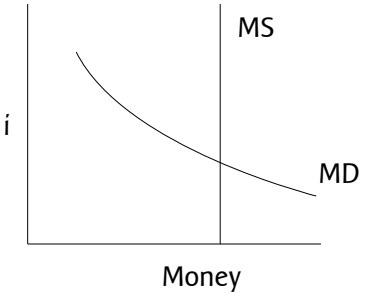
Unit IV – Money, Banking, and Monetary Policy (Chapters 13, 14, 15)

MONEY is anything used as: medium of exchange, unit of monetary account, or store of value.

MONEY DEMAND (MD) is the sum of transactions demand and asset demand. Transactions demand varies directly with nominal GDP. Asset demand varies inversely with interest rate. We have an MS/MD graph comparing i to Money. MS is always vertical in the United States (FRB).



REMEMBER:
- the transfer of debt model of transactions!
- Transaction speed makes it hard to measure MS.
- Credit Cards NOT part of money supply (double-counting)

FEDERAL RESERVE DEFINITIONS OF MONEY (the M's):
- M1 is currency and checkable deposits;
- M2 is M1 and non-checkable savings deposits, money market deposit accounts, small (<$100K) time deposits, and money market mutual funds
- M3 is M2 plus large (>$100K) time deposits.

THE FEDERAL RESERVE BOARD (FRB)
- Board of Governors (14-year terms staggered every 2) Presidentially-appointed and Congressionally approved.
- 12 Federal Reserve Banks: central banks, quasi-public banks, bankers' banks. **Bank of Last Resort!**
- 9500 commercial banks & 14000 thrift institutions

FUNCTIONS OF THE FED
- Issue Federal Reserve Notes ($$$)
- Set reserve requirements and hold reserves from banks and thrifts
- Provide for rapid collection of checks
- Act as fiscal agent for Federal government
- Supervise operations of banks
- Regulate the supply of money ==> broad economic goals

BANKING:
- Balance Sheets: Assets = Liabilities + Net worth (= Claims)
  - Assets = something of economic value
  - Liabilities = claims of non-owners against assets
  - Net Worth = claims of owners against assets
- Fractional reserve system (no 1:1 gold standard)
- Required reserves held as deposit in FRB or vault cash
- Draw checks against a bank: lose reserves and demand deposits
- Make Loans = Make money || Repay loans = destroy money
- Excess Reserves = Actual Reserves – Required Reserves = Loanable funds
- Excess Reserves can be lent out, and the demand deposits from that loan create more loanable funds – the total amount by which one demand deposit can be multiplied out (total creation of money) is the excess reserves from that deposit times the money multiplier (reciprocal of reserve ratio) This process is reversible.

A BANK

Assets	**Liabilities and Net Worth**
Reserves: $110,000	Demand Deposits: $100,000
Property: $240,000	Capital Stock: $250,000

If the reserve ratio is 20%, this bank must keep 20% of the Demand Deposits in Reserves ($20,000) and therefore has $90,000 of excess reserves or loanable funds. If someone makes a deposit, both demand deposits and total reserves will increase by that amount (assets = claims). If someone deposits $20,000, the 20% required reserve is kept, but 80% remains to loan out (excess). (80%)(1/20%)($20,000) = $80,000 can potentially be created by this deposit! (we used the money multiplier, 1 over the required reserve ratio.)

CHECK CASHING example. Customer of Wahoo bank pays a customer of Beaver Bank $50,000 by check. Beaver Bank sends the check to the district Federal Reserve Bank for collection. Then the Federal Reserve Bank sends the check back to Wahoo bank as a receipt. Notice the transfer of debt from bank to bank and how the transaction happens internally in the Federal Reserve Bank.

WAHOO BANK	*Check paid to Beaver*
Assets	**Liabilities & Net Worth**
Reserves -$50K	Demand Deposits -$50K

BEAVER BANK	*Collects check from FRB*
Assets	**Liabilities & Net Worth**
Reserves +$50K	Demand Deposits +$50K

FRB of Kansas City	*Clears check from Beaver*
Assets	**Liabilities & Net Worth**
	Wahoo Reserves -$50K
	Beaver Reserves +$50K

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The Purpose of Monetary Policy: control the economy via the money supply and money demand.
Devices of the Fed in Monetary Policy: Required Reserve Ratio, Government Bonds, Discount Rate & Federal Funds Rate
Goals of Monetary Policy: Broad Economic Goals: Maximize production and employment while keeping inflation down.
***Remember: policies are either expansionary or contractionary! Think money supply.

REQUIRED RESERVE RATIO
Def: The percentage of all deposits that banks must hold as reserves, either in FRB accounts, or as vault cash.
Decrease: Expansionary. Increase: Contractionary.

GOVERNMENT BONDS=GOVERNMENT SECURITIES=TREASURY BILLS
Key Term: Open Market Operations (OMO) (means the same thing)
Def: M2 holdings. Government uses these to redistribute the money supply (de-liquidate) from M1 to M2.
Buy Bonds: Expansionary. Sell Bonds: Contractionary.
***Selling bonds means that people pay for them. Thus "cash" is drawn out of the market.

DISCOUNT RATE & FEDERAL FUNDS RATE
Def: The interest rate charged banks for taking out loans from the FRB (discount rate) and from each other in emergency situations (federal funds rate)
Decrease: Expansionary. Increase: Contractionary.

Members of the economy have choices:
Hold money as cash in a box or deposit for interest.
Determinants of choice are the Opportunity Costs.

$$MD\uparrow \Rightarrow i\uparrow (\Rightarrow MS\uparrow \text{ to maintain } i)$$
$$MD\uparrow \Rightarrow PL\uparrow \Rightarrow GDP\uparrow (\text{b/c } AD\uparrow) \Rightarrow \text{NI}\uparrow$$

Interest Rates: ***
- Up ==> contractionary.
- Down ==> expansionary.

QUANTITY THEORY OF MONEY = EQUATION OF EXCHANGE
MV = PQ
Money Supply (M1) times the Velocity of money = Avg. Price level times Real GDP (= nominal GDP)
With V and Q constant, any change in the money supply will directly affect the average price level!

THE FISHER EFFECT
Expected inflation is embodied in nominal interest rate (*i*). Investors want compensation for decreases in purchasing power of wealth; must increase *i* to entice investors.

$r = i - \pi$ where r and i are real and nominal interest rates and π is inflation

Those who participate in the market try to make a profit based on changing interest rates by changing their own interest rates. (Passing the buck!)

Ex ante means anticipatory
Ex poste means after the fact

The Lender gets compensated for:
- Rent on money loaned
- Loss of purchasing power on the principal.
- Loss of purchasing power on the interest.

$$(1+i) = (1+r)(1+\Delta P_e)$$
$$i = r + \Delta P_e + (r\,\Delta P_e)$$

i = nominal interest rate, r = real interest rate, and P is the expected inflation

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CAUSE-EFFECT CHAIN – short-run scenario only (in the long run, such repetitive increases yield hyperinflation)

(1) Money Supply affects the interest rate (if MS rises while MD remains the same, the interest rate will fall)
(2) The interest rate affects Investment (a decline in interest rate will prompt an increase in Investment)
(3) Investment is a component of Aggregate Demand (a rise in Investment prompts a rise in AD)
**All of the above move Equilibrium GDP!