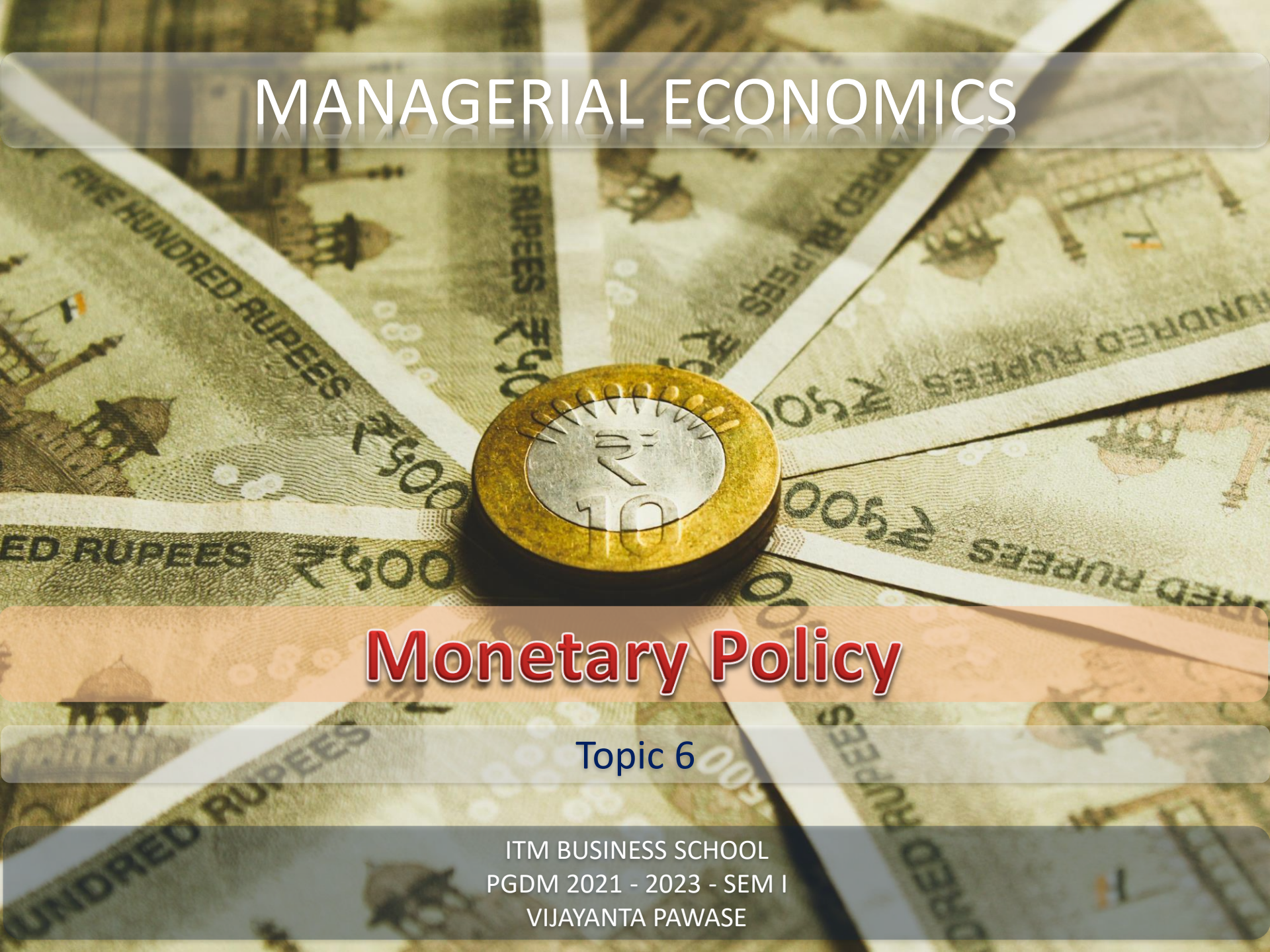
MANAGERIAL ECONOMICS



Monetary Policy

Topic 6

ITM BUSINESS SCHOOL
PGDM 2021 - 2023 - SEM I
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The Value of Money

This chapter introduces the **quantity theory of money** to explain one of the Ten Principles of Economics :

Prices rise when the government prints too much money.

Most economists believe the quantity theory is a good explanation of the long run behavior of inflation.

The Value of Money

- ***P*** = the price level
  (e.g., the CPI/ or GDP deflator)
- ***P*** is the price of a basket of goods, measured in money.
- 1/***P*** is the value of Rs.1, measured in goods.
- Example: basket contains one candy bar.
  - If ***P*** = Rs.2, value of Rs.1 is 1/2 candy bar
  - If ***P*** = Rs.3, value of Rs.1 is 1/3 candy bar
- Inflation drives up prices and drives down the value of money.

The Quantity Theory of Money

Developed by 18th century philosopher David Hume and the classical economists.

Advocated more recently by Nobel Prize Laureate Milton Friedman

Asserts that the quantity of money determines the value of money

We study this theory using two approaches:

1. A supply-demand diagram
2. An equation

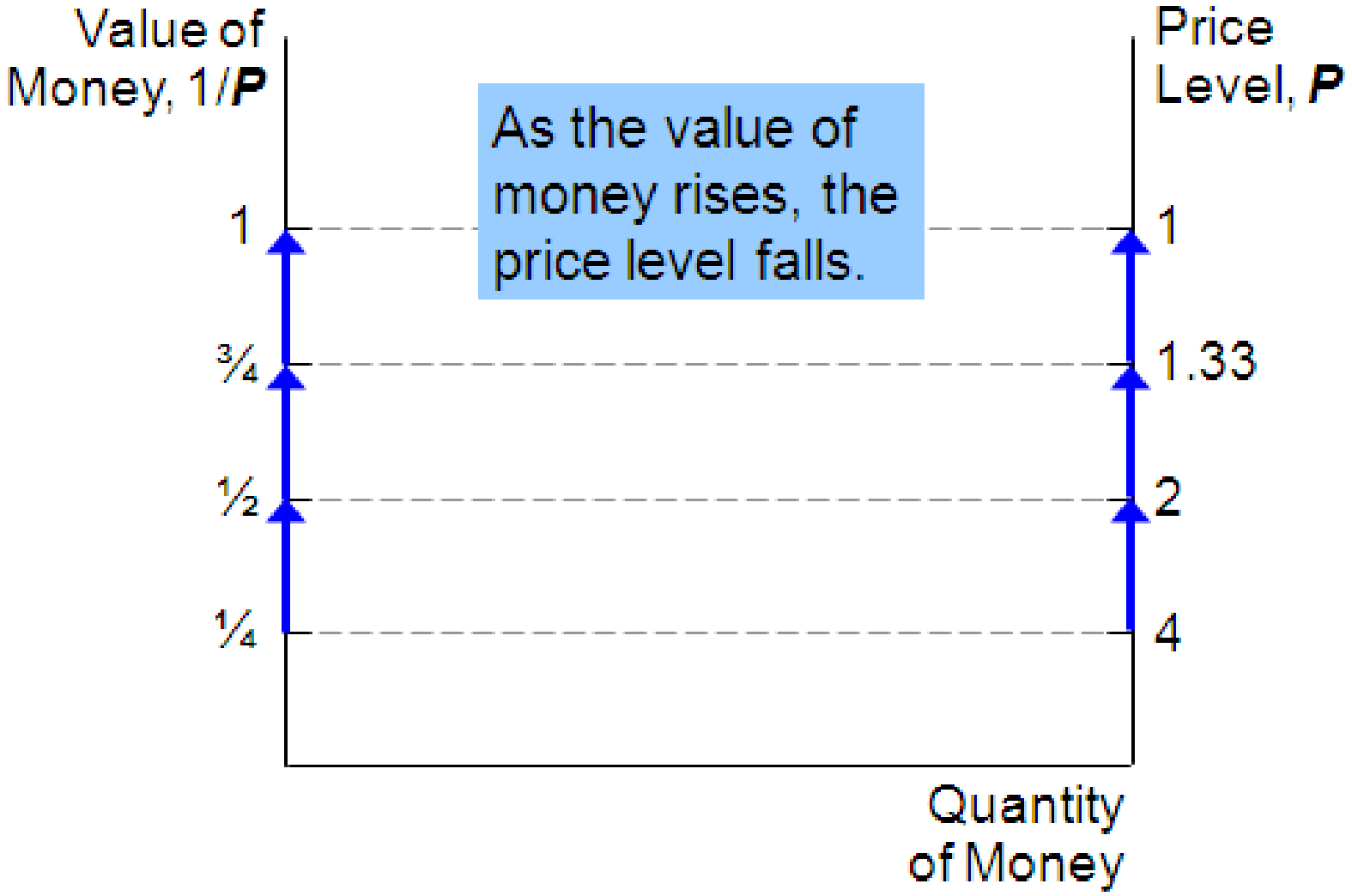
Money Supply (MS)

- In real world, determined by RBI, the banking system and consumers.
- In this model, we assume the RBI precisely controls MS and sets it at some fixed amount.

Money Demand (MD)

- Refers to how much wealth people want to hold in liquid form.
- **Depends on *P*:** An increase in ***P*** reduces the value of money, so more money is required to buy goods and services.
- Thus, quantity of money demanded is negatively related to the value of money and positively related to ***P***, other things equal.
- (These "other things" include real income, interest rates, availability of ATMs.)

The Money Supply-Demand Diagram



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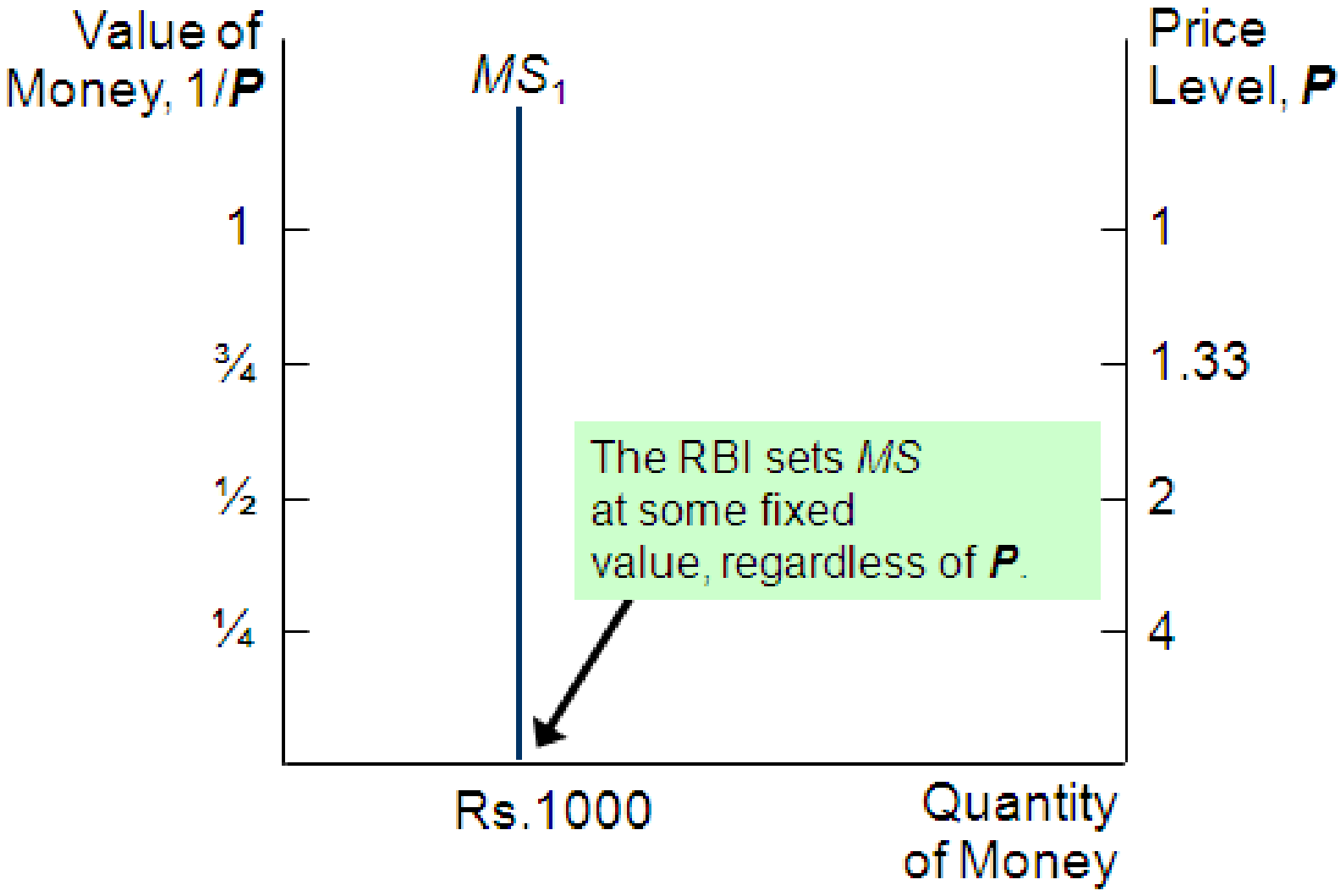

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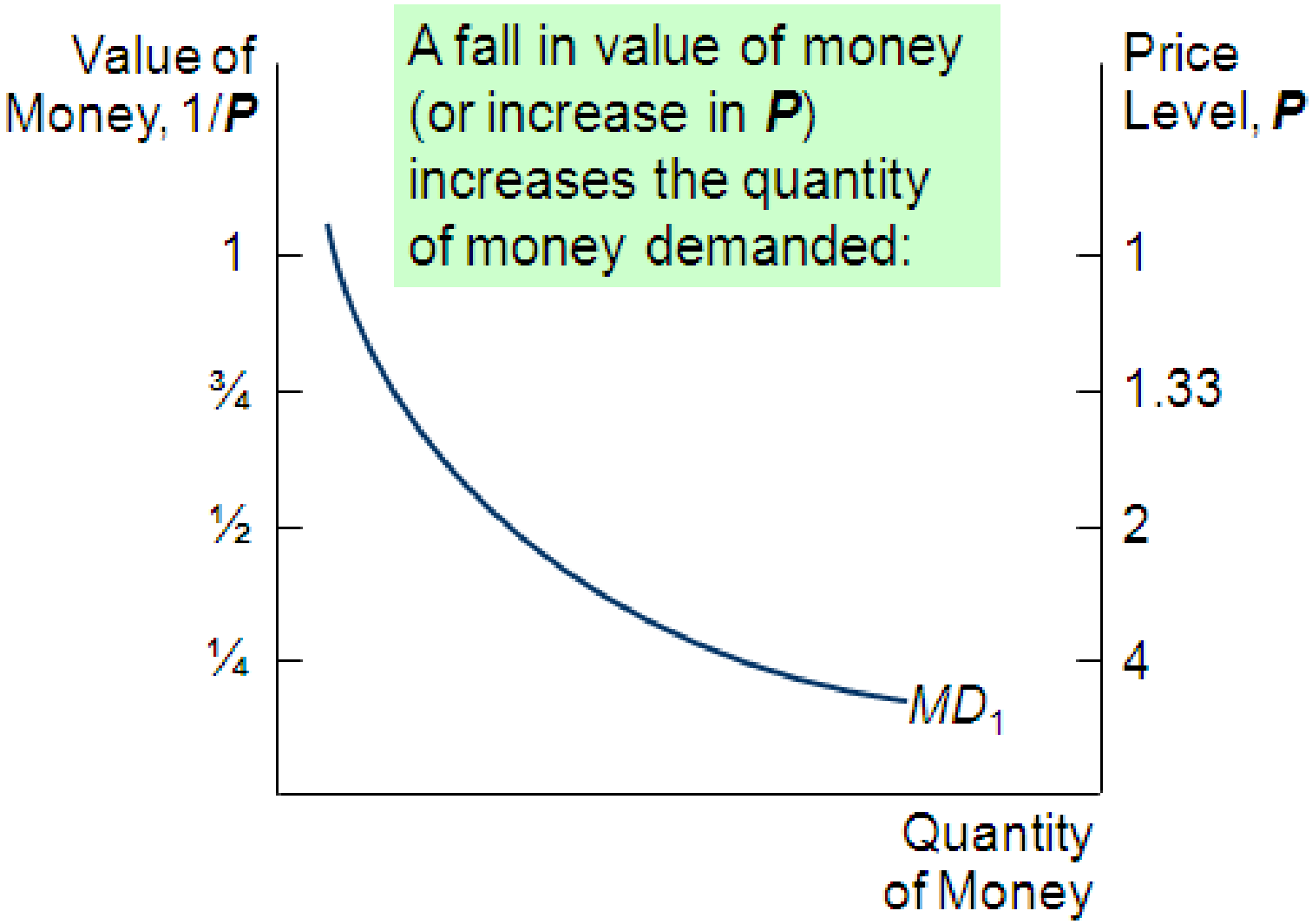

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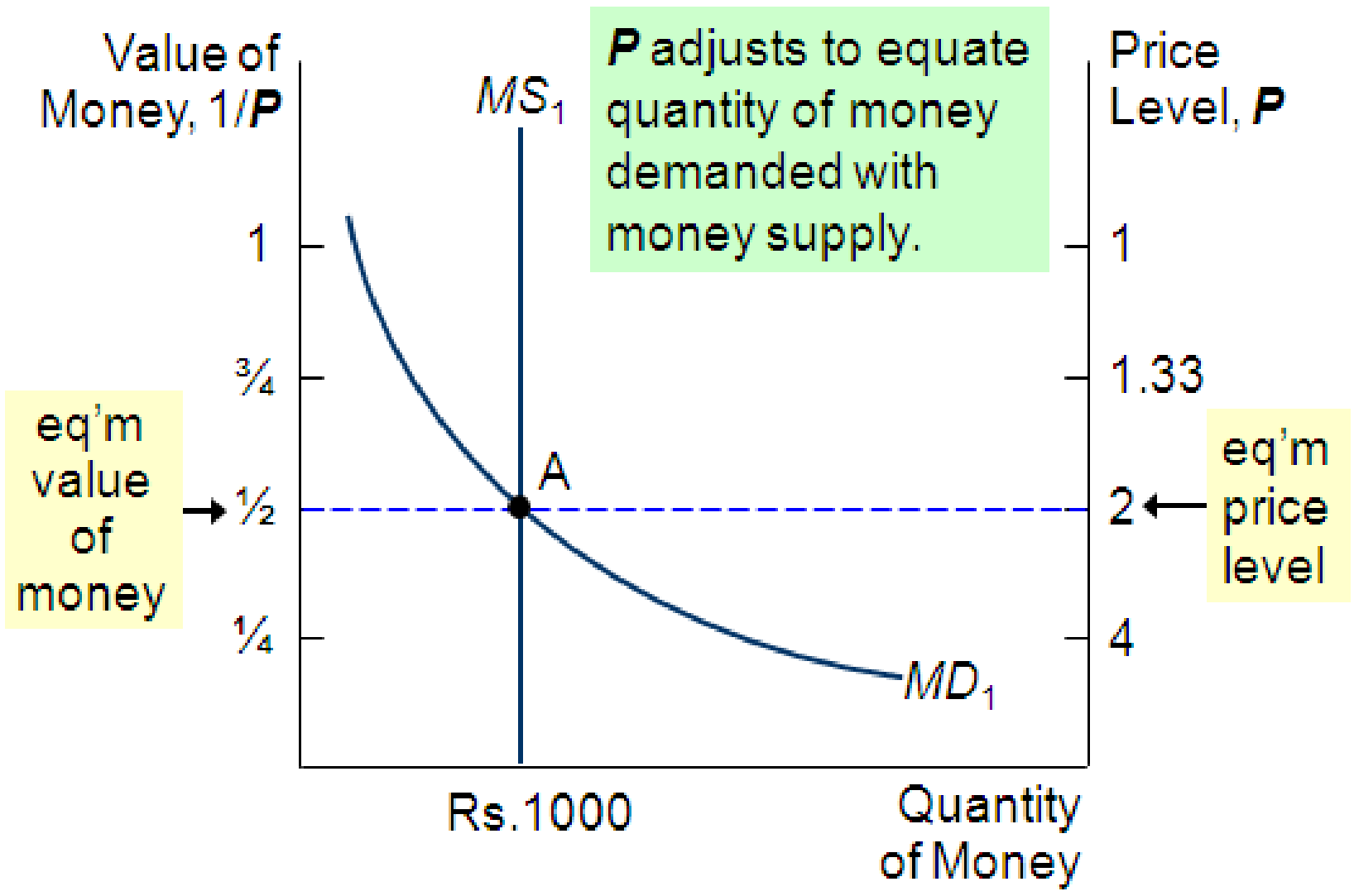

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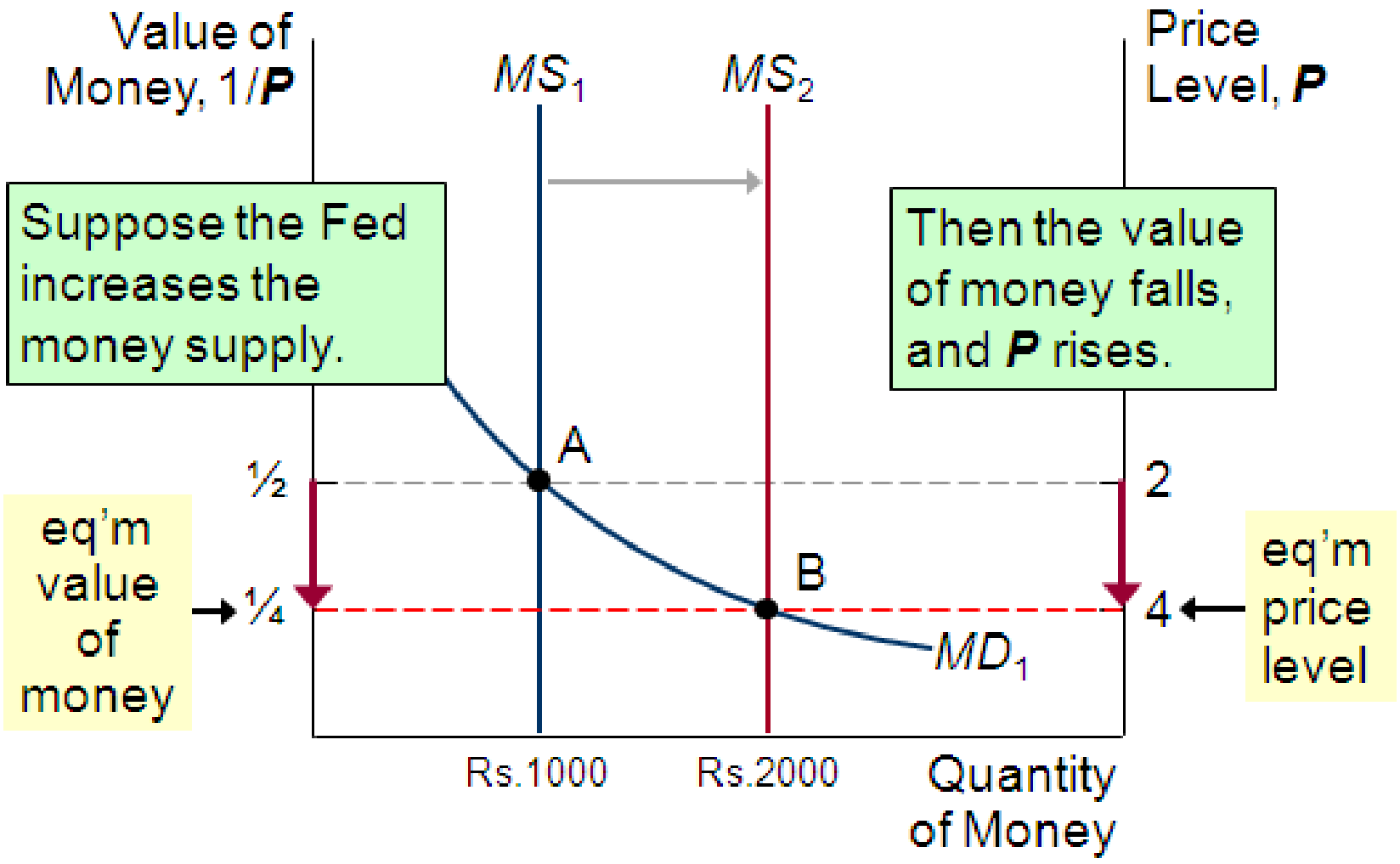

A Brief Look at the Adjustment Process

Result from graph:

- Increasing MS causes ***P*** to rise.

How does this work? Short version:

- At the initial ***P***, an increase in MS causes excess supply of money.
- People get rid of their excess money by spending it on goods and services or
- By loaning it to others, who spend it.
- Result: increased demand for goods.
- But supply of goods does not increase, so prices must rise.

The Classical Dichotomy

Classical dichotomy: the theoretical separation of nominal and real variables

Hume and the classical economists suggested that monetary developments affect nominal variables but not real variables.

If central bank doubles the money supply, Hume & classical thinkers contend

- all nominal variables—including prices—will double.
- all real variables—including relative prices—will remain unchanged.

Real vs. Nominal Variables

Prices are normally measured in terms of money.

Price of a compact disc: Rs. 15/cd

Price of a pepperoni pizza: Rs. 10/pizza

A relative price is the price of one good relative to (divided by) another:

Relative price of CDs in terms of pizza:

$$\frac{\text{price of cd}}{\text{price of pizza}} = \frac{\text{Rs. 15/cd}}{\text{Rs. 10/pizza}} = \boxed{\text{1.5 pizzas per cd}}$$

Relative prices are measured in physical units, so they are real variables.

The Neutrality of Money

Monetary neutrality: the proposition that changes in the money supply do not affect real variables

Doubling money supply causes all nominal prices to double; what happens to relative prices?

Initially, relative price of cd in terms of pizza is

$$\frac{\text{price of cd}}{\text{price of pizza}} = \frac{\text{Rs.15/cd}}{\text{Rs.10/pizza}} = \underbrace{\text{1.5 pizzas per cd}}$$

The relative price is unchanged.

After nominal prices double,

$$\frac{\text{price of cd}}{\text{price of pizza}} = \frac{\text{Rs.30/cd}}{\text{Rs.20/pizza}} = \underbrace{\text{1.5 pizzas per cd}}$$

The Neutrality of Money

Monetary neutrality: the proposition that changes in the money supply do not affect real variables

- Similarly, the real wage ***W*/*P*** remains unchanged, so
  - ❑quantity of labor supplied does not change
  - ❑quantity of labor demanded does not change
  - ❑total employment of labor does not change
- The same applies to employment of capital and other resources.
- Since employment of all resources is unchanged, total output is also unchanged by the money supply.
- Most economists believe the classical dichotomy and neutrality of money describe the economy in the long run.
- In later chapters, we will see that monetary changes can have important *short-run* effects on real variables.

Quantity Theory of Money (QTM):Equation

- The quantity theory of money states that there is a direct relationship between the quantity of money in an economy and the level of prices of goods and services sold.
- According to QTM, if the amount of money in an economy doubles, price levels also double, causing inflation (the percentage rate at which the level of prices is rising in an economy). The consumer therefore pays twice as much for the same amount of the good or service.
- Another way to understand this theory is to recognize that money is like any other commodity: increases in its supply decrease marginal value (the buying capacity of one unit of currency). So an increase in money supply causes prices to rise (inflation) as they compensate for the decrease in money's marginal value.

In its simplest form, the theory is expressed as:

MV = PY (the Fisher Equation)

Each variable denotes the following:

M = Money Supply

V = Velocity of Circulation (the number of times money changes hands)

P = Average Price Level

Y= Volume of Transactions of Goods and Services

Quantity Theory of Money (QTM):Equation

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It is built on the principle of "equation of exchange":

Amount of Money x Velocity of Circulation = Total Spending

Thus if an economy has Rs.3, and those Rs.3 were spent five times in a month, total spending for the month would be Rs.15.

QTM: The Velocity of Money

Velocity of money: the rate at which money changes hands

Notation: $P \times Y$ = nominal GDP

= (price level) x (real GDP)

M = money supply

V = velocity

Velocity formula: $$V = \frac{P \times Y}{M}$$

Example with one good: pizza. In 2015,

Y = real GDP = 3000 pizzas

P = price level = price of pizza = Rs.10

$P \times Y$ = nominal GDP = value of pizzas = Rs.30,000

M = money supply = Rs.10,000

V = velocity = Rs.30,000/Rs.10,000 = 3

The average Rupee was used in 3 transactions.

Demand for Money: What Money is and Why It's Important

Demand for Money

Without money, trade would require **barter,** the exchange of one good or service for another.

Every transaction would require a **double coincidence of wants**—the unlikely occurrence that two people each have a good the other wants.

Most people would have to spend time searching for others to trade with—**a huge waste of resources.**

This searching is unnecessary with **money**, the set of assets that people regularly use to buy goods and service from other people.

The 3 Functions of Money

Medium of Exchange

- an item buyers give to sellers when they want to purchase goods and services.

Unit of Account

- the yardstick people use to post prices and record debts.

Store of Value

- an item people can use to transfer purchasing power from the present to the future.

Demand for Money

The demand for money: the amount of money people wish to hold is determined by three motives:

1)Transactions demand

2)Precautionary demand

3)Asset demand / Speculative demand

Demand for Money

Transactions Demand

- Holding money as a medium of exchange to make payments
- The stock of money people hold to pay everyday predictable expenses
- The level varies directly with nominal national income.
- This view was developed by classical economists and Keynes (1936) followed the classical view in his theory of liquidity preference.
- Baumol-Tobin Model: Transaction demand for money is negatively related to interest rates. When interest rates are high, people will minimize their holding of money for transaction purposes since the opportunity of holding money is high.

Precautionary Demand

- Holding money to meet unplanned/ unpredictable expenditures and emergencies
- Keynes believes that the precautionary money balances people wants to hold are determined primarily by the level of transactions they expect to make in the future. These transactions are proportional to income.
- When income rises, precautionary balances increases in order to provide the same degree of protection.
- Precautionary demand for money is negatively related to interest rates (models following the line of argument by Baumol and Tobin).

Demand for Money

Speculative demand/ Asset demand

- Money, like other stores of value, is an asset. The demand for an asset depends on both its **rate of return** and its **opportunity cost.** Typically, money holdings provide *no* rate of return and often depreciate in value due to inflation. The opportunity cost of holding money is the interest rate that can be earned by lending or investing one's money holdings. The **speculative motive** for demanding money arises in situations where holding money is perceived to be *less risky* than the alternative of lending the money or investing it in some other asset.

Speculative demand/ Asset demand

- For example, if a stock market crash seemed imminent, the speculative motive for demanding money would come into play; those expecting the market to crash would sell their stocks and hold the proceeds as money. The presence of a speculative motive for demanding money is also affected by expectations of future interest rates and inflation. If interest rates are expected to rise, the opportunity cost of holding money will become greater, which in turn diminishes the speculative motive for demanding money. Similarly, expectations of higher inflation presage a greater depreciation in the purchasing power of money and therefore reduce the speculative motive for demanding money.

Supply of Money

The 2 Kinds of Money

Commodity Money

- Takes the form of a commodity with intrinsic value.
- Examples: gold coins

Fiat Money

- Money without intrinsic value, used as money because of government order.
- Example: The Indian rupees

Supply of Money

The Money Supply

- The **money supply** (or **money stock**):the quantity of money available in the economy.
- What assets should be considered part of the money supply? Two candidates:

Currency

- The paper bills and coins in the hands of the (non-bank) public.

Demand Deposits

- Balances in bank accounts that depositors can access on demand by writing a cheque.

Sources of the Money Supply

There are five main causes of an increase in the money supply:

1. an increase in **commercial bank lending**
2. an increase in **government spending financed by borrowing from commercial banks**
3. an increase in **government spending financed by borrowing from the central bank**
4. the **sale of government bonds** to private sector financial institutions.
5. more **money entering than leaving the country.**

Money Creation by the Commercial Bank

Important source of Money Supply(MS) is the Credit Money – Outcome of borrowing and lending money

Banks has two types of deposits;

1. Primary Deposits(PD)
2. Secondary Deposits

Primary Deposits(PD)

- Household savings deposited with banks.
- Payment received(from RBI for sales of government bonds).
- Payment received from abroad and deposited with the bank.
- Money deposited for convenience in transactions.

Money Creation by the Commercial Bank

Secondary Deposits: On the basis of PD banks create secondary deposits called as **Derivative deposits or deposit creation or credit creation.**

- Deposit creation or credit creation begins with banks lending money out of primary deposit.

1. Bank cannot loan out the entire PD,
2. Cash reserves a certain proportion of PD after they can loan out the balance of the PD.

- The amount of Derivative deposits created by the banks depends on

1. Amount of PD
2. CRR + SLR
3. Demand for bank loans by the society
4. Efficiency of banking system

Supply of Money

Calculation of Money Supply in India (M_1)

- The currency with the public — i.e., the currency component of the money supply — is composed of currency notes and coins in circulation but excludes cash held by banks (for, this cash is not in circulation).
- Currency money is legal tender money for, it has general acceptability and it is used in all transactions and settlement of debts; it is also known as common money or ordinary money.
- The deposit money with the public — i.e. deposit component of the money supply — is composed of demand deposit & of the people in banks and other deposits with the Reserve Bank. It is against these deposits that people issue cheques.
- Now, RBI has two types of deposits — one is the deposits commercial banks keep with RBI and the other is the deposits kept by certain individuals with RBI, such as ex-Governors of RBI who are permitted to use RBI like any commercial bank.

Supply of Money

Calculation of Money Supply in India (M_1)

- In deposit money, therefore, we include demand deposits of the people with commercial banks and with RBI (known as the other deposits).
- From While small transactions involving small amounts of money are carried on with the use of common money. large transactions are normally settled through the use of bank money, i.e. cheques and bank drafts. The interesting point to note is that bank money really refers to bank deposits and not cheques and/drafts which are only instruments for transferring an amount of money from the account of one person to another. A cheque by itself has no value: only the transfer through it is valuable. A cheque does not command general acceptability as a medium of exchange but it is accepted as an instrument for settlement of debt (through transferring a specified amount from one account to another).
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Supply of Money

Calculation of Money Supply in India (M_1)

- As demand deposits do not have a legal status and are not always acceptable as money, they are known as bank money they may also be called as or optional money. There has been some confusion about the "deposit component" of money supply with the public. Traditionally, "deposit money" included only demand or current deposits of the general public, over which cheques could be issued. Since 1951, Indian banks permitted the use of the cheque system against savings deposits also. Since 1978 the general practice of Indian banks is to consider
- (a) that portion of savings deposits subject to the cheque system as demand deposits, and (b) that portion of savings deposits not subject to the cheque system as "time" or fixed deposits.
- We have explained;

(a) the currency with the public in India — this is called the ordinary money or common money; and

(b) the deposit money with the Indian public — commonly known as the bank money. The two items together give us the concept of money supply in India.

Supply of Money

Item Excluded from Narrow Money Supply

- We must explain one item which is excluded from the concept of money supply in India. Coins and currency notes (i.e., cash) held by commercial banks, also known as cash reserves of banks (Table 1), are excluded from the calculation of money supply of the public, since these coins and currency notes are held by banks and not by the generally public. Narrow Money (M_1) and Broad Money (M_3)

Calculation of Money Supply in India (M1)

- We have explained above the conventional concept of money supply with the public. This concept is now known as narrow money (M1) because it consists of currency plus bank money held by the people. There are other liquid or monetary resources with the public. Hence, there is another concept of money supply known as broad money—this is referred to as M3 by R131 The Radcliffe committee on the Working of the English Monetary System clearly distinguished between money and liquidity though previously.
- We regarded "money", "cash" and "liquidity" as one and the same. According to the Redcliffe Committee, "Spending is not limited by the amount of money in existence but it is related to the amount of money people think they can get hold of ." From this point of view, not only "money" but also "near-money" assets constitute liquid assets in a broad sense and are available for people to spend at any given time. In near-money assets, we include fixed deposits or time deposits with the banking system.

Supply of Money

Calculation of Money Supply in India (M_1)

- Time deposits or fixed deposits contribute to the liquidity of the general public in three ways:

(a) The depositors can borrow from the banks against time or fixed deposits in case of emergency;

(b) They can encash their fixed deposits even before their maturity — by sacrificing part of the interest; and

(c) They are allowed by some banks to withdraw, from out of their fixed deposits; i.e., use fixed deposit as a form of savings deposits.

- It was after Radcliffe Committee Report that RBI started using two concepts of money supply — the conventional money supply (M1) and broad money supply (M3) which includes, besides conventional money, fixed deposits with banks (which were previously called income-yielding assets).

Supply of Money

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2019-20	2019	2020		
		Aug. 30	Jul. 31	Aug. 14	Aug. 28
	1	2	3	4	5
1 Currency with the Public (1.1 + 1.2 + 1.3 – 1.4)	2349748	2082634	2576293	2593814	2583111
1.1 Notes in Circulation	2420964	2150382	2646131	2665391	2654096
1.2 Circulation of Rupee Coin	25605	25258	25686	25686	25708
1.3 Circulation of Small Coins	743	743	743	743	743
1.4 Cash on Hand with Banks	97563	93749	96267	98007	97436
2 Deposit Money of the Public	1776199	1511661	1688504	1623813	1702537
2.1 Demand Deposits with Banks	1737692	1480680	1648797	1584270	1662573
2.2 'Other' Deposits with Reserve Bank	38507	30982	39707	39543	39964
3 M_1 (1 + 2)	**4125948**	**3594295**	**4264797**	**4217627**	**4285648**
4 Post Office Saving Bank Deposits	141786	147931	141786	141786	141786
5 M_2 (3 + 4)	**4267734**	**3742226**	**4406583**	**4359413**	**4427434**
6 Time Deposits with Banks	12674016	12082795	13361006	13343888	13362349
7 M_3 (3 + 6)	**16799963**	**15677090**	**17625803**	**17561514**	**17647997**
8 Total Post Office Deposits	409246	396704	409246	409246	409246
9 M_4 (7 + 8)	**17209209**	**16073794**	**18035049**	**17970760**	**18057243**

Supply of Money

1. M_0 (Reserve Money) = Currency in Circulation + Bankers' Deposit with the RBI
   + Other Deposits with the RBI.
2. M_1 (Narrow Money) = Currency with the Public + Demand Deposits with Banks
   + Other Deposits with the RBI.
3. $M_2 = M_1$ + Time Liabilities of the Saving Deposits with banks
   + Certificate of Deposits issued by Banks
   + Term Deposits (excluding FCNR(B) Deposits) with Banks
4. M_3 (Broad Money) = Currency with the Public + Demand Deposits with Banks
   + Time Deposits with Banks + Other Deposits with the RBI.

   Or $M_3 = M_1$ + Time Deposits with Banks

Supply of Money

M_4

- The fourth measure of money supply is M_4 which consists of M_3 plus total post office deposits comprising time deposits and demand deposits as well. This is the broadest measure of money supply.
- Of the four inter-related measures of money supply for which the RBI publishes data, it is M_3 which is of special significance. It is M_3 which is taken into account in formulating macroeconomic objectives of the economy every year. Since M_1 is narrow money and includes only demand deposits of banks along-with currency held by the public, it overlooks the importance of time deposits in policy making. That is why, the RBI prefers M_3 which includes total deposits of banks and currency with the public in credit budgeting for its credit policy. It is on the estimates of increase in M_3 that the effects of money supply on prices and growth of national income are estimated. In fact is an empirical measure of money supply in India, as is the practice in developed countries. The Chakravarty Committee also recommended the use of M_3 for monetary targeting without any reason.

Supply of Money

Rupees Crore

Components and Sources>	Components			Reserve Money
	Currency in circulation - Total	`Other' deposits with RBI	Bankers' deposits with RBI	Reserve Money (Liabilities/ Components)
02 Oct 2020	2680013	44461	490054	3214527

Sources							
RBI's Claims on - Government (net)	RBI's Claims on - Central Govt	RBI's Claims on Banks & Commercial sector	RBI's Claims on Banks (Including NABARD)	RBI's claims on Commercial sector (Excluding NABARD)	Net foreign exchange assets of RBI	Govt't currency liabilities to the public	Net non-monetary liabilities of RBI
947103	933976	-365992	-380786	14794	3986639	26451	1379673

Supply of Money

Date : Oct 09, 2020

Money Stock : Components and Sources

(₹ Crore)

Item	Outstanding as on 2020		Variation over Fortnight		Financial Year so far 2019-20		Financial Year so far 2020-21		Year-on-Year 2019		Year-on-Year 2020	
	Mar. 31	Sep. 25	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
	1	2	3	4	5	6	7	8	9	10	11	12
M3	16799963	17741065	1945	0.0	382101	2.5	941101	5.6	1391260	9.6	1926897	12.2
1 Components (1.1.+1.2+1.3+1.4)												
1.1 Currency with the Public	2349748	2585272	-14968	-0.6	36989	1.8	235524	10.0	246262	13.4	496074	23.7
1.2 Demand Deposits with Banks	1737692	1697323	59117	3.6	-101285	-6.2	-40370	–2.3	102037	7.2	172096	11.3
1.3 Time Deposits with Banks	12674016	13415649	-42962	-0.3	446158	3.8	741633	5.9	1036560	9.3	1247887	10.3
1.4 'Other' Deposits with Reserve Bank	38507	42822	758	1.8	239	0.8	4314	11.2	6400	25.0	10841	33.9
2 Sources (2.1+2.2+2.3+2.4-2.5)												
2.1 Net Bank Credit to Government	4906583	5518363	-99626	-1.8	448645	10.2	611780	12.5	535135	12.4	681228	14.1
2.1.1 Reserve Bank	992192	836430	-140569		134938		-155762		289895		-100459	
2.1.2 Other Banks	3914391	4681933	40943	0.9	313707	8.7	767542	19.6	245240	6.7	781687	20.0
2.2 Bank Credit to Commercial Sector	11038644	10934182	43948	0.4	-3773	0.0	-104462	–0.9	807049	8.4	555236	5.3
2.2.1 Reserve Bank	13166	14740	896		-7260		1574		-1025		6637	
2.2.2 Other Banks	11025478	10919442	43052	0.4	3487	0.0	-106036	–1.0	808074	8.5	548599	5.3
2.3 Net Foreign Exchange Assets of Banking Sector	3801036	4196203	20762	0.5	195195	6.4	395166	10.4	235022	7.8	930167	28.5
2.4 Government's Currency Liabilities to the Public	26348	26451	–	–	137	0.5	103	0.4	327	1.3	427	1.6
2.5 Banking Sector's Net Non-Monetary Liabilities	2972648	2934134	-36862	-1.2	258103	10.6	-38514	–1.3	186273	7.4	240161	8.9
2.5.1 Net Non-Monetary Liabilities of RBI	1378342	1384384	-24215	-1.7	7143	0.7	6042	0.4	-61157	–5.4	318446	29.9

Bank Reserves

- In a **fractional reserve banking system**, banks keep a fraction of deposits as **reserves** and use the rest to make loans.
- The RBI establishes **reserve requirements**, regulations on the minimum amount of reserves that banks must hold against deposits.
- Banks may hold more than this minimum amount if they choose.
- The **reserve ratio**, ***R***
  = fraction of deposits that banks hold as reserves
  = total reserves as a percentage of total deposits

Bank Reserves

- **T-account**: a simplified accounting statement that shows a bank's assets & liabilities.
- Example:

FIRST NATIONAL BANK	
Liabilities	**Assets**
Deposits Rs.100	Reserves Rs. 10 Loans Rs. 90

- Banks' liabilities include deposits, assets include loans & reserves.
- In this example, notice that ***R*** = Rs. 10/ Rs. 100 = 10%.

Banks and the Money Supply: An Example

- Suppose Rs.100 of currency is in circulation.
- To determine banks' impact on money supply,

We calculate the money supply in 3 different cases:

1. No banking system.
2. 100% reserve banking system: banks hold 100% of deposits as reserves, make no loans.
3. Fractional reserve banking system.

Banks and the Money Supply: An Example

CASE 1: No banking system

Public holds the Rs.100 as currency.

Money supply = Rs.100.

Banks and the Money Supply: An Example

CASE 2: 100% reserve banking system

Public deposits the Rs.100 at First National Bank (FNB).

FNB holds 100% of deposit as reserves:

FIRST NATIONAL BANK	
Liabilities	**Assets**
Deposits Rs.100	Reserves Rs.100
	Loans Rs. 0

Money supply

= currency + deposits = Rs. 0 + Rs.100 = Rs. 100

In a 100% reserve banking system, banks do not affect size of money supply.

Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

Suppose ***R*** = 10%. FNB loans all but 10% of the deposit:

FIRST NATIONAL BANK	
Liabilities	**Assets**
Deposits Rs.100	Reserves Rs.10
	Loans Rs.90

- Depositors have Rs.100 in deposits,
- Borrowers have Rs.90 in currency.

Money supply = C + D = Rs.90 + Rs.100 = Rs.<u>190</u> (!!!)

Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

How did the money supply suddenly grow?

When banks make loans, they create money.

The borrower gets

- Rs.90 in currency—an asset counted in the money supply
- Rs.90 in new debt—a liability that does not have an offsetting effect on the money supply

A fractional reserve banking system creates money, but not wealth.

Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

Borrower deposits the Rs. 90 at Second National Bank.

Initially, SNB's T-account looks like this:

SECOND NATIONAL BANK	
Liabilities	**Assets**
Deposits Rs. 90	Reserves Rs.9
	Loans Rs.81

If ***R*** = 10% for SNB, it will loan all but 10% of the deposit.

Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

SNB's borrower deposits the Rs. 81 at Third National Bank.

Initially, TNB's T-account looks like this:

THIRD NATIONAL BANK	
Liabilities	**Assets**
Deposits Rs.81	Reserves Rs. 8.10
	Loans Rs.72.90

If ***R*** = 10% for TNB, it will loan all but 10% of the deposit.

Banks and the Money Supply: An Example

CASE 3: Fractional reserve banking system

The process continues, and money is created with each new loan.

Original deposit	=	Rs.100.00
FNB lending	=	Rs.90.00
SNB lending	=	Rs.81.00
TNB lending	=	Rs.72.90
⋮		⋮
Total money supply	=	Rs.1000.00

In this example, Rs. *100 of reserves generates* Rs. *1000 of money.*

The Money Multiplier

- **Money multiplier**: the amount of money the banking system generates with each dollar of reserves
- The money multiplier equals 1/***R***.
- In our example,
  - ***R*** = 10%
  - money multiplier = 1/***R*** = 10
  - Rs.100 of reserves creates Rs.1000 of money

Money Supply = Money Multiplier × Bank Reserves

The Money Multiplier

- In the financial system, banks can enhance money supply by expanding loans out of the deposits they receive. The deposit received by commercial banks are part of base money. But after receiving the deposits, banks create money by expanding loans and cheque facilities. Here, the banking system as a whole can create additional money impact through deposit acceptance and loan disbursal. The multiple in which the banking system can expand deposits received in the form of base money into broad money is called money multiplier. From a practical sense, money multiplier shows what is the proportion of broad money compared to base money.
- Money multiplier is expressed as a ratio between broad money and base money.
- **For example, the base money as on March 31, 2017 was Rs 19405.97 billion, whereas broad money was Rs 121815.26 billion. This means a money multiplier of 6.2.**

https://www.indianeconomy.net/lms/glossary/money-multiplier/

Deposit Creation and Deposit Multiplier

A primary deposit leads to the creation of derivative deposits

$$\mathbf{d_m = \Delta \text{ Total Deposit} / \Delta D}$$

Where, Δ D = PD.

d_m = Deposit Multiplier = Total deposit creation times the PD.

- Above example,Δ Total Deposit = Rs.1000

Δ D =Rs.100

d_m = Deposit Multiplier = Rs.1000/Rs.100 = 10

Hence Total deposit creation is 10 times the primary deposit.

Credit Multiplier

Credit multiplier *can be defined as the ration of additional* ***credit creation (Δ CC)*** to the **total cash reserves (Δ R).**

$$c_m = \Delta CC / \Delta R = \textit{Credit multiplier}$$

The total credit creation **Δ CC** by commercial banks can be obtained by subtracting the change in **cash reserves(Δ R)** from the **total deposit creation(Δ TD).**

$$\Delta CC = \Delta TD - \Delta R$$

Above example:

Δ CC = Rs.1000 – Rs.100 = Rs.900

Where, ΔTD = Rs.1000 and ΔR =Rs.100

c_m = Δ CC/ Δ R = Rs.900 / Rs.100 = 9 times

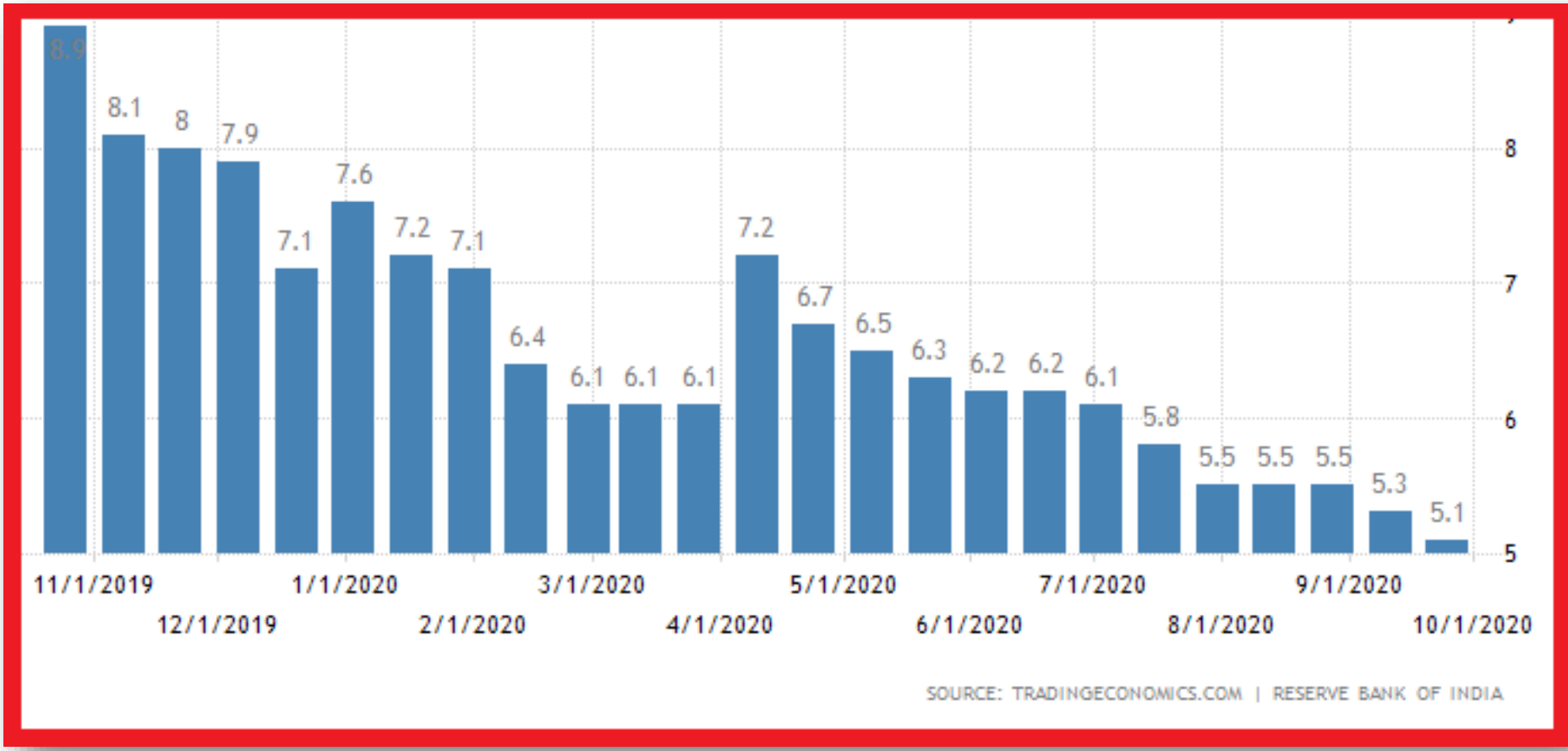
India Leaves Monetary Policy Unchanged

Money Supply = Money Multiplier × Bank Reserves

India Money	Last	Previous	Highest	Lowest	Unit
Interest Rate	4.00	4.00	14.50	4.00	percent
Cash Reserve Ratio	3.00	3.00	10.50	3.00	percent
Money Supply M1	42856.48	42646.83	42856.48	80.15	INR Billion
Interbank Rate	3.28	3.36	12.97	3.10	percent
Money Supply M2	44227.84	43593.28	44227.84	1127.49	INR Billion
Money Supply M3	177392.50	175613.11	177392.50	123.52	INR Billion
Foreign Exchange Reserves	545638.00	542021.00	545638.00	29048.00	USD Million
Central Bank Balance Sheet	27934.37	28258.64	28258.64	1624.31	INR Billion
Loan Growth	5.10	5.30	18.70	4.10	percent
Reverse Repo Rate	3.35	3.35	13.50	3.25	percent

India Bank Loan Growth

The value of loans in India increased 5.10 percent year-on-year in the two weeks to September 25th, 2020.



In India, bank loan growth refers to the year-over-year change of the overall commercial banks credit to the economy, including food credit, non-food credit and loans, cash credit and overdrafts.

India Bank Loan Growth

India Leaves Rates Steady as Expected

The Reserve Bank of India held its benchmark repo rate at 4 percent during its October meeting, as widely expected. Policymakers said the decision is consistent with neutral monetary policy stance and is in line with achieving the inflation target of 4 percent +/-2 percent while supporting economic growth and mitigate the impact of COVID-19 on the economy. For 2020-21, policymakers expect inflation to average 6.8 percent for the second quarter of the year and a range of 5.4 - 4.5 percent for the second half. GDP growth for 2020-21 is expected to contract 9.5 percent, with risk tilted to the downside (-9.8 percent) in the second quarter of 2020.

Monetary Policy: Meaning

Monetary policy is a programme of action undertaken by the monetary authorities, generally the central bank, to control and regulate the demand for and supply of money with public and the flow of credit with a view to achieving predetermined macroeconomic goals.

Objectives:

- Employment
- Stability of Price
- Stability of Foreign Exchange
- Balance of Payment

Monetary Policy: Scope

The scope of Monetary Policy spans the area of economic transactions and the macroeconomic variables that monetary authorities can influence and alter through monetary policy.

From monetary instruments point of view, the scope of monetary policy includes;

- Bank Rate
- Cash Reserve Ratio
- Open Market Operations
- Direct Control

Monetary Policy: Scope

From the view point of effectiveness, the scope of monetary policy depends, by and large on two factors.

1. Level of monetized economy:

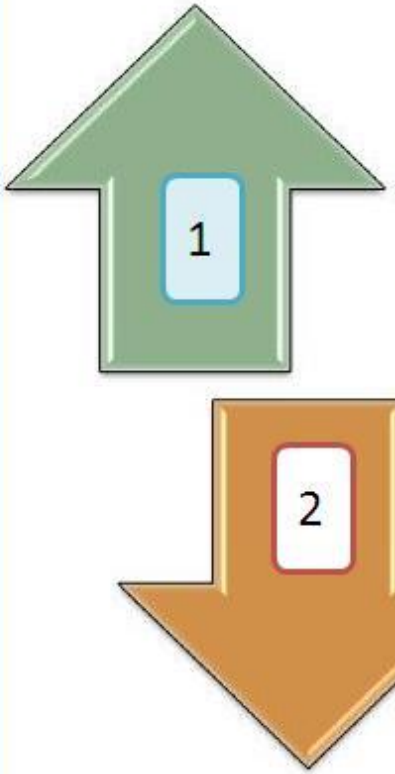
- All economic activities or transactions are carried out with money as a medium of exchange. So that monetary policy capable of affecting economic activities – production,consumption,savings,investment, general price level and foreign exchange.

2. Level of development of capital market:

- Large number of financially strong commercial banks, financial institutions, credit organizations and short-term bill markets
- Major part of financial transactions are routed through the capital markets.
- Working of the various capital sub-markets is inter-linked and interdependent.

Instruments of Monetary Policy

Instruments = The monetary variables that the central bank can change at its discretion with a view to controlling and regulating the money supply and the availability of credit.



Quantitative Measures

Open Market Operations

Bank Rate

CRR

Selective Controls

Instruments are called a 'weapons of monetary control' and 'The Nuts and Bolts of Monetary Policy'

Open Market Operations

Sale and Purchase of government securities and treasury bills by central bank (RBI)

- A Government security is a tradable instrument issued by the Central Government or the State Governments.
- It acknowledges the Government's debt obligation.
- Such securities are short term (usually called treasury bills, with original maturities of less than one year) or long term (usually called Government bonds or dated securities with original maturity of one year or more).
- In India, the Central Government issues both, treasury bills and bonds or dated securities while the State Governments issue only bonds or dated securities, which are called the State Development Loans (SDLs).
- Government securities carry practically no risk of default and, hence, are called risk-free gilt-edged instruments.
- Government of India also issues savings instruments (Savings Bonds, National Saving Certificates (NSCs), etc.) or special securities (oil bonds, Food Corporation of India bonds, fertiliser bonds, power bonds, etc.). They are, usually not fully tradable and are, therefore, not eligible to be SLR securities.

Open Market Operations

- Treasury bills or T-bills, which are money market instruments, are short term debt instruments issued by the Government of India and are presently issued in three tenors, namely, 91 day, 182 day and 364 day.
- Treasury bills are zero coupon securities and pay no interest.
- They are issued at a discount and redeemed at the face value at maturity.

For example, a 91 day Treasury bill of Rs.100/- (face value) may be issued at say Rs. 98.20, that is, at a discount of say, Rs.1.80 and would be redeemed at the face value of Rs.100/-. The return to the investors is the difference between the maturity value or the face value (that is Rs.100).

Government Securities Market	
5.77% GS 2030	: 5.9045% #
5.79% GS 2030	: 5.8776% #
5.22% GS 2025	: 5.1743% #
6.18% GS 2024	: 5.0349% #
5.09% GS 2022	: 3.9510% #
91 day T-bills	: 3.2754%*
182 day T-bills	: 3.4195%*
364 day T-bills	: 3.5092%*
* cut-off at the last auction	
# as on end of previous working day	

Effects of Open Market Operations

Supply of Credit is adversely affected:
The sale of government bonds, affects the supply credit in the following ways;

When people buy the government bonds and securities through the cheques drawn on the commercial banks in favour of the central bank, the money is transferred from the buyers' account to the central bank account.

This reduces the total deposit with the commercial banks and also their cash reserves. As a result, credit creation capacity of commercial banks decreases and,therefore,the flow of bank credit to the society decreases.

Effects of Open Market Operations

Demand of Credit:
The sale of government bonds, reduces the demand for credit in the following ways;

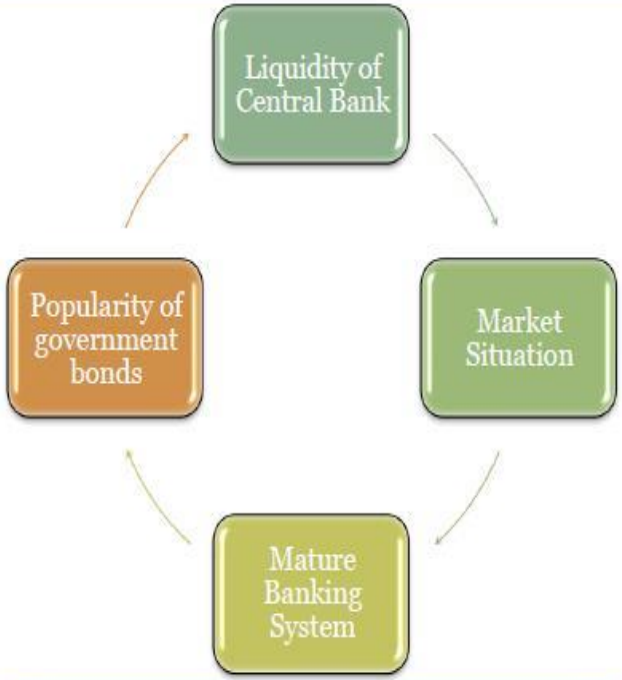
When the central bank sells the government bonds, it sells them at a reduced price, i.e., at a price less than their denominated price. Consequently, the actual rate of interest on the bonds goes ups.

This causes an upward push in the overall interest rate structure. The rise in the rate of interest reduces the demand for credit.

On the contrary, when the central bank decides to increase money supply, it buys back the government bonds and securities. In the process transaction money flows from the central bank account to the people's account with the commercial banks. As a result, deposits with the commercial banks and their cash reserves increase. This enhances their capacity to create credit. Other things given, the flow or .money from the banks to the public increases. This leads to increase in money supply.

Limitation of OMO

When commercial banks possess excess liquidity, the open market does not work effectively, especially when central bank wants to buy back bonds.



The popularity of government bonds and securities in the public also matters a great deal. The government debt instruments are generally not popular due to low rate of return. In recent years, however, the popularity of government bonds has increased due to increasing risk factor in the stock market.

In a very buoyant market situation, like in the period of depression, open market operations are not very effective for lack of demand for credit.

In underdeveloped countries where banking system is not well developed and security capital markets are not interdependent, open market operations have a limited effectiveness.

Bank Rate Policy

- When commercial banks are faced with shortage of cash reserves, they approach the central bank to borrow money for short term or get their bills of exchange rediscounted.
- It is a general method of borrowing by the commercial banks from the central bank, the 'lender of the last resort'.
- The central bank rediscounts the bills presented by the commercial bank at a discount rate. This rate is traditionally called *bank rate.*
- Thus, ***bank rate is the rate which central bank charges on the loans and advances made to the commercial banks.***

Working of the Bank Rate Policy

If the central bank wants to reduce the money supply by reducing the flow of credit from the banks to the public, it will raise the bank rate. Raising bank rate reduces credit flow in three ways.

Rise in discount rate reduces net worth of govt. bonds

One, a rise in the bank rate (virtually the interest rate) reduces the net worth of the government bonds (the Treasury Bills and Promissory Notes) against which commercial banks borrow funds from the central bank. This reduces commercial banks' capacity to borrow from the central bank. As a result, commercial banks find it difficult to maintain a high cash reserve. This reduces the credit creation capacity of the commercial banks. So the flow of credit is reduced.

Demand for funds decreases

Two, when the central bank raises its bank rate, commercial banks raise their discount rate too. Rise in the discount rate raises the *cost of bank credit* which discourages business firms to get their bill of exchange discounted. Also, a rise in the bank rate pushes the market interest rate structure up. If demand for credit is interest-elastic, the demand for funds decreases too.

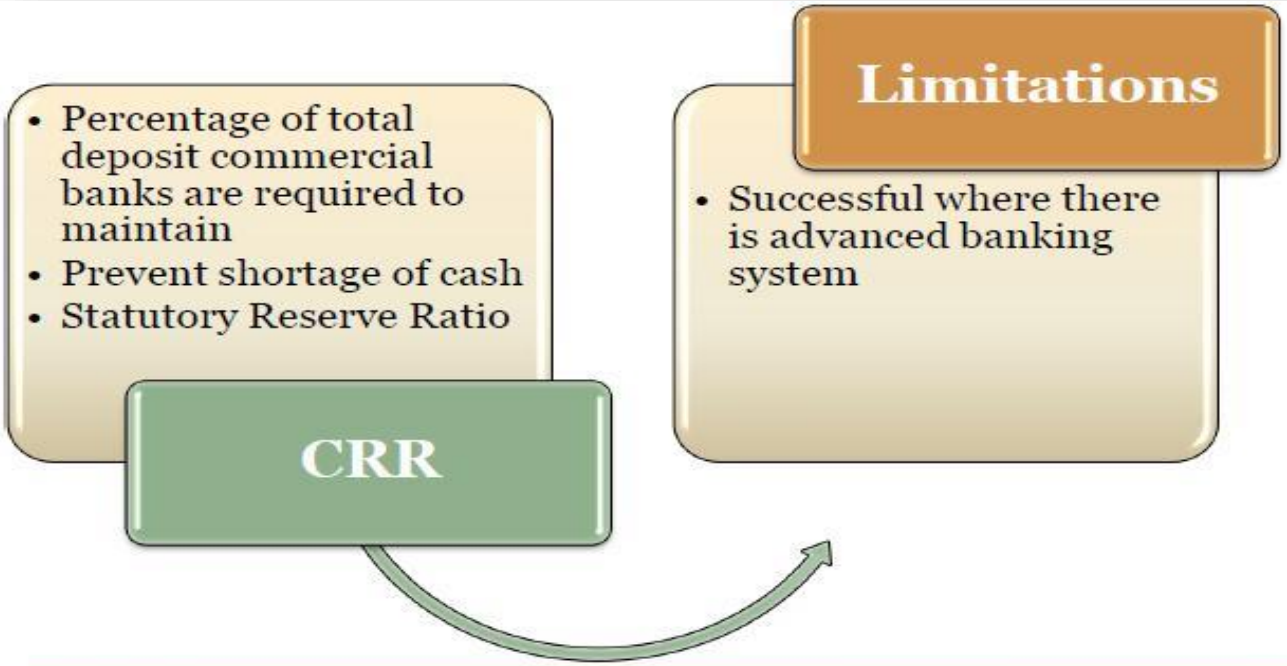
Deposit Mobilization effect

Three, A rise in the bank rate causes a rise in the deposit rate. Therefore, savings flow into the banks in the form of time deposits and money with public decreases. This is called *deposit mobilization effect.*

Limitations of Bank Rate as a Weapon of Credit Control

• **Commercial Banks now have inbuilt resources**	i) The variation in the discount rate works effectively only when commercial banks have no alternative to borrowing from the central bank. In modern times, the commercial banks not dependent on the central bank for financial support. Therefore, their own discount rate is not affected even if central bank raise the bank rate.
• **Credit and financial intermediaries have increases**	ii) With the growth of credit institutions and financial intermediaries, the capital market has widened extensively and the share of banking credit has declined. The growing share of the primary market (including debt, equity, etc.) in the financial resources of the country reduces the effectiveness of the bank rate policy.
• **Demand for credit must be interest elastic**	iii) Looking from the credit demand angle, variations in the discount rate work effectively only where demand for credit is interest-elastic. The structure of the credit market in the less developed countries is such that the interest rates are sticky. Hence change in the discount rate has, not been. found to be very effective.

Cash Reserve Ratio (CRR)



***The Cash Reserve* Ratio *(CRR)*.** The 'cash reserve ratio' (CRR), known also as 'statutory reserve ratio (SRR), is the percentage of total deposits which commercial banks are required to maintain in the form of cash reserve with the central bank.

The objective of cash reserve is to prevent shortage of cash for meeting the cash demand by the depositors. The cash reserve ratio*(CRR)* depends, normally, on the banks' experience regarding the cash demand by the depositors.

By changing the *CRR,* the central bank can change the money supply overnight.
•When economic conditions demand a contractionary monetary policy, the central bank raises the *CRR* and
•when economic conditions demand monetary expansion, the central bank cuts down the *CRR.*

Statutory Liquidity Ratio (SLR)

Statutory Liquidity Ratio (SLR) In addition to *CRR,* the RBI was empowered to impose 'statutory cash reserve ratio' *(SLR)* to control and regulate the credit creation by the banks for the private sector and the availability of finance to the government.

Under the *SLR* scheme, the commercial banks are required by statute to maintain a certain percentage of their total daily demand and time deposits in the form of liquid assets. Liquid assets, as specified by the RBI, include

(i) excess reserves, (ii) government securities, e.g., bonds of IDBI, NABARD, Development banks, cooperative debentures, debentures of port trusts, etc., and (Hi) current account balance with other banks. The method of determining the SLR can be specified as follows.

$$SLR = \frac{ER + GS + CB}{DD + TD}$$

where ER = excess reserves, GS =Government securities, CB= current account balance with other banks, DD = demand deposits, and TD = time deposits.

Statutory Liquidity Ratio (SLR)

The basic purpose of using *SLR was to prevent the commercial banks from going for liquidating* their assets when *CRR was raised to control money supply. When CRR was raised, what commercial* banks used to do was to convert their liquid assets into cash to refill the fall in their funds due to the rise in the *CRR and maintained their credit creation ability. This made monetary policy* ineffective. The *SLR, as a tool of monetary control, works in two ways:*

1. *it provides an alternative* to the borrowing of the government from the RBI, and
2. it affects banks' freedom of buying and selling the government bonds. In both ways, it affects the money supply, depending on whether the RBI wants to control or enhance the money supply. When the intention is to increase money supply, the RBI reduces the *SLR and when it wants to reduce the money supply with the public,* it increases the *SLR.*

Repo Rate

- In April 1997, the RBI introduced a new system, called *Repurchase operation rate* (abbreviated as *repo rate),* to manage the short-run liquidity of the banking system.
- Under the *SLR* system, the commercial banks are required to invest a certain percentage of their demand and time deposits in government securities.
- This system blocks the bank money with the RBI, often causing liquidity problem.
- The repo system provides a solution to this problem of liquidity.
- Under the repo system, the RBI buys securities back from the banks and, thereby provides funds to the banks.
- It is a form of lending money to the banks for a short period 1-14 days. The rate of interest at which the RBI lends money to the bank is the *repo rate.* In contrast, there is *reverse repo rate.* is the rate at which the banks can buy the securities or deposit money with the RBI.

- When the central bank aims at increasing liquidity or money supply, it buys back the securities at a low repo rate. This increase the funds with commercial banks which can be used to create credit.
- On the other hand, when the objective is to control the money supply, the RBI uses the reverse repo rate and increases the repo rate.

Repo Rate

- At present, the objective of meeting short term liquidity needs is being accomplished through the provision of liquidity by the Reserve Bank under its regular facilities - variable rate 14-day/7-day repo auctions equivalent to 0.75 per cent of banking system NDTL, supplemented by daily overnight fixed rate repos (at the repo rate) equivalent to 0.25 per cent of bank-wise NDTL.

Repo Rate

- The 2014 Urjit Patel Committee recommended that as the 14-day term repo rate stabilizes, central bank liquidity should be increasingly provided at the 14-day term repo rate and through the introduction of 28-day, 56-day and 84-day variable rate auctioned term repos by further calibrating the availability of liquidity at the overnight repo rate as necessary. The objective should be to develop a spectrum of term repos of varying maturities with the 14-day term repo as the anchor. The 14-day term repo rate is superior to the overnight policy rate since it allows market participants to hold central bank liquidity for a relatively longer period, thereby enabling them to on lend/repo term money in the inter-bank market and develop market segments and yields for term transactions. More importantly, term repos can wean away market participants from the passive dependence on the RBI for cash/treasury management. The committee felt that overnight repos under the LAF have effectively converted the discretionary liquidity facility into a standing facility that could be accessed as the first resort, and precludes the development of markets that price and hedge risk. Improved transmission of monetary policy thus becomes the prime objective for setting the 14-day term repo rate as the operating target instead of the weighted average call money rates.

Marginal Standing Facility (MSF)

Marginal Standing Facility Rate : Under this scheme, Banks are able to borrow upto 2% of their respective Net Demand and Time Liabilities" outstanding at the end of the second preceding fortnight .

- This scheme is likely to reduce volatility in the overnight rates and improve monetary transmission.
- Marginal Standing Facility (MSF) effective from 09th May, 2011.

Marginal Standing Facility (MSF)

RBI OPERATIONS[@]

	Auction Date	Tenor (Days)	Maturity Date	Amount	Current Rate / Cut off Rate
C. Liquidity Adjustment Facility (LAF) & Marginal Standing Facility (MSF)					
I. Today's Operations					
1. Fixed Rate					
(i) Repo[&&]					
(ii) Reverse Repo	Tue, 13/10/2020	1	Wed, 14/10/2020	5,56,230.00	3.35
2. Variable Rate[&]					
(I) Main Operation					
(a) Reverse Repo					
(II) Fine Tuning Operations					
(a) Repo					
(b) Reverse Repo	-	-	-	-	-
3. MSF	Tue, 13/10/2020	1	Wed, 14/10/2020	0.00	4.25
4. Long-Term Repo Operations	-		-		-
5. Targeted Long Term Repo Operations	-	-	-	-	-
6. Targeted Long Term Repo Operations 2.0	-	-	-	-	-
7. Net liquidity injected from today's operations [injection (+)/absorption (-)]*				-5,56,230.00	

Current Rates

CURRENT RATES

Policy Rates

Policy Repo Rate	: 4.00%
Reverse Repo Rate	: 3.35%
Marginal Standing Facility Rate	: 4.25%
Bank Rate	: 4.25%

Reserve Ratios

CRR	: 3%
SLR	: 18.00%

Last Year RATES

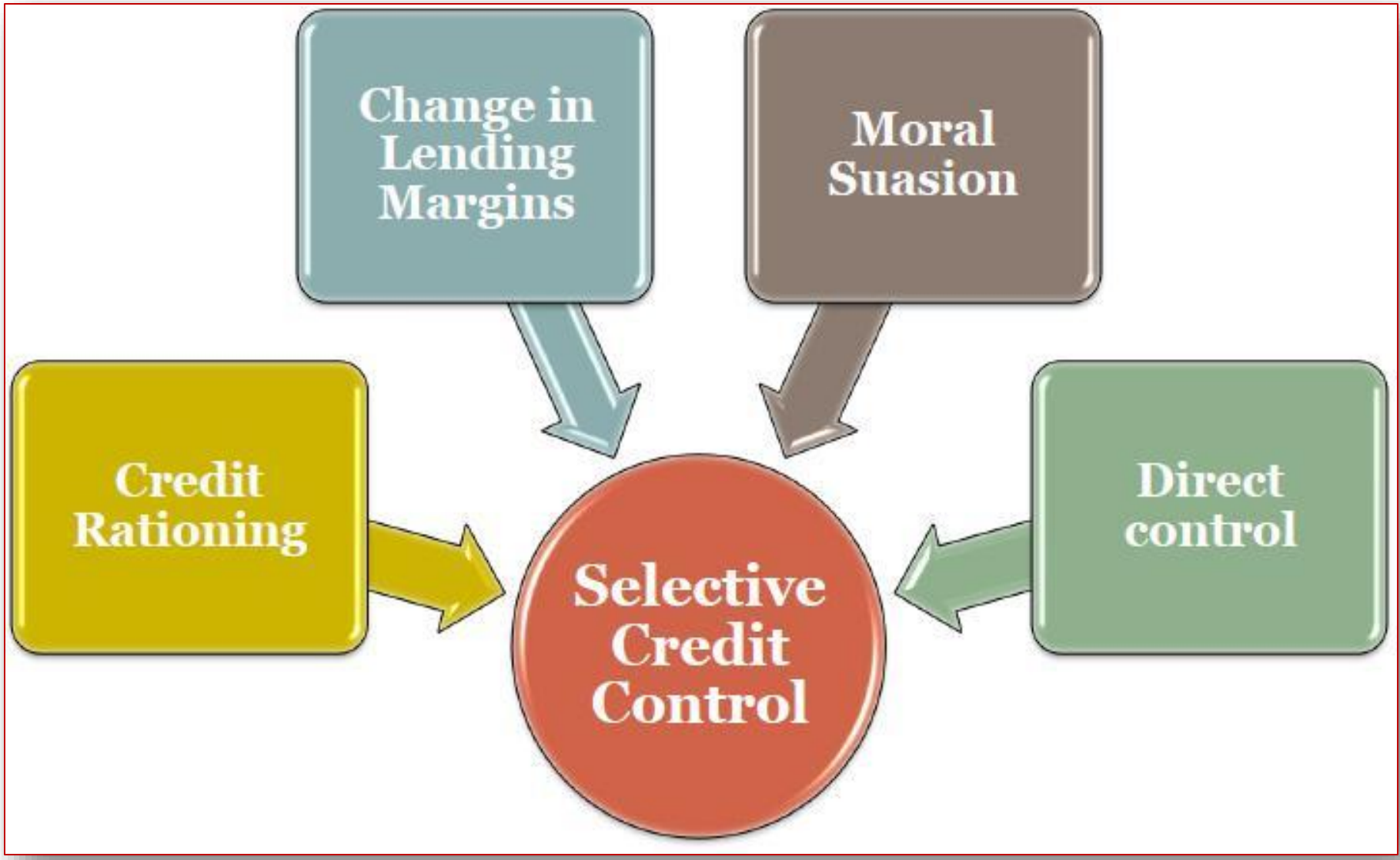
Policy Rates

Policy Repo Rate	: 5.40%
Reverse Repo Rate	: 5.15%
Marginal Standing Facility Rate	: 5.65%
Bank Rate	: 5.65%

Reserve Ratios

CRR	: 4%
SLR	: 18.75%

Selective Credit Control



Credit Rationing

When there is a shortage of institutional credit available for the business sector, the highly developed and financially strong sectors and industries tend to capture the lion's share in the total institutional credit. As a result, priority sectors and essential industries are starved of necessary funds, while the bank credit goes to the nonpriority sectors. In order to curb this tendency, the central bank resorts to credit rationing measures.

Generally, two measures are adopted:

1. imposition of upper limits on the credit available to well-developed industries and large-scale firms, and
2. charging a higher or progressive interest rate on bank loans beyond a certain limit. This is done with a view to making bank credit available to the essential and priority sectors.

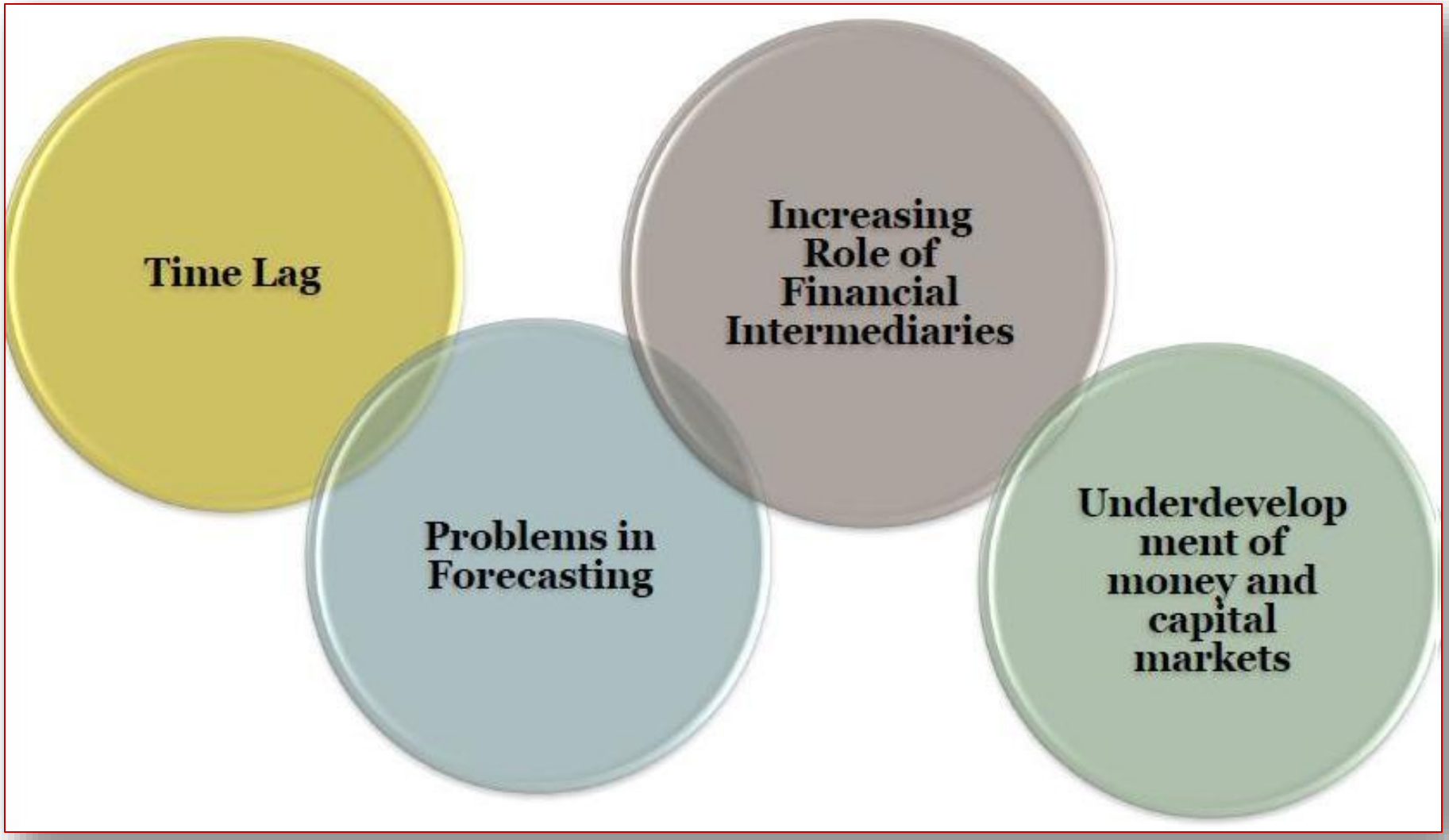
Credit Rationing

Change in Lending Margins: The banks advance money more often than not against the mortgage of some asset or property land, building, jewelry, share, stock of goods, and so on. The banks provide loans only up to a certain percentage of the value of the mortgaged property. The gap between the value of the mortgaged property and amount advanced is called 'lending margin.' The central bank is empowered to increase the lending margin with a view to decreasing the bank credit. This method was used for the first time by the RBI in 1949 with the objective of controlling speculative activity in the stock market.

The moral suasion is a method of persuading and convincing the commercial banks to advance credit in accordance with the directives of the central bank in overall economic interest of the country. Under this method, the central bank writes letter to and hold meetings with the banks on money and credit matters

Direct Controls When all other methods prove ineffective, the monetary authorities resort to direct control measures with clear directive to carry out their lending activity in a specified manner. There are, however, rare instances of use of direct control measures

Limitations of Monetary Policy



Case

Reserve Bank of India dividend to government halves to Rs 30,659 crore

RBI had in 2014-15 paid Rs 65,896 crore dividend and Rs 52,679 crore in the year prior to that.

By *Gayatri Nayak*

- The demonetisation exercise has come with a cost to the government. The Reserve Bank of India will be transferring to the government only Rs 30,659 crore, less than half the amount- Rs 65876 crore it transferred to last year, implying lesser non-tax revenues to the government this year.
- The reduction in the transfer of surplus to the government could be due to a number of factors including higher cost of printing new currency notes and cost of managing excess liquidity generated from phasing out of Rs 500 and Rs 1000 notes, though it is difficult to identify exact reasons at this stage. “

Case

Reserve Bank of India dividend to government halves to Rs 30,659 crore

- The Reserve Bank, from FY'14 onwards, transfers its entire profit to the government, following global best practices followed by central banks. An analysis of past profit statements of RBI indicates that a bulk of the income for the central bank is interest income, of which nearly 60 per cent is interest earned on domestic bond holdings. While the cost of printing currency notes in the past has been just about 20 per cent of its total expenses, which is estimated to have more than doubled in FY'17 due to demonetisation of the Rs 500 and Rs 1000 notes.
- "The lower amount will be a concern since the government's non-tax receipts will be affected," said Mdan Sabnavis, chief economist at Care Ratings. In the Budget it was assumed that around Rs 75,000 cr would come from RBI, PSBs and FIs compared with a little over Rs 76,000 cr in FY17. "As PSBs are unlikely to do better than last year and the RBI will be transferring a smaller amount, this will impact the fiscal deficit numbers. if other conditions remain unchanged, the fiscal deficit can increase from 3.2 per cent to 3.4 per cent this year" said Sabnavis.

Case

Reserve Bank of India dividend to government halves to Rs 30,659 crore

- Operational expenses in cost of printing new currency and the associated logistics of collecting old notes is likely to have gone up ” said Saugata Bhattacharya, chief economist at Axis Bank. ” The cost of sterilising the excess liquidity through MSS and reverse repos would also be significant.”
- “ (During the year) foreign currency reserves of RBI were fetching less returns because most of the foreign countries were giving negative returns or very low returns. Also, throughout the year the reverse repo has been high that means that RBI has to pay to banks. The whole of last year there was surplus liquidity and RBI had to pay more interest to the banks” said former RBI deputy governor R Gandhi.

ACTIVE LEARNING 1
Exercise

ACTIVE LEARNING 1
Exercise

- One good: corn.

The economy has enough labor, capital, and land to produce ***Y*** = 800 kg of corn.

V is constant.

In 2015, MS = Rs.2000, ***P*** = Rs.5/kg.

Compute nominal GDP and velocity in 2015.

ACTIVE LEARNING 1
Exercise

Given: $Y = 800$, V is constant,
MS = Rs.2000 and P = Rs.5 in 2015.

Compute nominal GDP and velocity in 2015.

Nominal GDP = $P \times Y$ = Rs.5 x 800 = Rs.4000

$$V = \frac{P \times Y}{M} = \frac{\text{Rs.4000}}{\text{Rs.2000}} = 2$$

Assumption of QTM

Multiply both sides of formula by ***M***:

$$M \times V = P \times Y$$

Called the **quantity equation**

Velocity formula: $V = \frac{P \times Y}{M}$

Start with quantity equation: $M \times V = P \times Y$

1. ***V*** is stable.
2. So, a change in ***M*** **causes nominal** GDP (***P*** x ***Y***) to change by the same percentage.
3. A change in ***M*** does not affect ***Y***:
   money is neutral,
   Y is determined by technology & resources
4. So, ***P*** changes by same percentage as ***P*** x ***Y*** and ***M***.
5. **Rapid money supply growth causes rapid inflation.**

ACTIVE LEARNING 2
Exercise

One good: corn. The economy has enough labor, capital, and land to produce ***Y*** = 800 kg of corn. ***V*** is constant. In 2015, MS = Rs.2000, ***P*** = Rs.5/kg.

For 2016, the RBI increases MS by 5%, to Rs.2100.

a. Compute the 2016 values of nominal GDP and ***P***. Compute the inflation rate for 2015–2016.

b. Suppose tech. progress causes ***Y*** to increase to 824 in 2016. Compute 2015–2016 inflation rate.

ACTIVE LEARNING 2
Exercise

Given: $Y = 800$, V is constant,
MS = Rs.2000 and P = Rs.5 in 2015.

For 2016, the RBI increases MS by 5%, to Rs.2100.

a. Compute the 2016 values of nominal GDP and P.
Compute the inflation rate for 2015–2016.

Nominal GDP $= P \times Y = M \times V$ (Quantity Eq'n)

$=$ Rs.2100 x 2 $=$ **Rs.4200**

$$P = \frac{M \times V}{Y} = \frac{\text{Rs.4200}}{800} = \text{Rs.5.25}$$

$$\text{Inflation rate} = \frac{\text{Rs.5.25} - 5.00}{5.00} = 5\% \text{ (same as MS!)}$$

Given: $Y = 800$, V is constant,
MS = Rs.2000 and P = Rs.5 in 2015.

For 2016, the RBI increases MS by 5%, to Rs.2100.

b. Suppose tech. progress causes Y to increase 3% in 2016, to 824. Compute 2015–2016 inflation rate.

First, use Quantity Eq'n to compute P in 2016:

$$P = \frac{M \times V}{Y} = \frac{\text{Rs.4200}}{824} = \text{Rs.5.10}$$

$$\text{Inflation rate} = \frac{\text{Rs.5.10} - 5.00}{5.00} = \boxed{2\%}$$

Summary and Lessons about the Quantity Theory of Money

- If real GDP is constant, then inflation rate = money growth rate.
- If real GDP is growing, then inflation rate < money growth rate.
- The bottom line:
  - Economic growth increases # of transactions.
  - Some money growth is needed for these extra transactions.
  - Excessive money growth causes inflation.

Summary

- Monetary policy is a programme undertaken by the central bank, control & regulate the demand for & supply of money with public
- Instruments of Monetary Policy are Quantitative Measures & Selective Controls
- Open Market Operations are carried out by sale and purchase of government securities and treasury bills by central bank
- Bank Rate Policy is the rate at which central bank rediscounts the bills of exchange which regulates flow of credit
- Cash Reserve Ratio is the percentage of total deposit commercial banks are required to maintain with the central bank.
- Selective Credit Control acts by Credit Rationing ,Change in Lending Margins, Moral Suasion, Direct control
- Limitations of Monetary Policy -Time Lag, Forecasting Problem, Financial, Intermediaries, Underdevelopment of money and capital market