



# CHAPTER – 8 : Money Market

## UNIT-2 : The concept of Money Supply

- **“Money Supply”** Total quantity of money available with the people in economy
- Economic stability requires maintaining money supply at an optimal level to accurate estimation
- **“Public” means** all economic units except producers of money i.e. banking system and govt.
- Banking system comprises of RBI and banks
- Inter-bank deposits, holding by government and banking system not included in standard measure of money supply.

■ **Rationale of Measuring Money Supply**

- Facilitate analysis of monetary development which further helps understand cause of money growth
- Central banks worldwide use monetary policies to stabilize price level and GDP growth by managing supply of money

■ **Sources of Money Supply**

Central Bank (CB)	
Money	CB decision determines its supply in economy
Currency	can be issued by CB like fiat money
Source	Primary source of money supply and can issue high powered money which is source of all other forms of money
Fiat money	Issued by CB and backed by supporting reserves and value guaranteed by govt.
Gold and Forex Reserve	CB can issue currency to any extent keeping only its certain minimum amount, called 'Minimum Reserve System'

Banking System	
Policies	Response of commercial banks to policies of central banks determines supply of money.
Credit	Total money supply is determined by credit created by commercial banks
CBDC's	Central Bank digital currency (CBDC's) are emerging as digital and new forms of currencies i.e RBI is exploring CBDC's. eg- digital rupee
Crypto Currency	Not considered as money and legal tender by RBI as it face regulatory uncertainty



### ■ Measurement Money Supply

- Measurement of money is difficult due to different types of money and vary from country to country, time to time and purpose to purpose
- A range of monetary and liquidity measures are compiled by RBI

July 1935	<ul style="list-style-type: none"> <li>• RBI compiling and disseminating monetary statistics</li> </ul>
Till 1967- 68	<ul style="list-style-type: none"> <li>• narrow measure of money supply</li> <li>• currency + demand deposits</li> </ul>
From 1967-68 Broader	<ul style="list-style-type: none"> <li>• Broader measure of money supply</li> <li>• aggregate monetary resources</li> </ul>
April 1977	<ul style="list-style-type: none"> <li>• recommended by second working group of money supply (SWG)</li> <li>• <math>M_1, M_2, M_3, M_4</math> published</li> </ul>

$M_1, M_2, M_3, M_4$

$M_1$  = Currency (notes + coins) with the people+ demand deposits with banking system(CASA) + other deposits with RBI

$M_2$  =  $M_1$  + savings deposits with Post Office saving banks

$M_3$  =  $M_1$  + Time deposits with banking system

$M_4$  =  $M_3$  + deposits with Post Office saving organisation (excluding national savings certificate)

Determinants of Money Supply	
Two Alternative Theories	<ul style="list-style-type: none"> <li>• Exogenous – Determined by Central bank</li> <li>• Endogenous – affected by economic activities</li> </ul>
Current Explanation	<ul style="list-style-type: none"> <li>• Money multiplier approach</li> <li>• Focus on money stock and money supply in terms of monetary space</li> </ul>
Monetary Base	<ul style="list-style-type: none"> <li>• Currency in circulation + bank reserve</li> </ul>
Conclusion	<ul style="list-style-type: none"> <li>• Total Supply of nominal money in determined by joint behavior of central bank, commercial banks and public</li> </ul>

Concept of Money Multiplier	
<ul style="list-style-type: none"> <li>• Money created by Central Bank is high powered money</li> <li>• Banks create money through loan</li> <li>• Thus ₹ 1 increase in monetary base result in now more than ₹ 1 increase in supply of money</li> <li>• This increase in money supply is money multiplier</li> </ul>	



$M = C + D$	$M = m \times MB$	M = Money Supply C = Currency D = Deposit m = Multiplier MB = Monetary base
$\text{Money Multiplier}(m) = \frac{\text{Money Supply}(M)}{\text{Money Base}(MB)}$		

■ If the following 2 Assumptions are satisfied then,

$$\text{money Multiplier} = \frac{1}{\text{Required Reserve Ratio (R)}}$$

1. Banks never hold excess revenue
2. Individuals and non-bank corporation never hold currency means all money is deposited into banks

■ Money Multiplier Approach – Supply of Money

By – Milton Friedman and Anna Schwartz in 1963

Factors determining money supply –

- Stock high powered money (H)
- Reserve ratio (Reserve / Deposit)
- Currency to deposit ratio (currency / deposit)

The Behavior of the Central Bank	
Supply	• Reflected in nominal high-powered money supply
Multiplier	• Money stock determined by multiplier
Control	• Monetary base is controlled by authority/RBI
Assumption	• Constant behavior of public and banks
Relationship	• Nominal money supply is directly proportional to high-powered money

The Behavior of the Commercial Bank	
Influence	Reserve ratio, lending and money supply
Multiplier	Smaller reserve ratio, higher money multiplier
Excess reserve (ER)	It determine money supply (ER = TR – RR)
Opportunity cost	Excess reserves incur opportunity cost, influencing bank on interest rate changes
Interest	Interest rate impacts reserve ratio (higher rates lower excess reserves)



## ■ The Behaviour of Public

- Demand deposits undergo multiple expansion, currency doesn't, reducing overall multiple expansion and money multiplier when deposit convert to currency
- Currency deposit ratio indicates the presence of banking habits, influenced by economic activity, financial sophistication, access of financial services
- Smaller currency deposit ratio larger the multiplier (high production of high powered money)
- **Time deposit** - demand deposit ratio (TD/DD), higher ratio means more free reserve enabling large deposits and monetary expansion
- **Money multiplier is determined by**
  - reserve ratio (r)
  - excess reserve ratio (e)
  - currency ratio (c)
- **Money supply depends on**
  - high power money (H)
  - money multiplier (m)
  - varying directly with change in MB, inversely with C and RR

In case of excess reserve $m = \frac{1+c}{c+r+e}$	Money Supply (M) = $\frac{1+c}{r+e+c} \times H$
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- **Money multiplier is a function of**
  - Currency ratio (set by depositors, depends on public behaviour)
  - Excess reserve ratio (set by bankers)
  - Required reserve ratio (set by central bank)

## ■ Monetary Policy and Money Supply

- Central Bank stimulate economy through infusing liquidity into system
- Open market operation, e.g: purchase of government securities injects high powered money into system

$$\Delta \text{ Money Supply} = \frac{1}{R} \times \Delta \text{ reserve}$$

- Effect of open market sale is very similar to open market purchase but in opposite direction
- Money multiplier = 0, when invest rate are too low, Bank hold newly injected reserves as excess reserve with no risk

## ■ Effects of Govt. Expenditure on Money Supply

- Govt facing cash balance shortage can use ways and means advances (WMA) and overdraft (OD) facilities
- Under WHA/OD, RBI grants excess reserve to govt.
- This happens when govt. incurs expenditure
  - Dr. - govt. balances with RBI
  - Cr. - receivers (eg- Salary ac. of govt. employees)
- Excess reserve leads to money supply through multiplier process

## ■ Credit Multiplier

- Commercial banks create money by lending out excess reserves.

$$\text{Credit Multiplier} = \frac{1}{\text{Required Reserve Ratio}}$$