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CONCEPT OF MONEY SUPPLY

Introduction

Money Supply refers to the total quantity of money available with the Public. The term 'public' is defined to include all economic units (households, firms, and institutions) except the producers of money (i.e. the government and the banking system). The government, in this context, includes the central government and all state governments and local bodies; and **G**Banking system means the Reserve Bank of India and all the banks that accept demand deposits (i.e. deposits from which money can be withdrawn by cheque mainly CASA deposits). In other words, while discussing the definition of 'supply of money', interbank deposits and money held by the government and the banking system are not included. Money can be defined for policy purposes as a set of liquid financial assets, the variation in the stock of which could impact aggregate economic activity. Economic stability requires that the supply of money at any time should to be maintained at an optimum level. A pre-requisite for achieving this is to accurately estimate the stock of money supply on a regular basis and appropriately regulate it in accordance with the monetary requirements of the country.







RATIONALE OF MEASURING MONEY SUPPLY

The empirical analysis of the money supply is important for two reasons: 1. It facilitates analysis of monetary developments in order to provide a deeper understanding of the causes of money growth.

2. It is essential from a monetary policy perspective as it provides a framework to evaluate whether the stock of money in the economy is consistent with the standards for price stability and to understand the nature of deviations from this standard.

The central banks all over the world adopt monetary policy to stabilise price level and GDP growth by directly controlling the supply of money. This is achieved mainly by managing the quantity of monetary base. The success of monetary policy depends to a large extent on the controllability of the monetary base and the money supply.

THE SOURCES OF MONEY SUPPLY

The supply of money in the economy depends on: (a) the decision of the **central bank** based on the authority conferred on it, and (b) the supply responses of the **commercial banking system** of the country to the changes in policy variables initiated by the central bank to influence the total money supply in the economy.

In modern economies, the currency is a form of money that is issued exclusively by the Growtl Rel sovereign (or a central bank as its representative) and is legal tender.
 Paper currency is such a representative money, and it is essentially a debt instrument. Figt Money
 It is a liability of the issuing central bank (and sovereign) and an asset of the holding public.



The high-powered money by Central Bank and the credit money by Commercial Banks broadly constitute the most common measure of money supply, or the total money stock of a country

Central Bank

The central banks of all countries are empowered to issue currency and, therefore, the central bank is the primary source of money supply in all countries.

In effect, high powered money issued by monetary authorities is the source of all other forms of money.

The currency issued by the central bank is 'fiat money' and is backed by supporting reserves and its value is guaranteed by the government. In practice, however, most countries have adopted a 'minimum reserve system' wherein the central bank is empowered to issue currency to any extent by keeping only a certain minimum reserve of gold and foreign securities.

Commercial Banks

The total supply of money in the economy is also determined by the extent of credit created by the commercial banks in the country.

Banks create money supply in the process of borrowing and lending transactions

with the public. Money so created by the commercial banks is called 'credit money'.





Central Bank Digital Currencies The concept of money has experienced evolution from Commodity to Metallic Currency to Paper Currency to Digital Currency Advancement in technology has made it possible for the development of new form of money viz. Central Bank Digital Currencies (CBDCs). Reserve Bank broadly defines CBDC as the legal tender issued by a central bank in a digital form. It is akin to sovereign paper currency but takes a different form, exchangeable at par with the existing currency and shall be accepted as a medium of payment, legal tender and a safe store of value. CBDCs would appear as liability on a central bank's balance sheet. The Crypto currencies face significant legislative uncertainties and are not legally

recognised in India as currency. Hence, these are not categorized as money

MEASUREMENT OF MONEY SUPPLY

Since July 1935, the Reserve Bank of India has been compiling and disseminating monetary statistics. Till 1967-68, the RBI used to publish only a single 'narrow measure of money supply' (M1)
 From 1967-68, a 'broader' measure of money supply, called 'aggregate monetary resources' (AMR) was additionally published by the RBI.
 From April 1977, following the recommendations of the Second Working Group on Money Supply (SWG), the RBI has been publishing data on four alternative measures of money supply denoted by M1, M2, M3 and M4 besides the reserve money.
 The respective empirical definitions of these measures are given below:





Currency in Circulation

M1 = Currency notes and coins with the people + demand deposits with the banking system (Current and Saving deposit accounts) + other deposits with the RBI.

M2 = M1 + savings deposits with post office savings banks.

M3 = M1 + time deposits with the banking system.

M4 = M3 + total deposits with the Post Office Savings Organisation (excluding National Savings Certificates).



= ₹570,000

ILLUSTRATION 1

Calculate Narrow Money (M1) from the following data			
Currency with public	+	₹	90000 crore
Demand Deposits with Banking System	+	₹	200000 crore
Time Deposits with Banking System 🗙		₹	220000 crore
Other Deposits with RBI	+	₹	280000 crore
Saving Deposits of Post office saving banks 🔀		₹	60000 crore

ILLUSTRATION 3

Calculate currency with the Public from the following data (₹ Crore)

1.1 Notes in Circulation	+ 2496611	Public .
1.2 Circulation of Rupee Coin	+ 25572	Currency Idone
1.3 Circulation of Small Coins	+ 743	/ in Circulation — Banks
1.4 Cash on Hand with Banks	98305	

Jotal Currence	in Circ	culation	- 2	522926
- 1		(-)	(98305
\sim	Currence	With Bub		2424621
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ILLUSTRATION 4

Calculate M2 from the following data

	(₹Crore)
Notes in Circulation	2420964
Circulation of Rupee Coin. (-) Cash with banks	25572
Circulation of Small Coins	743
Post Office Saving Bank Deposits -> Demond	141786
Cash on Hand with Banks	97563
Deposit Money of the Public	1776199
Demand Deposits with Banks of Public	· 1737692
'Other' Deposits with Reserve Bank	38507
Total Post Office Deposits	— 14896
Time Deposits with Banks	178694

M2 = M1 + Demond dep of PO. Currency Dith Public + Other deposite Dith RBI + + Deposit money of the Bublic with Bank 72349716 + 38507 + 1737692 + 141786 4267701

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DETERMINANTS OF MONEY SUPPLY

There are two alternate theories in respect of determination of money supply.

According to the first view, money supply is determined exogenously by the central bank.

The second view holds that the money supply is determined endogenously by changes in the economic activities which affect people's desire to hold currency relative to deposits, rate of interest, etc.

The current practice is to explain the determinants of money supply based on 'money multiplier approach' which focuses on the relation between the money stock and money supply in terms of the monetary base or high-powered money.

*****The monetary base = currency in circulation + bank reserves.

This approach holds that total supply of nominal money in the economy is determined by the joint behaviour of the central bank, the commercial banks and the public.

THE CONCEPT OF MONEY MULTIPLIER

The money created by the Reserve Bank of India is the monetary base, also known as high- powered money.

Banks create money by making loans. A bank loans or invests its excess reserves to earn more interest.

A one-rupee increase in the monetary base causes the money supply to increase by more than one rupee. The increase in the money supply is the money multiplier.







If some portion of the increase in high-powered money finds its way into currency, this portion does not undergo multiple deposit expansion. The size of the money multiplier is reduced when funds are held as cash rather than as demand deposits.

📌 In other words, as a rule, an increase in the monetary base that goes into currency is not multiplied, whereas an increase in monetary base that goes into supporting deposits is multiplied.

THE MONEY MULTIPLIER APPROACH TO SUPPLY OF MONEY

The money multiplier approach to money supply propounded by Milton Friedman and Anna Schwartz, (1963) considers three factors as immediate determinants of money supply, namely: 20 = r= 0.1

- (a) the stock of high-powered money (H)
- (b) the ratio of reserves to deposits or reserve-ratio $r = \{\text{Reserves/Deposits R/D}\}$ and
- (c) the ratio of currency to deposits, or currency-deposit ratio c={C/D}

These represents the behaviour of the central bank, behaviour of the commercial banks and the behaviour of the general public respectively.

The Behaviour of the Central Bank - Stock of High powered Money

Money stock is determined by the money multiplier and the monetary base (H) is M= MBxm controlled by the monetary authority. If the behaviour of the public and the commercial banks remains unchanged over time, the total supply of nominal money in the economy will vary directly with the supply of the nominal high-powered money issued by the central bank.

Direct relation between High power Money & Money Supply C

The Behaviour of the Commercial Banks - Reserve Ratio



Higher excess reserves 🔁 less money available for lending 主 money supply will decrease.

Inverse Relationship between Excess Reserves & Multiplier / Money

supply.

100 - 10 ER-opportunity cost↑ 9nt Rate ↑



deposit outflows increase), they will want more assurance against this possibility and will increase the excess reserves ratio.

Conversely, a decline in expected deposit outflows will reduce the benefit of holding excess reserves and excess reserves will fall.



The Behaviour of the Public - Currency Deposit Ratio

Currency Deposit Ratio

When bank deposits are being converted into currency, banks can create only less credit money. The overall level of multiple expansion declines, and therefore, money multiplier also falls.

Hence, we conclude that money multiplier and the money supply are

negatively related to the currency ratio c.

Current Deposit Ratio, c = currency (C) / Deposits (D)

The currency-deposit ratio (c) represents the degree of adoption of banking habits by the people.

This is influenced by the degree of financial sophistication in terms of ease and access to financial services, availability of a richer array of liquid financial assets, financial innovations, institutional changes etc.

FD 66 CASA 100 Time deposit - Demand deposits - 601

The time deposit-demand deposit ratio i.e. how much money is kept as time deposits compared to demand deposits, also has an important implication for the money multiplier and, hence for the money stock in the economy.

An increase in TD/DD ratio means that greater availability of free reserves and consequent enlargement of volume of multiple deposit expansion and monetary expansion.

Direct Relation between time deposit-demand deposit ratio and money multiplier.







In other words, the money supply is determined by high powered money (H) and the money multiplier (m) and varies directly with changes in the monetary base, and inversely with the currency and reserve ratios.
Although these three variables do not completely explain changes in the nominal money supply, nevertheless they serve as useful devices for analysing such changes.
Consequently, these variables are designated as the 'proximate determinants' of the nominal money supply in the economy.

We may now rewrite the money multiplier including the above variables.

M = C+D (1) 🖊

H = C+ reserves (2)

Where C is currency and D is deposits which are assumed to be demand deposits. We summarise the behaviour of the public, banks and the central bank by three variables namely,

- currency-deposit ratio c= C/D,
- reserve-ratio r= Reserves/D, and
- the stock of high-powered money (H) Z





The money multiplier is a function of:

(a) the currency ratio set by depositors c which depends on the behaviour of the public

(b) excess reserves ratio set by banks e, and

(c) the required reserve ratio set by the central bank r, which depends on prescribed

CRR and the balances necessary to meet settlement obligations.









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ILLUSTRATION 2

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Compute credit multiplier if the required reserved ratio is 10% and 12.5% for every ₹1, 00,000 deposited in the banking system. What will be the total credit money created by the banking system in each case?

a. $f \cdot 10.1$ $M = \frac{1}{Y} = \frac{1}{0.1} = 10$ Total Credit Money = $H \times M$ $[M] = 100.000 \times 10$ = ₹10.00.000b. f = 19.5.1 $M = \bot = 8$ 0.125Total Credit Money = 100.000 ×8 = ₹800.000

ILLUSTRATION 5

If the required reserve ratio is 10 percent, currency in circulation is $\overline{\ast}$ 400 billion, demand deposits are $\overline{\ast}$ 1000 billion, and excess reserves total $\overline{\ast}$ 1 billion, find the value of money multiplier.

 $\mathfrak{M} = \frac{C+1}{C+1+e} \xrightarrow{0.4+1} = 0.4 + 0.1 + 0.001$



MONETARY POLICY AND MONEY SUPPLY

If the central bank of a country wants to stimulate economic activity it does so by infusing liquidity into the system.

Let us take the example of open market operations (OMO) by central banks. Purchase of government securities injects high powered money (monetary base) into the system. Assuming that banks do not hold excess reserves and people do not hold more currency than before, and also that there is demand for loans from businesses, the credit creation process by the banking system in the country will create money to the tune of $M = M \times H^2$

$\Delta Money supply = (1 / R) X \Delta Reserves$

The effect of an open market sale is very similar to that of open market purchase, but in the opposite direction. In other words, an open market purchase by central bank will reduce the reserves and thereby reduce the money supply.

Is it possible that the value of money multiplier is zero? It may happen when the interest rates are too low and the banks prefer to hold the newly injected reserves as excess reserves with no risk attached to it.



EFFECT OF GOVERNMENT EXPENDITURE ON MONEY SUPPLY

Whenever the central and the state governments' cash balances fall short of the minimum requirement, they are eligible to avail of a facility called Ways and Means Advances (WMA)/overdraft (OD) facility

When the Reserve Bank of India lends to the governments under WMA /OD, it results in the generation of excess reserves (i.e., excess balances of commercial banks with the Reserve Bank).

This happens because when government incurs expenditure, it involves debiting the government balances with the Reserve Bank and crediting the receiver (for e.g., salary account of government employee) account with the commercial bank.

The excess reserves thus created can potentially lead to an increase in money supply through the money multiplier process.

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