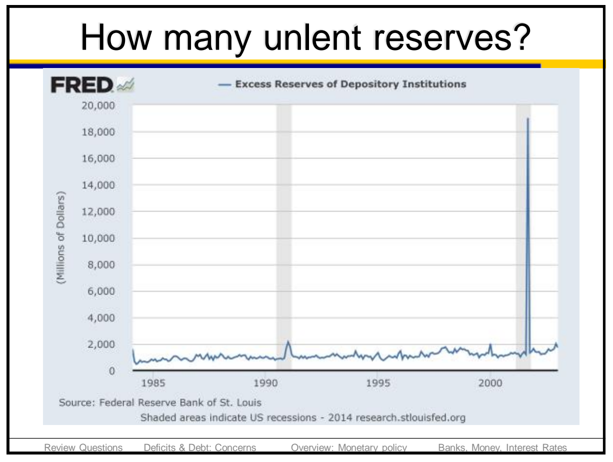
- Every bank has an account at Federal Reserve Bank
  - "Reserve Account"
- Bank reserves used to move funds between banks
- Required minimum balance = 10% of checking account balances
  - "Required reserves"
- Any balance beyond minimum requirement called "excess reserves"
  - Excess reserves = Total reserves – Required reserves



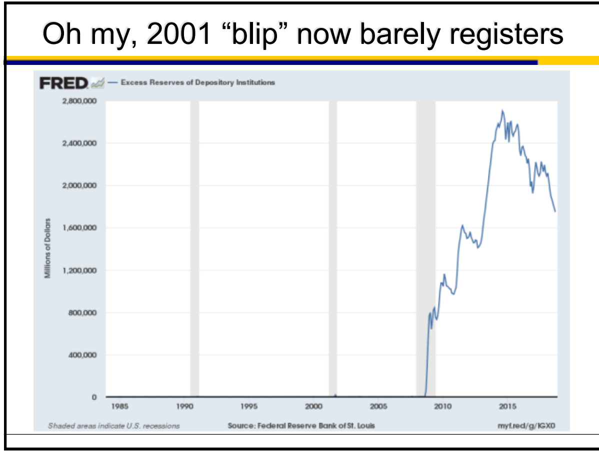
Changing the Money Supply

- Banks create money by making loans with their "excess reserves"
- Fed wants more money in economy?
  - Fed increases excess reserves held by banks
  - Banks use those excess reserves to lend more, creating more money (checking account balances)
- Fed wants less money in economy?
  - Fed decreases excess reserves held by banks
  - Banks lend less, creating less money (checking account balances)
- Or, at least, that's how it used to work . . .

How many unlent reserves?



Oh my, 2001 "blip" now barely registers

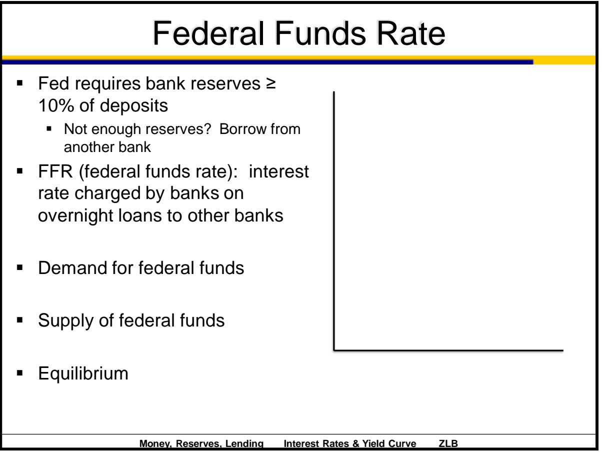


How Fed changes bank reserves

- To increase bank reserves, Fed buys assets – traditionally Treasury bills – from banks
  - Fed pays bank by increasing bank's reserves
- To decrease bank reserves, Fed sells assets to banks
- The Fed's Balance Sheet: https://www.clevelandfed.org/our-research/indicators-and-data/credit-easing.aspx

Federal Funds Rate

- Fed requires bank reserves ≥ 10% of deposits
  - Not enough reserves? Borrow from another bank
- FFR (federal funds rate): interest rate charged by banks on overnight loans to other banks
- Demand for federal funds
- Supply of federal funds
- Equilibrium



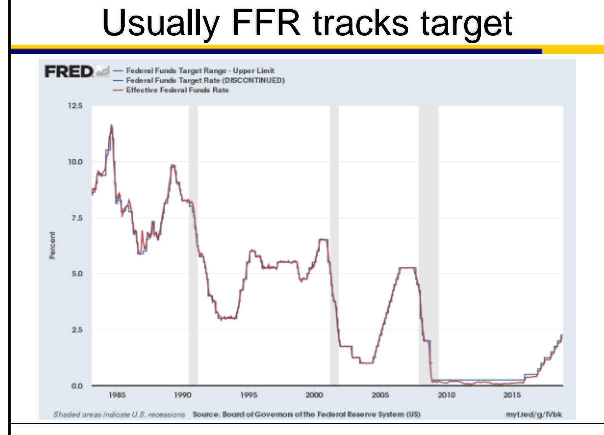
Language re policy

- See text, pg 221
  - *Goal*: stable prices
  - *Objective*: inflation rate = 2%
  - *Strategy*: increase federal funds rate to 3 %
  - *Tactic*:
    - Traditionally: Fed sells financial assets (FOMO)
    - New tactic: Fed changes interest rate paid on excess reserves (IOER)

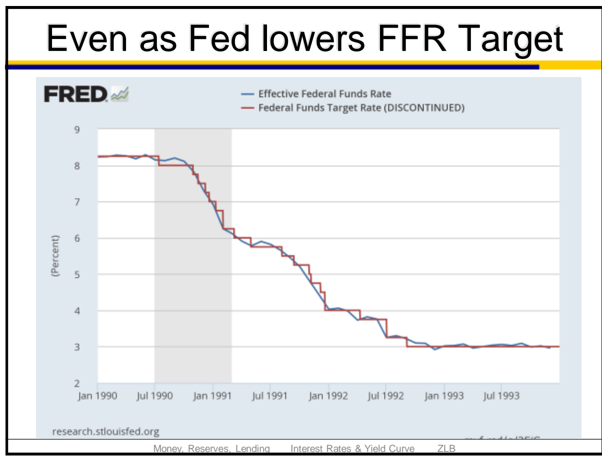
Fed influences FFR by changing reserves of banks

- If Fed increases reserves in banking system
- If Fed decreases reserves in banking system
- *Tactic called FOMO: Federal open market operations*
- **Disadvantage**: Fed can't control FFR
  - Fed sets target for the federal funds rate
  - Takes action to influence that rate
  - But market – supply & demand – determines rate

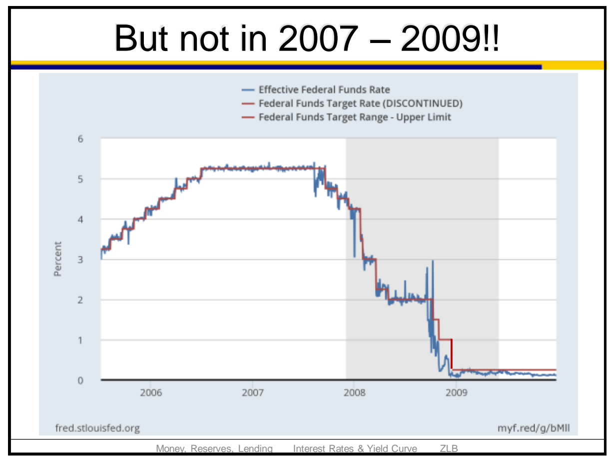
Usually FFR tracks target



Even as Fed lowers FFR Target



But not in 2007 – 2009!!



Fed changed tactic

- New tactic as of 10/2008 (first used 12/2015): IOER
  - IOER = interest rate paid by Fed on excess reserves
  - Creates an obvious “opportunity cost” to lending
  - Replaced FOMO as primary tactic of monetary policy
- **Advantage:** Fed *can* control interest rate paid on reserves
- **Strategy**
  - Fed wants banks to decrease their lending to public?
    - Fed increases rate paid on excess reserves
  - Fed wants banks to increase their lending to public?
    - Fed decreases rate paid on excess reserves
- Source: *http://www.federalreserve.gov/monetarypolicy/reqresbalances.htm*

And what else changed?

- And also, who were lenders in the Federal Funds market changed
  - Traditionally: banks lending to other banks
  - Now (read article #22!): Also, “government sponsored entities” (GSEs) as lenders
- Because of market imperfections. . .
  - GSE lends to bank at, say, 0.40 percent
  - Bank thereby has excess reserves (ER)
  - Bank holds the ER and earns 0.50 percent IOER from Fed
  - Bank prefers risk-free ER at IOER over risky loan to customer