OUTLINE — November 13, 2019

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

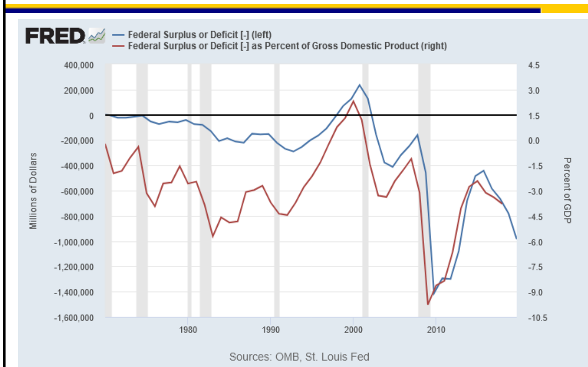
MT2 reflection due, bCourses, Wed 11/13, 7 pm

PS4 due Tuesday November 26, 8 pm

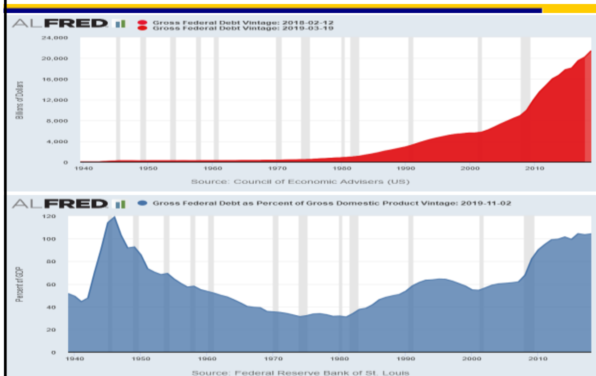
Fiscal Policy Effect on Deficit

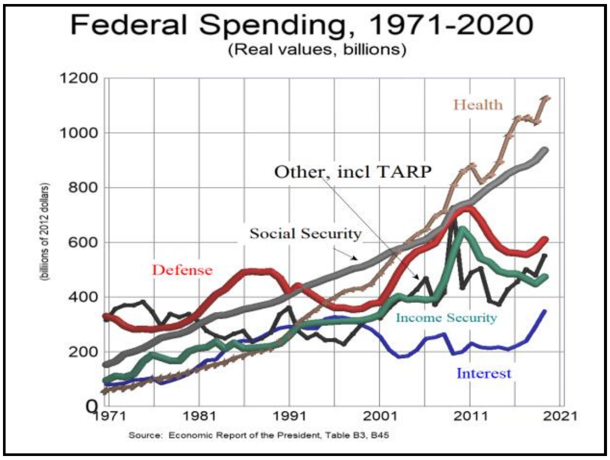
- Expansionary fiscal policy
  - ↑G or ↑TR or ↓TA
  - Expansionary fiscal policy <u>increases</u> deficit
- Contractionary fiscal policy
  - ↓ G or ↓ TR or ↑ TA
  - Contractionary fiscal policy <u>decreases</u> deficit

Federal Gov. Deficits 1970-2019



Outstanding Federal Debt, 1939-2019



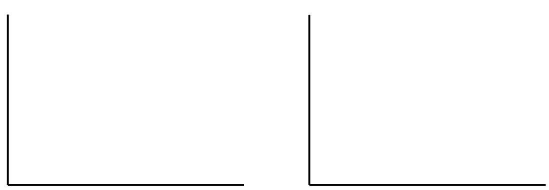


Fiscal Policy Complications

- *This is a summary slide*
- Concerns
  - Temporary vs. permanent fiscal stimulus
  - Are we shifting only AD, or AD & PPF?
  - Structural vs. cyclical deficit
  - How does government pay its bills when run a deficit?
    - Hint: By borrowing
  - Impact on interest rates
    - "Crowding out" of investment?

Temporary or Permanent Stimulus

- "Priming the pump"
  - A process of getting water flowing in a pump, and then the water *just keeps on flowing (even after the "priming" stops)*
- Does Government spending "prime the pump?"
  - What process keeps aggregate demand high after temporary increase in G ends?



Fiscal policy & Output gap

- If we are trying to close an output gap, fiscal policy should be expansionary
  - That is, increase budget deficit this year relative to last year
- But! If there is no output gap, expansionary fiscal policy may be *too* expansionary
  - Does fiscal policy affect PPF? Or just affect AD?
  - Pushing economy beyond PPF can trigger inflation

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

Structural vs Cyclical Deficit

- A counterfactual question: How big would the deficit be if the economy were at full employment (eg, 4%)?
- How much larger is the actual deficit when unemployment is above full employment rate of 4 percent?
- It is problematic (many say) when the structural deficit > 0

How pay bills when run a deficit?

- Federal government does **<u>not</u>** "print money" to pay its bills
  - Deficit? **Federal government borrows**
    - Annual borrowing = (G + TR) – TA
  - Borrow by issuing "Treasuries" = I.O.U. from government

ID #A01693790 $1,000

Payable to bearer on or after November 13, 2020

One Thousand and no/100 U.S. Dollars

Steven Mnuchin, Secretary of the U.S. Treasury

$1,000 ID #A01693790

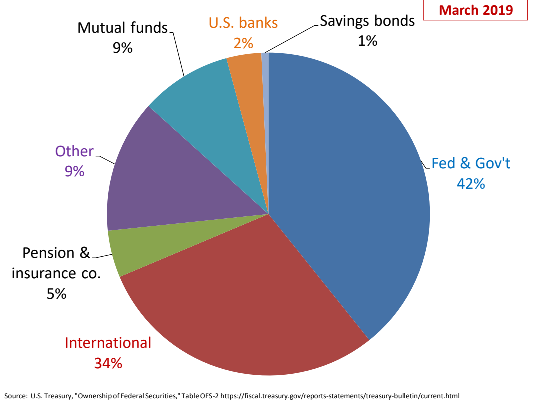
T-bill prices and interest rates

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

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

Who owns debt March 2019



Source: U.S. Treasury, "Ownership of Federal Securities," Table OFS-2 https://fiscal.treasury.gov/reports-statements/treasury-bulletin/current.html

Impact of deficits on Interest Rates

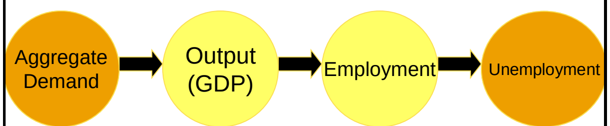
- Imagine bigger market: Market for loanable funds
- *But, but, but . . . What if Supply changes too?*

Review

Question: Unemployment depends on?

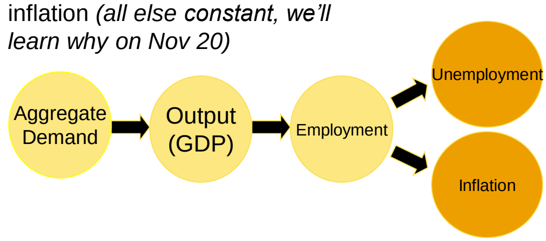
Answer: Ultimately, aggregate demand:

AD = C + I + G + (EX – IM)



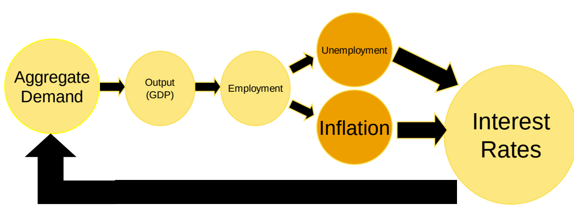
What about inflation?

- Another Question: What determines the inflation rate?
- Answer: Output determines inflation *(all else constant, we'll learn why on Nov 20)*



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)



Financial Assets

"Money"	Other financial assets
Advantage	Advantage:
Disadvantage:	Disadvantage:

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

How checks (debits) clear

Bank A's Ledger	
Account owner	Checking Account Balance
Alejandra Barry Chelsea Dmitri etc., etc.	$15,000 $ 5,000 $24,000 $ 6,000
Total deposits	$1,000,000

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

How checks (debits) clear

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

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

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

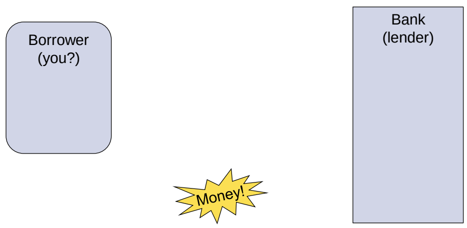
- Every bank has an account at Federal Reserve Bank
  - "Reserve Account"
- Bank reserves used to move funds between banks
- Required minimum balance = 10% of checking account balances
  - "Required reserves"
- Any balance beyond minimum requirement called "excess reserves"
  - Excess reserves = Total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

Banks make loans

- Banks earn profit by making loans

AND!

- Banks create money by making loans



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 . . .*

Old & New Fed Policy

- Most textbooks (and HS and AP classes) discuss the old way – the way the Fed used to conduct policy
  - Required reserve ratio
  - Discount rate
  - FOMO (federal open market operations)
- But since the textbook was written, the Fed has changed how they conduct policy
  - Article 23 is very helpful!
  - Headings on upcoming slides: Old and Now

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)

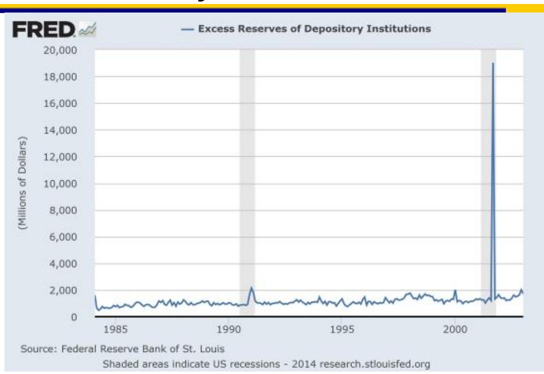
Old: How Fed changed int. rates

- Key rate: Federal Funds Rate (FFR)
  - FFR is interest rate banks pay for overnight loan of reserves
- Old reason to borrow: to cover reserve requirement
  - Borrowers = banks who need reserves to meet requirement
  - Lenders = banks with excess reserves
- FFR set in market for these overnight loans
  - Increase borrowing (increase borrower D for loans)?
    - Result: Higher interest rate (increase FFR)
  - Increase lending (increase lender S of loans)?
    - Result: Lower interest rate (decrease FFR)
- Fed could *influence* FFR by changing amount of reserves (*influence* . . . But Fed couldn't *set* FFR)

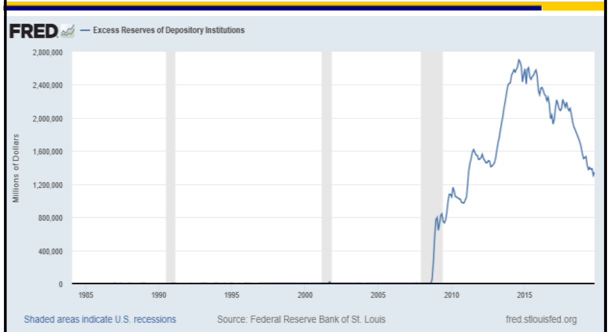
Old: How Fed changes bank reserves

- Fed used to change reserves by conducting "FOMO"
  - FOMO = federal open market operations
  - To increase bank reserves, Fed would buy assets – traditionally Treasury bills – from banks
    - Fed pays banks for the T-bills by increasing banks' reserves
    - More reserves → More lending & Less borrowing → FFR fell
  - To decrease bank reserves, Fed would sell T-bills to banks
    - Banks pay Fed for the T-bills by letting Fed decrease their reserves
    - Fewer reserves → More borrowing & less lending → FFR rose

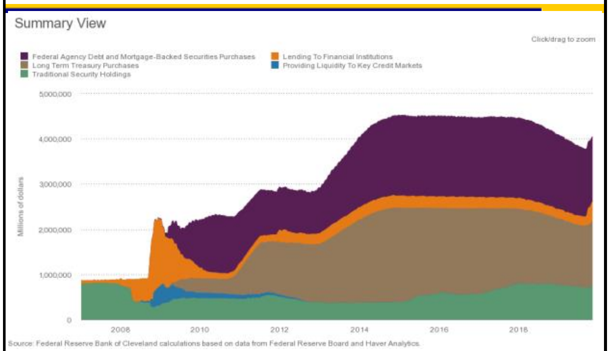
How many unlent reserves?



Oh my, 2001 "blip" now barely registers



Assets owned by Federal Reserve



The Fed's Balance Sheet: https://www.clevelandfed.org/our-research/indicators-and-data/credit-easing.aspx

Now: 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 (IOER)
  - Fed wants banks to increase their lending to public?
    - Fed decreases rate paid on excess reserves (IOER)
- Source: *http://www.federalreserve.gov/monetarypolicy/reqresbalances.htm*

Now: And what else changed?

- Also, who were lenders in the Federal Funds market changed
  - Traditionally: just banks lending to other banks
  - Now: Also, "government sponsored enterprises" (GSEs, eg Fannie Mae, Freddie Mac) as lenders
- Gap between IOER and FFR matters
  - GSE lends to bank at an FFR of 0.40 percent
  - Bank thereby has excess reserves (ER)
  - Bank holds the ER and earns 0.50 percent IOER from Fed
  - When rates are low, bank prefers risk-free ER at IOER over risky loan to customer at market interest rate
- Read Article #23!