1. Money
   1. Definition
      1. Functions as a medium of exchange (widely accepted), unit of account (different denominations), and stores value.
   2. In order to be money it has to be widely accepted as form of payment
   3. Examples of money
      1. Gold, diamonds, silver, cattle, and cigarettes
   4. Different types of money
      1. Commodity money
         1. Dual value. Serves as money as well as a commodity
         2. Issues with commodity money
            1. The optimal stability of supply is an issue because as a commodity its value could be higher than of what it is stamped for.
      2. Fiat money
         1. The currency has no value other than that of serving as money. No intrinsic value
   5. Gresham’s Law
      1. Bad money drives good money out of circulation. Example: Gold coins and $2 bill
   6. Gold Standard
      1. The USA left this in 1973. Nothing backs our currency anymore.
      2. What backs our currency then?
         1. Trust
2. Barter
   1. A pricing system
   2. Problems with barter
      1. Only works when there is a mutual coincidence at once
      2. Time consuming
      3. Transaction Costs ↑
3. Money Supply
   1. MS = M1 = Most Liquid Assets
      1. MS = C + DD
      2. C = Currency = Paper bills and coins
      3. DD = Demand Deposits = Checkable Deposits (and debit cards)
      4. Credit cards are ***not*** part of the money supply
   2. M2 = M1 + Savings + Small Time Deposits (CDs)
   3. Who controls the money supply?
      1. Currency is controlled by the fed
      2. Demand deposits are controlled by the banks but they report to the fed
   4. DD is money created by the banks ( ↑ in MS)
      1. Does not refer to printing bills
4. Money Supply Creation Process
   1. Initial assumptions
      1. Single bank (multiple branches)
      2. Fully loaned up (XR=0)
      3. No cash leakages (C=0)
      4. Required reserve ratio = 20%
   2. DD \* Required Reserve Ratio = RR => TR – RR => XR \* mmp = ΔMS
   3. What if there are multiple banks?
      1. For accounting purposes, so long as it gets to the bank then the loan creation is still happening and MS is the same
   4. If banks aren’t fully loaned up (XR ≠ 0)
      1. The banks will not make MS creation potential
   5. If there are cash leakages
      1. MS ↓
      2. They are not reaching full potential
      3. Money that doesn’t make it to the bank doesn’t multiply
   6. If the required reserve ratio changes
      1. Required Reserve Ratio ↑ => RR↑ => XR↓ => Loans↓ => DD↓ => MS↓
      2. Required Reserve Ratio ↓ => RR↓ => XR↑ => Loans↑ => DD↑ => MS↑
   7. Calculate Ma given that MS = 900 and C = 0
      1. Ma = 900/ (300 + RR)
      2. 900=300+ XR + RR
      3. 600 = XR + RR
      4. XR = $480
      5. RR = $120
      6. Ma = $900/$420
      7. Ma = 2.1428
      8. Note: You are taking RR, not DD
   8. Calculate Ma given that DD = $12000 and C=$2000
      1. MS = $14000
      2. Ma = $14000/(2000+2400)
      3. 3.1818
5. Federal Reserve
   1. Serves as lender of last resort
   2. 12 Banks
   3. In charge of monitoring supply of money
   4. Banking Act of 1913
      1. Established the federal reserve
      2. Started operating in 1914
   5. Fractional Reserve System
      1. TR = RR + XR
      2. Total Reserve = Required Reserves + Excess Reserves
   6. RR
      1. Required Reserves are deposited into the vault of the bank or in their account with the federal reserve.
   7. Structure
      1. Board of Governors
         1. 7 People
         2. Appointed by the President of the USA and confirmed by the senate
         3. These people vote for the chairman of the fed / President of the Fed
         4. 14 year term
      2. Chairman of the Fed / President of the Fed
         1. Elected by the Board of Governors
         2. 4 year term, often reelected
      3. Monetary Policy
         1. They believe that monetary policy will keep the economy simple
         2. A-political, meaning the 7 board of governors have staggered terms. These people do not have to consult with the president or congress.
         3. Using MS or interest rate (credit conditions) to manipulate variables in the economy to achieve macroeconomic goals
         4. Historically monetary policy has focused on controlling inflation
         5. 3 Major Tools the Fed has to manipulate MS
            1. Required reserve ratio – direct
            2. (d)iscount rate – indirect
            3. OMO = Open Market Operations
         6. If the Fed wanted to expand MS they could lower required reserve ratio, lower discount rate, or use OMO
         7. OMO
            1. Deals with feds and bank interacting with one another in the buying and selling of government treasuriers (t-bill, bonds, etc)
            2. Relationship such that daily buying and selling of government securities
            3. The fed has the ability to adjust how many they buy and sell.
      4. 12 Banks
         1. District banks by regions
         2. Concentrated in the East Coast
      5. Board of Directors
         1. Each bank elects district bank president
      6. Federal Open Market Committee
         1. Active monetary policy body that is active on a daily basis
         2. Who is in it?
            1. Board of Govenors
            2. President of the District bank of NY
            3. 4 Presidents of District Banks on 1 year terms
      7. Originally the fed was created as a lender of last resort however they have become bankers of banks.
      8. The fed conducts monetary policy
6. Misc
   1. Overnight loans
      1. Banks borrowing from one another are called overnight loans
   2. Discount Rate
      1. Interest rate that banks get from the federal reserve
   3. Federal Funds Rate
      1. Interest rate for bank-to-bank overnight loans
7. Formulas
   1. C = Currency in circulation
   2. DD = Demand Deposits
   3. TR = Total Reserves
   4. RR = Required Reserves
   5. XR = Excess Reserves
   6. RR = Required Reserve Ratio (weird r) \* % of DD
   7. Required Reserve Ratio = Weird Rr
   8. ΔMS = XR \* mmp
   9. MP = 1/rr (weird r) = Potential Money Supply Multiplier
   10. Ma = MS/MB = Actual money multiplier
       1. Takes cash leakages into account
   11. MB = High Powered Money (Paper bills outside of the bank + RR) = C + RR = Monetary Base

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| Assets | Liabilities |
| $2000 = RR / $8000 = XR  -$8000 XR / + Loan $8000 | DD = $10000 |
| $1600 RR / XR $6400 | $8000 DD |
| -$6400 XR / + Loan $6400 |  |
| + $6400 TR | $6400 DD |
|  | =$8000 + $6400 in created money from the initial $10,000 DD |