



**FINANCIAL MARKETS
ASSOCIATION
OF PAKISTAN**

Affiliated with ACI

**Seminar
on
Understanding Fundamental
Monetary Variables**

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Speaker

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Sequence

- **Functions of Money**
- **Why Money is Valuable?**
- **Definitions of Money Supply**
- **Monetary Policy Transmission Mechanism**
- **How the Mechanics of Monetary System Work?**
- **External Account and Money Supply**
- **Fiscal Policy and Money Supply**
- **GDP Growth and Money Supply**
- **Implementation of Monetary Policy**



Functions of Money

1. Medium of Exchange



2. Measuring Rod for Value

Common denominator into which the current value of all goods & services can be expressed

Rs.15,000,000



Rs.1,000,000



Rs.2,000



3. Store of Value (Wealth)

Perfectly liquid financial asset



Why is Money Valuable?

Why is Money Valuable?

Two kinds of money

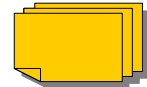
~~Convertible on demand
into the underlying
commodity e.g., Gold.~~

~~Commodity Money~~



No "Intrinsic
Value" per se.
Rupee is just a
piece of paper

Fiat Money



Why is Money Valuable?

Two factors that make money valuable...

Confidence



People accept that money could be used to buy goods & services.

Most global currency collapses were "crisis of confidence".

Supply vs. Demand



When the supply of money is limited relative to demand, money will be valuable.

Importance of Monetary Policy!

Definitions of Money Supply

Three Main Definitions of Money Supply

Reserve Money (RM)



- Currency in Circulation
- Currency in Banks' Vaults
- Banks' Deposits with SBP

Narrow Money (M1)



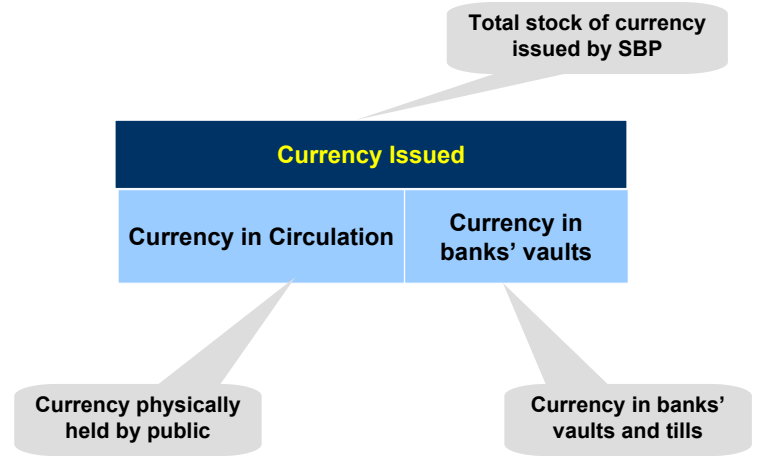
- Currency in Circulation
- Rupee Demand Deposits @ Banks

Broad Money (M2)



- Currency in Circulation
- Rupee Demand Deposits @ Banks
- Rupee Time Deposits @ Banks
- Resident FCY Deposits @ Banks

Different definitions of currency...



Monetary Policy Transmission Mechanism

Monetary policy transmission mechanism

Basics about Monetary Policy

What is it?



Deals with the supply of money in an economy.

Who conducts it?



Domain of SBP, which is 'independent' of MOF.

What objectives?



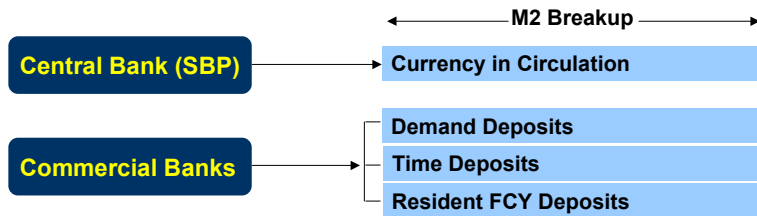
- Maintaining Price Stability
- Facilitating Economic Growth
- Managing Exchange Rate

What tools?



- Open Market Operations
- Discount Rate
- Cash Reserve Ratio

The two building blocks of monetary system

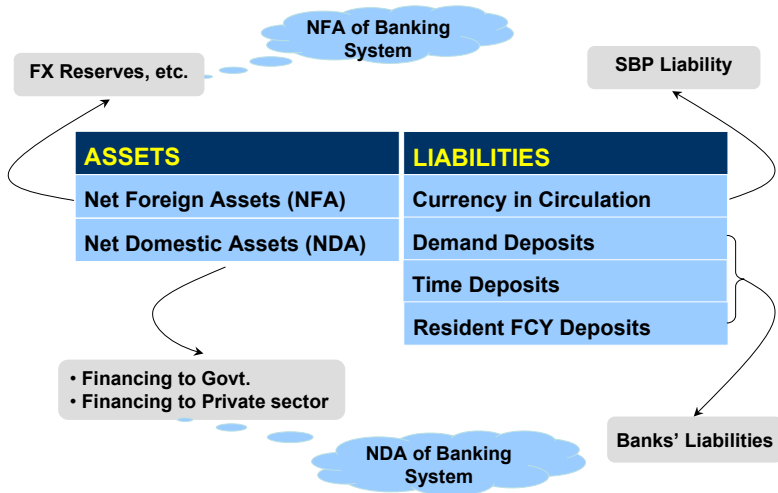


Every monetary equation has two sides

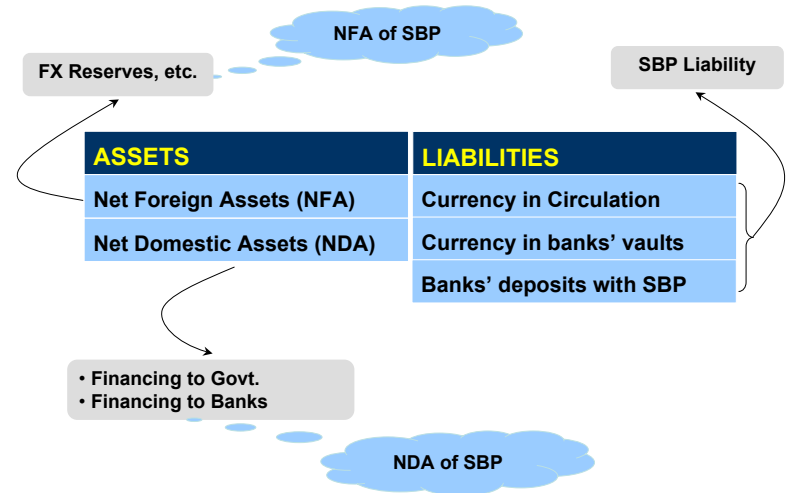
ASSETS	LIABILITIES
This is the "causative side" i.e., any change in money supply is caused by a change in the asset side.	This side shows only the effects of these changes.

 **Think of monetary equations in terms of balance sheets.**

The two sides of M2 equation



The two sides of RM equation



 **Key concepts of the section**

- SBP and Banks are two building blocks of monetary system
- Reserve Money (RM) pertains to SBP only
- M2 includes the entire banking system i.e., SBP and Banks
- Each monetary equation has two sides; Assets & Liabilities
- Changes in money are caused by changes on Assets side which comprises NDA and NFA
- $RM = NDA_{SBP} + NFA_{SBP}$
- $M2 = NDA_{BANKING} + NFA_{BANKING}$
- Always differentiate between NDA and NFA of SBP and Banking system

How the mechanics of monetary system work?

Stage 0: Beginning of an economy

- A group of few hundred people stranded in some Island decide to start an economy based on modern political-economic systems.
- Some individuals with leadership abilities form the government which in turn appoints an independent central bank.
- Four types of economic agents finally emerge
 - Government
 - Central Bank
 - Banks
 - Individuals

Contd...

Stage 0: Beginning of an economy

Central Bank (SBP)		Banks	
ASSETS	LIABILITIES	ASSETS	LIABILITIES
0	0	0	0
Reserve Money		M2	
- Currency in Circulation	0	- Currency in Circulation	0
- Currency in Bank Vaults	0	- Bank Deposits	0
- Banks Deposits with SBP	0		

How the mechanics of Monetary System work?

Stage 1: Individual sells wheat to Govt. for Rs.1,000



Central Bank (SBP)		Banks	
ASSETS	LIABILITIES	ASSETS	LIABILITIES
T-bills	1,000	Currency Iss.	1,000
			0

Reserve Money		M2	
	1,000		1,000
- Currency in Circulation	1,000	- Currency in Circulation	1,000
- Currency in Bank Vaults	0	- Bank Deposits	0
- Banks Deposits with SBP	0		

 **Govt. borrowing (NDA) from SBP increases RM & M2**

How the mechanics of Monetary System work?

Stage 2: Individual deposits Rs.1,000 in a bank

Central Bank (SBP)		Banks	
ASSETS	LIABILITIES	ASSETS	LIABILITIES
T-bills	1,000	Currency Iss.	1,000
		Vault Cash	1,000
		Deposit-1	1,000

Reserve Money		M2	
	1,000		1,000
- Currency in Circulation	0	- Currency in Circulation	0
- Currency in Bank Vaults	1,000	- Bank Deposits	1,000
- Banks Deposits with SBP	0		

 **Bank deposit increase does not always result in M2 growth**


How the mechanics of Monetary System work?

Stage 3: Bank loans out Rs.800

- Borrower draws down Rs.500 and leaves the remaining Rs.300 in account with the same bank.

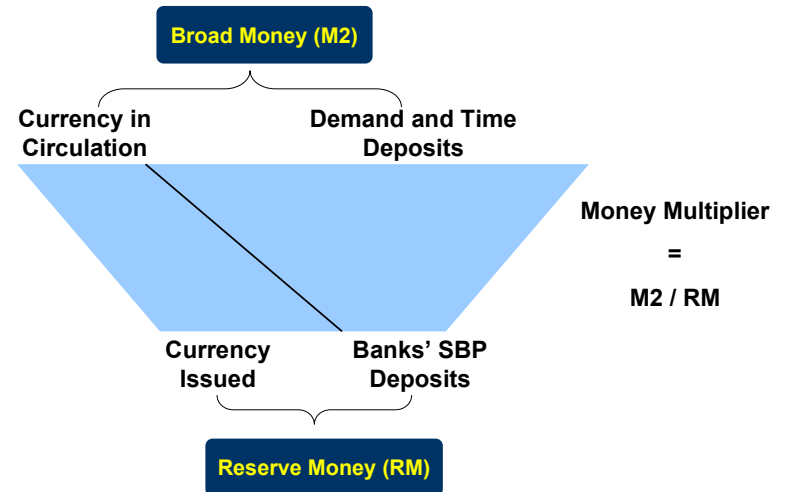
Central Bank (SBP)				Banks			
ASSETS		LIABILITIES		ASSETS		LIABILITIES	
T-bills	1,000	Currency Iss.	1,000	Vault Cash	500	Deposit-1	1,000
TOTAL		TOTAL		Advances	800	Deposit-2	300
				TOTAL	1,300	TOTAL	1,300

Reserve Money		M2	
- Currency in Circulation	500	- Currency in Circulation	500
- Currency in Bank Vaults	500	- Bank Deposits	1,300
- Banks Deposits with SBP	0		
	1,000		1,800

 Private sector borrowing increases M2.

How the mechanics of Monetary System work?

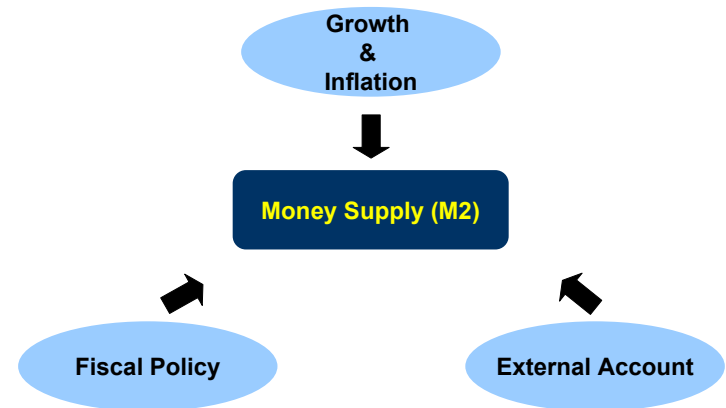
Money Multiplier



 **Key concepts of the section**

- Changes in money supply are always driven by changes in assets such as:
 - Financing to Government
 - Financing to Private Sector
- Government's borrowing from SBP increases RM by increasing SBP's NDA.
- Reserve Money (RM) growth provides the liquidity for a multiplier expansion in Broad Money (M2).

Three Key Factors influencing M2



External Account & Money Supply

Example: Impact of \$1.0 million “private” FX inflow

Step-1: \$1.0 million remittance received through Bank.

Step-2: Bank sells the dollars to SBP, which credits Rs.60 million to the Bank’s account with SBP ⇒ SBP’s NFA increases by \$1.0 million.

Step-3: Bank in turn credits the account of recipient of remittance by Rs.60 million.

Central Bank (SBP)				Banks			
ASSETS		LIABILITIES		ASSETS		LIABILITIES	
FX	\$1.0	Bank's Deposit	60.0	A/C with SBP	60.0	Deposit	60.0
TOTAL	\$1.0	TOTAL	60.0	TOTAL	60.0	TOTAL	60.0
Reserve Money			60.0	M2			60.0
- Currency in Circulation			0.0	- Currency in Circulation			0.0
- Currency in Bank Vaults			0.0	- Bank Deposits			60.0
- Banks Deposits with SBP			60.0				

 Private FX inflow increases SBP's NFA and creates rupee liquidity

Sterilization of FX inflows

- Mopping up of surplus rupee liquidity generated by large private FX inflows is called 'sterilization'.
- Tool for sterilization
 - OMO and T-bills that result in shifting of T-bills from SBP's books to banks' books
 - Allowing investments in FX assets abroad
- Cost of sterilization
 - Higher earnings rupee asset (T-bill) substituted by low yield dollar assets for SBP resulting in revenue loss for the central bank


Example: Impact of \$1.0 million "Govt." FX inflow

Step-1: Receipt of \$1.0 million WB loan through SBP ⇒ SBP's NFA increases by \$1.0 million.

Step-2: Govt. uses the rupee proceeds of Rs.60 million to retire T-bill on SBP's balance sheet ⇒ SBP's NDA reduces by Rs.60 million.

Central Bank (SBP)		Banks	
ASSETS	LIABILITIES	ASSETS	LIABILITIES
FX	\$1.0		
T-bill	-60.0		
TOTAL	0.0		

Reserve Money	0.0	M2	0.0
- Currency in Circulation	0.0	- Currency in Circulation	0.0
- Currency in Bank Vaults	0.0	- Bank Deposits	0.0
- Banks Deposits with SBP	0.0		

 Govt. FX inflow does not generate rupee liquidity. SBP's NFA increase offset by its NDA shrinkage

 **Key concepts of the section**

- Private FX inflows generate rupee liquidity, increasing M2.
- The central bank sterilizes the impact of higher private FX inflows by mopping up the surplus rupee liquidity generated by the FX inflows.
- Government's FX inflows, on standalone basis, cause only a change in Reserve Money's asset composition but do not generate incremental rupee liquidity.
- FX outflows such as imports and other payments by the private sector have a contractionary impact on M2.
- Currency and Money markets are closely linked.

Fiscal Policy and Money Supply

Example: Government borrows Rs.1,000 to buy wheat



Central Bank (SBP)		Banks	
ASSETS	LIABILITIES	ASSETS	LIABILITIES
T-bills	1,000	Currency Iss.	1,000
			0

Reserve Money	1,000	M2	1,000
- Currency in Circulation	1,000	- Currency in Circulation	1,000
- Currency in Bank Vaults	0	- Bank Deposits	0
- Banks Deposits with SBP	0		

 **Govt. borrowing (NDA) from SBP increases RM & M2**

 **Key concepts of the section**

- Government needs to borrow for financing of fiscal deficit.
- Increase in government borrowings result in monetary growth but borrowing needs are a function of deficits.
- Large fiscal deficits would drive higher monetary growth and vice versa.

GDP Growth and Money Supply

 **Key concepts of the section**

- The ratio of Nominal GDP to M2 is called the Velocity of Money which tends to stay relatively stable time.
 - Therefore M2 should growth in line with nominal GDP growth
- There is a close inter-dependence between GDP growth and Monetary Policy and different economic schools of thought have different views about this relationship.

How monetary policy is conducted?

How monetary policy is conducted?

Monetary policy targets the assets side

ASSETS	LIABILITIES
Net Foreign Assets (NFA)	Currency in Circulation
Net Domestic Assets (NDA)	Demand Deposits
	Time Deposits
	Resident FCY Deposits

- NDA is the main target of monetary policy.
- Expansionary monetary policy lowers interest rates to induce credit growth while tight monetary policy does the opposite.

Tools for conducting monetary policy

Open Market Ops.



Changes money market liquidity to influence interest rates and liquidity available for credit expansion

Reserve Requirement



Higher CRR would reduce banking liquidity available for credit expansion while pushing up interest rates.

Discount Rate



Theoretically, the most explicit signal for change in monetary policy.