8. Money Market

Unit I: The Concept of Money Demand

* Introduction

→ Money can be anything that can serve as :-

(a) Store of value [save it for future]

(b) Unit of account [common base for prices]

(c) medium of exchange [which can be used to buy/sell Goods/service]

→ Money is something that holds its value over time, can be easily translated into prices and is widely accepted. Many different things have been used as money over the years.

- cowry shells
- Barley
- peppercorns
- gold and silver etc.,

• Fiat Money

→ Eventually, the paper claim on precious metals was delinked from metal → and thus → FIAT MONEY was born

→ Fiat money is materially worthless, but has value simply because a nation collectively agrees to ascribe a value to it. [In short, money works because people believe that it will]

• Money can be defined for policy purposes as the set of _liquid_ financial assets, the variation in stock of which could impact on aggregate economic activity. As statistical concept, money could include certain liquid liabilities of a particular set of financial intermediaries or other issuers.

<div align="right">— RBI Manual on Financial and Banking Statistics, 2007</div>

- <u>Functions | Characteristics of Money</u> :-
  (i) Generally acceptable
  (ii) durable (long lasting)
  (iii) Effortlessly recognisable
  (iv) difficult to counterfiet (not easily reproducible by people)
  (v) portable (easily transported)
  (vi) relatively scarce, but has elasticity of supply [Supply $\neq$ 0]
  (vii) possess uniformity
  (viii) divisable into smaller parts without losing its value

- <u>How is Money measured ?</u> [Source: International Monetary Fund]
  → In official statistics, the amount of money in an economy is generally measured through what is called <u>BROAD MONEY</u>

  $\downarrow$
  which encompasses
  everything that provides
  a store of value and
  liquidity.

  → <u>Broad Money consists</u> :-

  Narrow money [
  • National currencies (generally issued by central govt.)
  • Transferrable deposits (which include demand deposits, cheques etc)
  • other deposits (such as non-transferrable savings deposits, term deposits, repurchase agreement etc.)
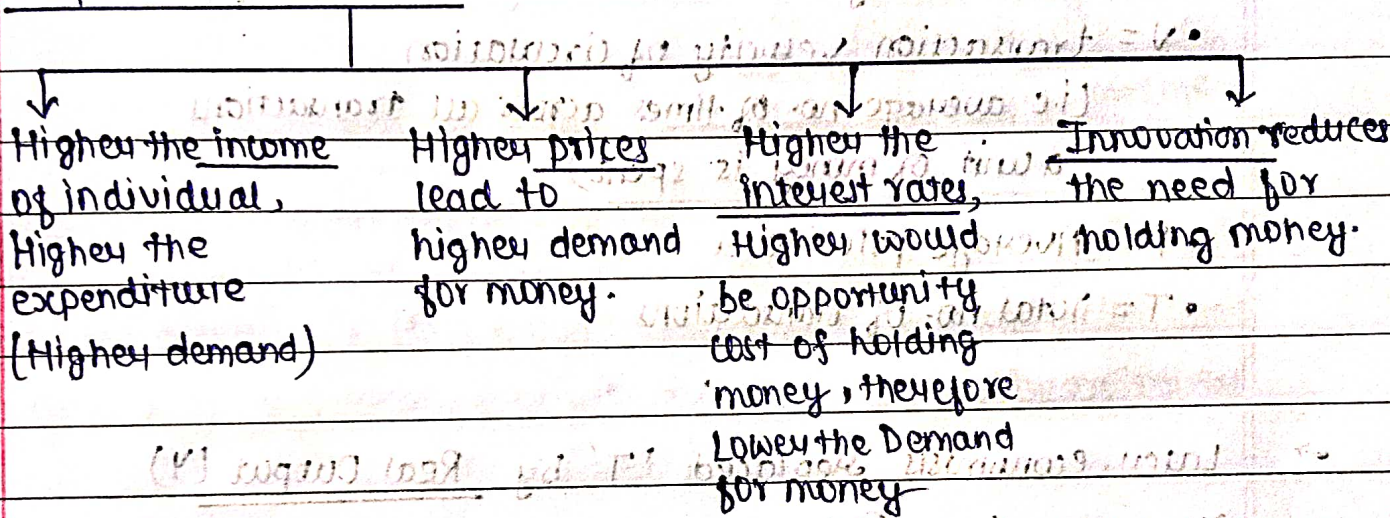]

  → Repurchase agreement in which one party sells his securities and agrees to buy it back at fixed price.

  → Securities other than shares like tradable certificates of deposits, commercial papers
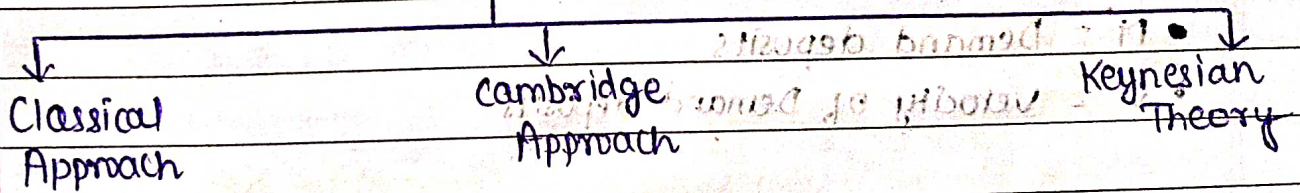
* The Demand for Money:

-> If people desire to hold money, there is Demand for Money

-> The demand for money is in nature of DERIVED DEMAND,
It is demanded for its purchasing power.

-> Demand for money is actually demand for Liquidity and
demand to store value.

-> Some important variables on which demand for money
depends on are:-

| Higher the income of individual, Higher the expenditure (Higher demand) | Higher prices lead to higher demand for money. | Higher the interest rates, Higher would be opportunity cost of holding money, therefore Lower the Demand for money | Innovation reduces the need for holding money. |

* Theories Of Demand for Money

| Classical Approach | Cambridge Approach | Keynesian Theory |

1.) Classical Approach

-> Quantity Theory of Money (QTM)

-> Given by -> Irwing Fisher (Yale University) -> "The Purchasing
Power of Money" [1911]

| Demand for money is for transaction purpose |

→ Changes in general level of commodity prices or changes in value or purchasing power of money are determined first and foremost by change in the quantity of money in circulation.

→ Fisher's version, also termed as "__Equation of Exchange__" or "__Transaction approach__".

$$\text{Supply side} \leftarrow \boxed{MV = PT} \rightarrow \text{Demand side}$$

- $M =$ Total money in circulation (on an average)
- $V =$ transaction velocity of circulation
    (i.e average no. of times across all transactions a unit of money is spent)
- $P =$ Average price level
- $T =$ Total no. of transactions

→ Later, economists replaced 'T' by __Real Output__ (Y)

→ After some time, Fisher extended the equation,

$$\text{Supply} \leftarrow \boxed{MV + M'V' = PT} \rightarrow \text{Demand}$$

- $M' =$ Demand deposits
- $V' =$ Velocity of Demand deposits

→ Velocity of money in circulation (V) and velocity of credit money/demand deposit (V') remain constant

T is a function of National Income and since Fisher assumed the __full employment levels in the economy__, T also remains constant in short run.

Cambridge Approach

→ Early 1900s → • Alfred Marshall   • A.C. Pigou
                • DH Robertson   • John Maynard Keynes

→ also known as "Cash Balance Approach"

→ Cambridge approach holds the view that money increases utility in the following ways :-

(a) enabling the possibility of <u>split-up of sale</u> and purchase

(b) being a <u>hedge against uncertainity</u>

                     ↓   ↓

Money's role as   Transaction
Temporary Store   motive
of wealth
(Precautionary Motive)

→ Now, the question is How much money will be demanded?
The answer is It depends <u>partly on Income</u> and <u>partly on other factors like wealth, Interest rates</u> etc.

→ The Cambridge money demand function is

$$M_d = KPY$$

- M_d = Demand for money
- Y = Real National Income /Real Output
- P = average price level of currently produced goods & services
- PY = NOMINAL INCOME
- K = proportion of Nominal Income that people wants to hold as cash balances

→ This 'K' is also known as 'Cambridge K' → It is a parameter reflecting <u>economic structure</u> and <u>monetary habits</u>, mainly the ratio of total transactions to income and the ratio of desired money balances to total transactions.

Demand for money

Demand for money in this equation is a linear function of Nominal Income

$Md = KPY$
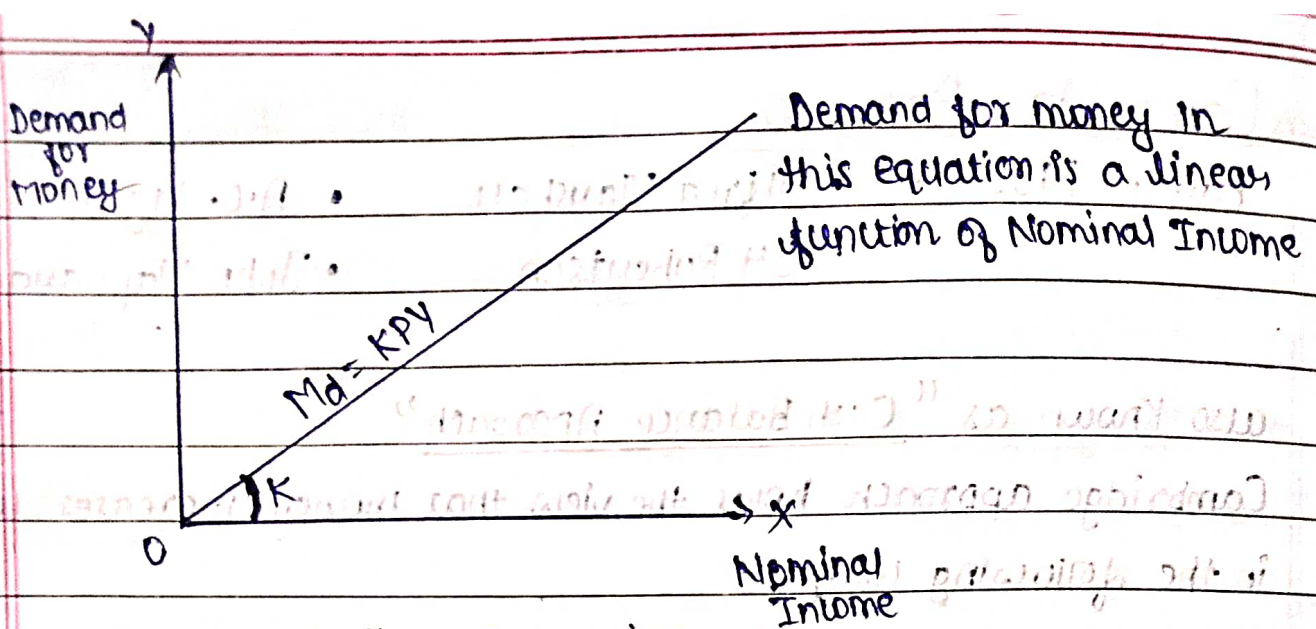
K = Slope of function

Nominal Income

$$K = \frac{Md}{PY}$$

* <u>The Keynesian Theory of Demand for Money</u>

→ also known as : Liquidity Preference Theory

→ John Maynard Keynes → "The General Theory of Employment, Interest and Money" (1936.)

→ "People want to hold money rather than investing in securities"

→ People hold money (M) in cash for three motives :-

(a) Transaction motive

(b) Precautionary motive

(c) Speculative motive

(A) <u>Transaction Motive</u>

→ relates to the need for cash for current transactions for personal and business exchange

→ The transaction motive is further classified into Income motive and Business (Trade) motive.

→ Both the above motives stressed on the requirement of individuals and businesses respectively to <u>bridge the time gap between receipt of income and planned expenditure.</u>

→ Keynes <u>did not</u> consider the transaction balances as being <u>affected</u> <u>by interest rates.</u>

→ The transaction demand for money is <u>directly proportional to income levels.</u>

$$L_{H} = KY$$

- L_H = transaction demand for money
- K = ratio of earning kept for transaction purpose
- Y = earnings

→ Keynes considered the aggregate demand for money for transaction purpose as <u>Sum of individual demand.</u> Therefore, Aggregate transaction demand for money is function of <u>National Income.</u>

(B) <u>Precautionary Motive</u>

→ The amount of money demanded under precautionary motive depends on size of income, prevailing economic or political conditions, personal characteristics (like optimism, Pessimism, farsightedness)

→ It is also <u>not very sensitive to rate of interest.</u>

(c) **Speculative Motive :**

→ The speculative motive reflects people's desire to hold cash in order to be equipped to exploit any <u>attractive investment opportunity</u> requiring cash expenditure

→ Keynes assumed that expected returns of bonds are of two types :-

(a) Interest payments

(b) Expected rate of capital gains (Increase in market price)

- **Market Rate of Interest**
  → Interest rate offered in market on cash deposit

- **Bond** - It has market price just like shares (It is tradable).

- **Current Rate of Interest** v/s **Critical Rate of Interest**

  ↓   ↓

  'ACTUAL'   'NORMAL'

- If current rate is greater than Critical Rate, then Wealthholder expects the rate of Interest to fall in future.
  and <u>when Rate of Interest fall, Bond Price increases.</u>

  → | Inverse Relation between Interest Rate and Bond Prices |

  So, they will try to convert their cash holdings into bonds because :-

  (a) They can earn higher interest

  (b) They expect Capital gain

- If current rate is less than critical rate, the wealthholder expects the rate of interest to rise in future.
  and when rate of interest rises, then Bond price fall
  So, they will try to hold liquid cash rather than bonds because :-
  (a) loss of interest foregone is small
  (b) They can avoid capital loss
  (c) They can later buy Bonds at lower prices

* Current Rate is high : Low Speculative demand for money	Inverse
* Current Rate is low : High Speculative demand for money	Relation

Individual | Aggregate
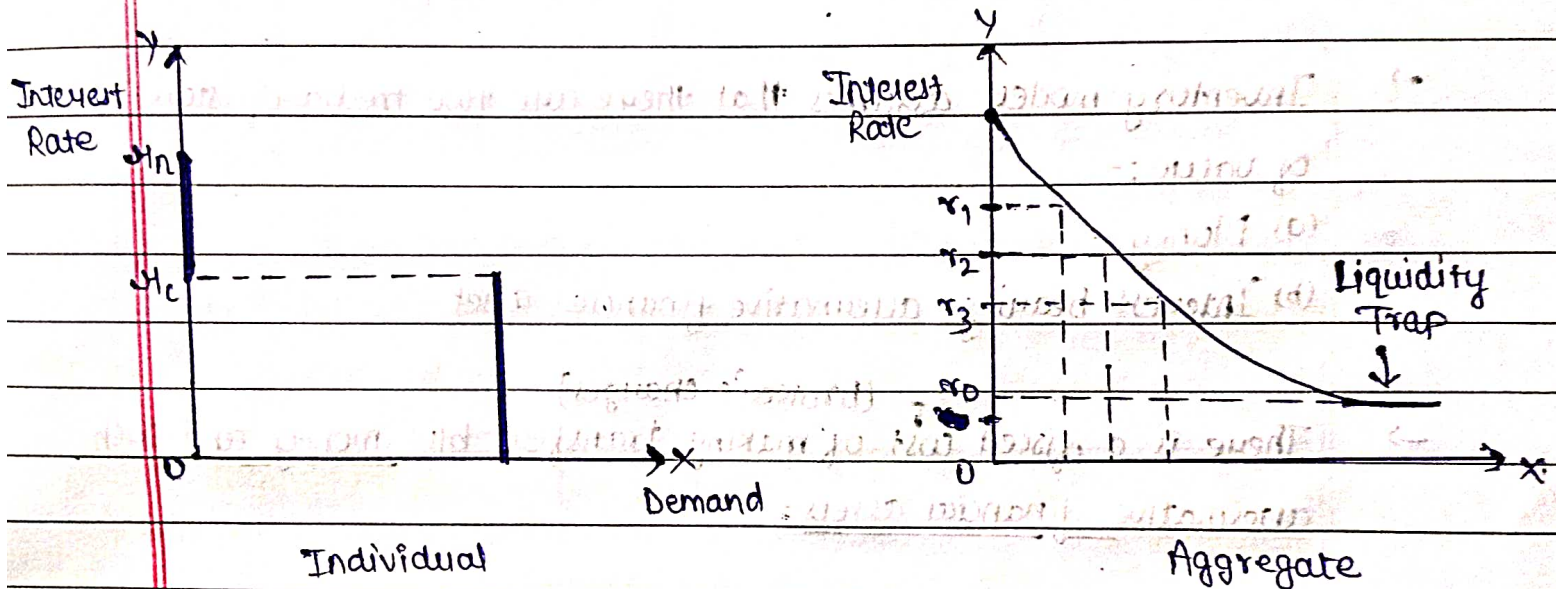
Speculative Demand for Money

- ## Liquidity Trap (Ineffective Monetary Policy)
  RBI → follows expansionary monetary policy
  ↓
  Buy Government Securities to
  increase money supply, increase income
  and increase Aggregate demand
  and stimulate economic growth

  But - interest rates are too low that people do not want to hold
  bonds and only want to keep liquid cash i.e Speculative
  Demand becomes PERFECTLY ELASTIC with respect to Interest rate.

＊ Post Keynesian Developments

(i) **Inventory approach to transaction balances**

→ Baumol (1952) and Tobin (1956)

→ They determined a theory of transaction demand for money, known as **Inventory Theoretic Approach**.
    ↓
    emphasizes on 'Store of Value'

In this approach, money (real cash balance) was essentially viewed as Inventory held for transaction purposes.

→ Inventory model assumes that there are two media of store of value:-

(a) Money

(b) Interest bearing alternative financial asset

→ (Broker's charges)
There is a fixed cost of making transfers b/w money and such alternative financial assets.

→ Baumol asserts that Individuals hold money for transaction purpose.

→ They also incurr cost when they hold the inventories of money
    ↓
    opportunity cost
    ↓
    Cost forgone is the interest rate
    which they could have earned
    if they invest their wealth in
    Savings deposits, fixed deposits,
    bonds or shares.

→ Bonds and shares provide higher return but are RISKY.

→ Savings deposit are quite safe and risk free but returns are low.

→ Baumol and Tobin proclaimed that transaction demand for money depends on Rate of Interest

↓

Savings Deposit Interest Rate (↑) , People will hold lesser money in form of currency.
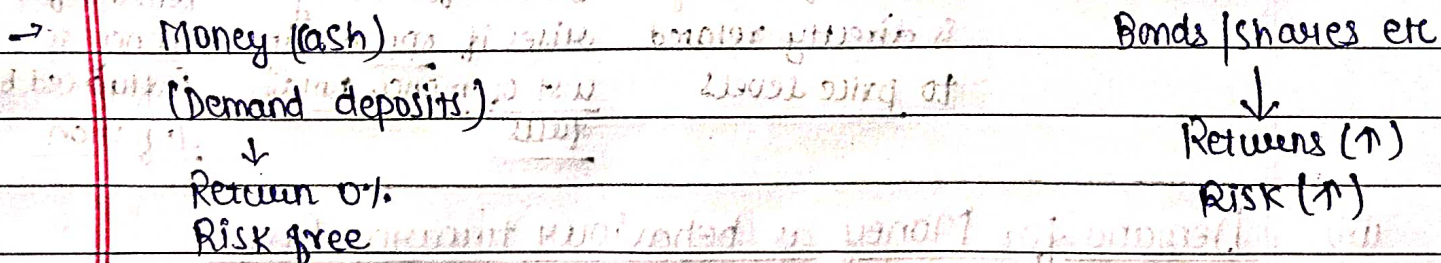[and vice versa]

→ Baumol has proved that the average amount of cash withdrawal which minimizes cost is given by :-

$$C = \sqrt{\dfrac{2bY}{r}}$$

- C = Cash withdrawal
- b = Broker's fee
- Y = Income (individual)
- r = Rate of Interest

→ This approach also suggests that the Demand for money and bonds depends on the cost of making transfer between the two

↓
(Broker's fee)

(Broker's fee ↑ , cost of transfer ↑) ⇒ It will lead to lower transactions.

→ Money (cash)
 (Demand deposits)

↓
Return 0%.
Risk free

Bonds /shares etc

↓
Returns (↑)
Risk (↑)

→ Asset Allocation is individual's choice

(ii) **Friedman's Restatement of Quantity Theory:-**

→ Milton Friedman (1956) → He expanded Keyne's speculative money demanded within the framework of asset price theory.

→ He treats the demand for money as nothing more than the application of a more general theory of demand for capital assets.
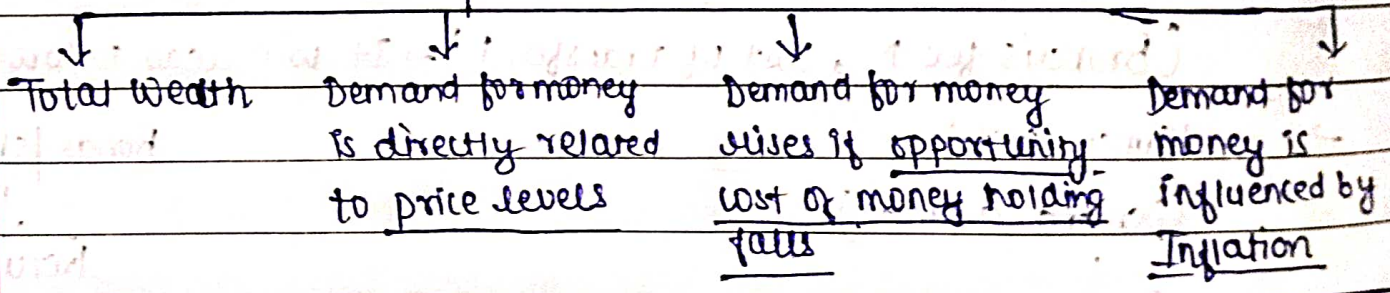
→ Demand for Money is affected by :-
   (a) Permanent income
   (b) Relative returns on asset

   measure of wealth — Present value of future Income

→ Friedman maintains that it is the permanent income which affects demand for money.

→ He determines four determinants of demand for money

Total wealth	Demand for money is directly related to price levels	Demand for money rises if opportunity cost of money holding falls	Demand for money is influenced by Inflation

(iii) **Demand for Money as behaviour towards Risk**

→ James Tobin ⇒ According to him, an Investor is faced with a problem of what proportion of his portfolio of financial asset he should keep in form of Ready Money and in form of Investment.

→ According to him, an individual's behaviour shows RISK AVERSION, which means they prefer less risk.

- Bonds / Shares → Risk (↑) , Return (↑)
- Ready money → Risk (X) , Return (X)

→ Interest Rates (↑) , Demand for holding Money (↓) ⎤ Inverse
→ Interest Rates (↓) , Demand for holding Money (↑) ⎦ Relation

Interest
Rates

r_1 ----

r_2 ----

Downward Sloping Liquidity
Preference function curve.

Demand for holding money