Chapter 2

Theoretical Framework, Policy Perspectives and Empirical Research
Money matters. Everyone witnesses the influence of money on economic activities. Thus, money has attracted attention of scholars and they began to think over its influence on the economy. With their observation on the role of money in the economy and its effects, they began to express their thinking about money in the form of monetary theory. With the passage of time, the economic structure also changed and the scholars developed their monetary theories incorporating new events. In the first section of this chapter, quantity theories of money as propounded by different scholars are discussed. In the second section, monetary policy is presented. In the course of discussing monetary policy, demand for money, money supply, central bank independence, money and economic activity, monetary targeting, and growth of financial institutions are discussed.

2.1 Monetary Theories

The economists have been long interested in sporadic movements in prices of the goods and services, which are attributed to two contributory factors – monetary and non-monetary. According to the monetary explanation, also called the quantity theory of money, change in the aggregate supply of money causes a change in prices in the economy. Non-monetary explanation relates to the price movement with factors such as war, famine, natural disaster or any other circumstances having non-monetary nature.

2.1.1 Quantity Theory of Money

The origin of the quantity theory is traced back to the 15th century. However, there is a controversy regarding the first writer to formulate this theory. According to Angell and Monroe, John Locke was the first to formulate the theory. Jacob Viner has shown that the quantity theory of money was earlier stated by Gerard de Malynes, Thomas Mun, Robert Bruce Cotton, Henry Robinson and others. Yet Joseph Schumpeter contributes Jean Bodin as the first discoverer of the quantity theory of money. It was David Hume who systemized and popularized the doctrine by formulating it precisely in 1752 in his economic essay in Political Discourses. Although a positive relationship between the

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aggregate money supply and the general level of prices was established, the earlier versions did not emphasize on positive relationship being proportionate\textsuperscript{13} because (i) they were aware that technological improvements would increase the level of aggregate output over time, and (ii) the velocity of money would change due to changing nature of monetary institutions.

According to the quantity theory of money, the general price level ($P$) would change in some dependable manner in response to any given change in the quantity of money in circulation ($MV$) such that an increase (decrease) in the aggregate money supply will cause the general price level to rise (fall). The value of money, other things remaining the same, was the negative function of its supply. It asserts that the money elasticity of the general price level is always positive, although it is not necessarily one.

The later day classical and neoclassical economists stated that the general price level ($P$) would change in equi-proportionate manner in response to a change in the quantity of money ($MV$): an increase in the aggregate money supply will cause the general price level to rise equi-proportionately, and \textit{vice versa}. This necessarily assumes that the demand for real cash balances ($M/P$) remains constant while changes in the money supply takes place; it means that the money only acts as a medium of exchange and it does not influence, in any manner, the total output in the economy. Since the demand for the real cash balances in the economy arises from the need to exchange output, the aggregate output is assumed constant in the rigid quantity theory model, which is explained in the form of quantity equations. The value of money, other things remaining the same, is the negative function of its supply. Two most popular forms of quantity equations are the \textit{cash transactions} and \textit{cash balances}.

The cash transactions approach to the quantity theory of money is accredited to Simon Newcomb and Irving Fisher. Fisher’s explanation relates the changes in the general price level, $P$, to the changes in the quantity of money in circulation, $M$, its velocity of circulation, $V$, and the volume of trade or transactions, $T$. The Fisherian \textit{equation of exchange}\textsuperscript{14} is $MV = PT$. According to Fisher, the nominal quantity of money in circulation, $M$, is an autonomous variable determined by the central bank. The total number of transactions, $T$, is a function of the level of income, which is assumed to be the

\textsuperscript{13} Hansen, A.H., 1949, \textit{Monetary Theory and Fiscal Policy}, 1\textsuperscript{st} edition, p 48

full employment income; thus, its value is fixed in the short run. The velocity of money, $V$, is also constant because it is determined by the institutional and technological factors of transaction process that do not change in the short run. Thus, the general price level is determined exclusively by the nominal quantity of money and is proportional to it.\textsuperscript{15}

As an alternative to the Fisherian quantity theory of money, Cambridge economists A. Marshall, A.C. Pigou, D.H. Robertson, and J.M. Keynes formulated the cash-balances approach to the quantity theory of money. The Cambridge economists held a view that the demand for money comes from those who want to hold it for various motives and not from those who want to exchange it for goods and services. Thus, the demand for money implies the demand for cash balances.

According to Alfred Marshall\textsuperscript{16}, people hold a certain fraction of income and a certain fraction of wealth in the form of currency or ‘ready purchasing power’. By treating the demand for money as a stable function of the money income and property, Marshall expressed it as: $M = kY + k'A$; where $k$ is the fraction of the total money income and $k'$ is the fraction of the total assets expressed in terms of money which people find it worthwhile to keep in the form of currency. Both $k$ and $k'$ are short-run constants governed by institutional factors such as payments, and transaction patterns, etc.

2.1.2 Keynesian Theory of Demand for Money

J.M. Keynes in the General Theory of Employment, Interest and Money (1936) stated that the demand for money arises because of its liquidity. The demand for money is the desire for liquidity, which Keynes termed as liquidity preference. Keynes suggested three motives for the demand for money in an economy: (a) the transactions motive, (b) the precautionary motive, and (c) the speculative motive. Total demand for money signifies total cash balances, categorized into (i) active cash balances consisting of transactions and precautionary demand for money; and (ii) idle cash balance consisting of speculative demand for money.

\textsuperscript{15} The equation is $P = MV/T.$

\textsuperscript{16} Marshall, A., 1923, Money, Credit and Commerce. 1 iv 3, p 33; Since the total amount of money demanded by people is functionally related to their annual income, the equation was: $M = f(Y, A)$ where $Y$ is the community’s annual aggregate money income and $A$ is the money value of its total wealth or assets.
The transactions demand for money is direct, proportional and positive function of the level of income. In addition, transactions demand for money is interest-inelastic. Keynes held that precautionary demand for money is also a function of level of income and insensitive to the change in the rate of interest. Since both the transactions and precautionary demands for money are fairly stable and constant functions of money income as well as insensitive to the change in the rate of interest, Keynes combined them. The combined sum of balances held under these motives was called active balances. Though the amount of money required to keep as active balances varies with individuals and firms, it is assumed stable for a community as a whole.

According to Keynes, expectations about changes in bond prices or in interest rate determine the speculative demand for money. A decision to hold wealth in the form of money or in the form of bond is influenced by critical interest rate, \( r_e \). If current rate, \( r < r_e \) and is expected to rise, people sell their already-purchased bonds and hold cash to purchase bonds at cheaper rate in future; hence, the speculative demand for money rises. Thus, the speculative demand for money is a decreasing function of the rate of interest. The community’s total demand for money, \( L \), consists of the demand for active cash balances, \( L_1 \), and the demand for idle cash balances, \( L_2 \). Thus, \( L = L_1 + L_2 \).

### 2.1.3 Friedman’s Quantity Theory of Money

The monetary theory developed by Milton Friedman and his associates hold that the wealth-holders’ demand for money is similar with that of their demand for consumption service. Money is one kind of asset, one way of holding wealth; and money is also a capital good, a source of productive service. Thus, the amount of real cash balances (\( M/P \)) is a commodity, which is demanded, because it provides services to the person who holds it. According to Friedman, total wealth includes all sources of income. By income, he means the permanent income, which is an average expected yield on wealth

\[ L_t = k_t (Y) \]

where \( L_t \) represents the transactions demand for money, \( k_t \) represents the proportion of income kept for transactions purpose, and \( Y \) represents the money income. The proportion of income kept for transactions purpose, \( k_t \), is considered stable since it depends on the institutional and technological factors, which do not change in the short-run.

\[ L_p = k_p (Y) \]

where \( L_p \) represents the precautionary demand for money, \( k_p \) represents the proportion of income kept for precautionary purpose, and \( Y \) represents the money income.

\[ L_1 = L_t + L_p = k_t (Y) + k_p (Y) = k (Y) \]

where \( L_1 \) represents the active balances.

\[ L_2 = f (r) \]

where \( L_2 \) represents speculative demand for money and is a negative function of the rate of interest (\( r \)).

during its lifetime. He identified five forms of assets in which wealth can be held: *money, bonds, equities, physical goods, and human capital*. Hence, Friedman created broader concept of wealth in the analysis of demand for money.

The demand for money, in real terms, depends on following factors: (a) total wealth to be held in various forms of assets, (b) the expected rates of return on money and other assets, (c) the division between human and non-human wealth, and (d) tastes and preferences, etc of the wealth-holders. The demand for money function is represented symbolically as: \( M = f(Y, w, P, r_b, r_c, u) \) where, \( M \) = Aggregate demand for money; \( Y \) = Total flow of income; \( w \) = Ratio of non-human to human wealth; \( P \) = General Price level; \( r_b \) = Expected rate of return on bonds; \( r_c \) = Expected rate of return on equities; \( r_e \) = Expected rate of change of prices of commodities; \( u \) = Variables other than income that influence tastes and preferences.

The demand for money function leads to the conclusion that a rise in expected yields on different assets lowers the amount of money demanded, and increase in wealth raises the demand for money. With change in per capita income, standard of living of people changes; hence, they may desire to hold cash balances according to the change in the per capita income. The income to which cash balances are adjusted is permanent income, not current income.

### 2.1.4 The Radcliffe Report, and Gurley and Shaw

The Radcliffe Report and the work of Gurley and Shaw\(^{22}\) questioned the adequacy of existing monetary theory to serve as a guide for monetary policy. This led to development of a new theory, *liquidity theory of money*, focusing on the role of liquid assets in influencing aggregate demand and economic activity. It holds that the causal relationship between money and economic activity or general price level can be explained by the role played by the whole structure of liquid assets that serve as a substitute for money satisfying the desire for liquidity. Therefore, greater significance should be placed on liquidity, rather than on the quantity of money, in monetary analysis. Non-banking financial institutions (NBFI) also provide liquidity in the economy. By increasing liquidity, hence the velocity of money, they provide stimulus for expansion of economic activity. Monetary authorities can influence aggregate spending by controlling money

supply but cannot control the total liquidity of the economy. Therefore, the definition of money must include the liabilities of the NBFI, and if the amount of lending in the economy is to be controlled, the NBFI should be treated as commercial banks.

2.1.5 McKinnon and Shaw

James Tobin suggested that if households hold financial asset, it is detrimental to economic growth. 23 McKinnon 24 and Shaw 25 contested this view stating that low and administered interest rates, selective credit control, and concessive credit practices have led to financial repression in the developing countries. The central theme of the McKinnon and Shaw thesis is that a non-positive real rate of interest (that is, less than prevailing inflation rate) discourages savings and hence reduces the availability of loan-able funds, constrains investment, which, in turn, lowers the rate of economic growth. Thus, “in recent years, many developing countries have implemented financial liberalization policies aimed at interest rates, reducing controls on credit, enhancing competition and efficiency in the financial system, strengthening the supervisory framework, and promoting the growth and deepening of financial markets.” 26 However, according to Fry, “… whatever positive effects of financial liberalization were detected in 1970s appears to become smaller over time.” 27 Several factors could contribute to the diminishing effect of financial liberalization on economic growth. For example, it may be that other forms of financial repression exists in the economy, or there are financial distortions in the form of high real interest rates and black market exchange rates. There may also be a crowding-out effect from other macroeconomic policies. 28

2.2. Monetary Policy

Macroeconomic policy is concerned with achieving macroeconomic goals, namely economic prosperity and welfare of the country’s citizens. The chief objectives of monetary policy are to: (i) maintain stability of a country’s general price level; (ii)

promote maximum levels of output and employment; (iii) maintain favorable balance of payments; (iv) promote financial institutions and safeguard stability in the financial markets; and (v) promote increased capital investment to enhance economic growth.

Monetary policy in a developed country is concerned with monetary stability as well as financial stability to push forward their established economic system without any serious disruption. Unlike monetary stability, the financial stability has no off-the-shelf definition. Myriad of definitions are proposed in the literature. The financial instability emanates both from endogenous or exogenous causes. It may arise out of internal or foreign factors. However, policy makers need a definition, which is generic, to encompass these events while still being sufficiently practical and operational. As such, the monetary authority cannot tackle all problems alone, and it needs integrated actions with all those who are entrusted and empowered to devise and execute measures to deal with the area of financial stability. The ability and sensing capacities of regulators and policymakers have to be increased and coordinated. These abilities can help them to understand the changing situation brought about in the economy by exogenous or endogenous causes and they can devise and execute measures in checking the economy slipping into problem in right time and, thus help promote financial stability.

The developing countries emphasize economic growth. All policies of these countries, including the monetary policy, needs to be formulated and geared to achieve sustainable economic growth. Therefore, in the developing countries, while traditional functions are being performed, the central banks also have to undertake promotional activities to deepen the financial infrastructure, to mobilize savings and to ensure availability of credit for growing needs of the economy. While monetary policy enables the utilization of unused productive capacity in the economy to increase output, it cannot generate productive capacity by itself. Its conditional importance lies in ensuring that a deficiency of money as distinguished from that of real resources should not retard economic activity. The monetary policy should assist in breaking bottlenecks of inflationary pressure, of freeing exchange pressure, of low savings, and of low human assets of a developing country. However, pursuing of both functions by a central bank

sometimes may create conflict between them. Rangarajan\textsuperscript{32} states that the central bank faces dilemma choosing between incompatible objectives such as choice between price stability and full employment. At the same time, if the monetary authority is burdened with diverse functions as well as without independence and authority, it will produce disappointing result. Only when all other economic policies are coordinated in right direction, the monetary policy will also produce positive results.

A central bank derives its authority for monetary management from the laws, and the central banking laws govern the overall thrust of monetary policy. These laws also empower the central bank to use appropriate monetary instruments to achieve the monetary policy target. The common instruments of policy that the central banks use to attain policy targets are: (i) open market operations, (ii) discount rate and discount window policy, (iii) required reserve ratio, and (iv) selective credit control.\textsuperscript{33} The first three instruments are called \textit{indirect} or \textit{quantitative measures}. Selective credit controls are referred to as \textit{direct policy instruments}. There has been a definite shift in favour of market-oriented policy instruments because of numerous advantages\textsuperscript{34}; and, reliance on direct controls has consequently diminished in importance.\textsuperscript{35}

The central banks implement monetary policies to achieve policy targets. Since the \textit{transmission mechanism} is complex and protracted, any information on how well the current policy is achieving the final target is usually slow to arrive.\textsuperscript{36} Many monetary authorities, thus, set \textit{intermediate targets} to attain the ultimate objective. If intermediate target is not linked closely to the policy instruments, the central banks adopt an operational control framework that specifies the operational variables, or \textit{operating target}, dealing with daily or weekly implementation of the policy. Finally, \textit{policy reaction functions} describe how monetary authorities adjust their operating targets (and instruments) to new information. It is imperative to frequently adjust both operating and intermediate targets. The monetary authorities must choose the operating or intermediate target carefully: it


\textsuperscript{34} \textbf{Indirect controls} (i) depoliticise the allocation of credit; (ii) reduce the monopoly of large financial institutions by nurturing competition in the banking sector, which reduces the cost of banking services; and (iii) fosters the re-integration of the informal with the formal banking sector.

\textsuperscript{35} \textbf{Direct controls} had attraction because they seem to achieve given quantitative targets. However, they have serious drawbacks since (i) they are partially ineffective; (ii) they are not conducive to gains in economic efficiency; and (iii) direct monetary controls usually encourage administrative controls to multiply, leading to disintermediation of credit out of the formal banking sector.

may require trade-off between targets they can control directly, and targets that are closely linked to the final targets.

*Time lag* between the identification of the need for action and the effect of action taken on the economy cannot be eliminated or reduced since it may cause monetary policy to be ineffective. With the long lags and uncertain effects of monetary policy actions, the monetary authorities must be able to anticipate the effects of its policy actions, which is difficult. *Instrument instability*, arising when a change in the instrument affects the targeted variable over a number of future periods\(^\text{37}\), also influences the effectiveness of monetary policy.

Some strongly advocate rules, whereas others emphasize on discretion while implementing monetary policy. Friedman has been in the favour of rules. However, Tobin\(^\text{38}\) has argued that a mechanical rule may not be able to meet the requirements of actual economic events. At present, there is a growing opinion that the monetary authorities need ‘constrained discretion’ than unfettered discretion or mechanistic policy rules.

The effectiveness of monetary policy in attaining ultimate objectives depend on (i) stable money demand function; (ii) predictable income velocity; (iii) central bank independence; (iv) influence of money on the economic activity; and (v) deepening and integration of financial markets in the economy.

### 2.2.1 Demand for Money

An accurate knowledge about the structure of money demand is also important for the conduct of monetary policy.\(^\text{39}\) This knowledge enables the monetary authorities to ascertain the liquidity needs of the economy; hence, the knowledge regarding (i) the factors that affect the demand for money; and (ii) whether or not a stable and predictable relationship between these factors and money supply exists is essential.

If the demand-for-money function is stable, a steady monetary expansion leads to a stable path for prices. The empirical evidences collected show that the demand for money is more stable than the money supply. In other words, velocity was behaviorally stable in


its opposite relationship with the variation in the permanent income.\textsuperscript{40} Meltzer has conducted empirical study of the demand for money using the US data, covering the period from 1900 to 1949, and found the money demand function was stable; the parameters of the wealth model appeared to be more stable over time than those obtained from the estimates of the income and permanent income hypothesis; and the demand function definition inclusive of time or time-plus-saving deposits were no more stable in the long-run than the demand functions of money defined exclusive of these assets.\textsuperscript{41} The stable money demand function was reconfirmed by the research studies conducted by Laidler\textsuperscript{42}, and by Judd and Scadding\textsuperscript{43} for the developed countries. However, the empirical evidence of the stability of demand-for-money functions is also mixed. Stock and Watson\textsuperscript{44} estimated $M_1$ as a function of prices, real income and a short-term interest rate using the postwar U.S. data and found that the parameters of the function were not stable over time. Goldfeld’s study\textsuperscript{45} on the short-run money demand function for the U.S. based on quarterly data, which included narrow money, measured real income, short-term interest rate, and lagged dependent variable, found it stable. His similar study, however, failed to predict real money balances in the U.S. economy beginning 1974.\textsuperscript{46} Similar instances of instability were detected in money demand functions for several countries.\textsuperscript{47} The financial innovations in the 1970s seem to have changed the working definitions of money in the developed countries, and instability in money demand function was detected.

Rangarajan has stated the existence of a reasonably stable demand for money should not be denied.\textsuperscript{48} His assertion is applicable to India as well as most of the developing countries. According to Rangarajan\textsuperscript{49}, based on data for the period 1970-71 to 1992-93, the implicit income elasticity of demand for money ($M_3$) works out to 1.77, and the short-run and long-run price elasticity with respect to broad money are 0.31 and 1.03 respectively.
### 2.2.2 Velocity of Money

Economists generally agree that a close relationship exists between the quantity of money in circulation and aggregate income in the long run. The importance of this relationship, called *income velocity of money*, arises as it makes possible to determine the effect of changes in money growth on income. Whereas the classical economists assumed a constant velocity of money, the Cambridge equation held that the velocity of money would fall as money supply increased. According to monetarists, velocity of money, the reciprocal of demand for money, expressed as a ratio of income, is stable and predictable. Friedman and Schwartz\(^\text{50}\) observed a steady declining trend until late 1940s. In the United States of America, the velocity declined by 0.2 percent during 1960s, remained constant during 1970s and declined by 0.5 percent during 1980s.\(^\text{51}\) Institutional factors\(^\text{52}\) and financial innovation\(^\text{53}\) seem to have affected the money demand function, and, hence velocity of money in high-income countries.

Hassan et al have examined the determinants of income velocity of money in Bangladesh, covering first quarter 1974 to fourth quarter 1989\(^\text{54}\) and found empirically that the higher level of financial development increases the velocity of money. Jadav has estimated velocity function for India using seasonally adjusted velocity series for broad money ($M_3$), covering the period from second-quarter 1970 to first-quarter 1988. He found the velocity behavior in India being more predictable than in industrial nations.\(^\text{55}\)

### 2.2.3 Money Supply

Keynes\(^\text{56}\) assumed that the supply of money as exogenous variable, completely under the control of monetary authority. A historical study of the money supply in the United States carried out by Friedman and Schwartz revealed that the supply of money was a function of the high-powered money and the multiplier.\(^\text{57}\)

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\(^{55}\) Jadav, N., 1994, *Monetary Economics for India*, Macmillan India Ltd., New Delhi, p 105


A central bank does not have full control over money supply because it consists of currency and bank deposits. The central bank determines the supply of high-powered money, comprising the reserves of the commercial banks and currency, through which the commercial banks amplify money supply. Although the central bank has control over the monetary base and base-money multiplier, it cannot have complete control over money multiplier; thus, its control over money supply is incomplete.

The money supply is influenced by the behavior of the people, commercial banks and monetary authorities. A move to reduce money supply by controlling monetary base could be thwarted by the commercial banks through building up their reserves by other means, such as borrowing or by reducing their reserve ratio. Moreover, the changes in the money supply by open-market operations or by changes in legal reserve requirements will have different effects on resource allocation.

Multiplier approach, based on an equation, is valid if the central bank has total control over the variation in money supply. However, central bank cannot have complete control over the variation in the deposit component of money supply. Monetarists agree “the developing countries… are confined to the money-multiplier or the balance sheet approach for the present.” The balance-sheet approach examines changes in money supply through analysis of credit creation by the consolidated banking system, movement in foreign assets holdings, etc. This approach obviates the need for a mechanistic approach of the money-multiplier.

In a simple money supply model, the money-multiplier is comprised of three ratios: deposit-currency ratio, time-deposit ratio, and reserves ratio. These ratios capture the portfolio behavior of the banks and the public, and largely endogenously determined.

Hussain developed a simple money-multiplier model of the money supply for Bangladesh, covering the period between 1972 and 1993, to examine behavior of the deposit-currency ratio, the time-deposit ratio, the excess-deposit ratio, the narrow money-multiplier, and the broad money-multiplier. He has used OLS method in his study and his empirical results suggest that although the deposit currency ratio equation was stable, the

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60 $M_s = mH$, where, $M_s$ is the nominal stock of money, $m$ is the monetary multiplier, and $H$ is the high-powered money
61 Jadav, N., 1994, Op. cit., p. 120
equations of the time-deposit ratio and the excess-deposit ratio were unstable. Both the narrow and broad money multipliers were found unstable.

Jadav\textsuperscript{64} has estimated the currency to demand deposit ratio, time deposit to demand deposit ratio, and money-multiplier in India of narrow money ($M1$) and broad money ($M3$) for the decade 1980-81 to 1989-90. The result of the study is that the average broad money multiplier was at 3.09, and the average narrow money multiplier was 1.16. The incremental money-multiplier of $M3$ was 3.55, and $M1$ was 1.20.

\subsection*{2.2.4 Central Bank Independence}

The central bank independence means that the central bank should be politically and technically independent to formulate and implement monetary policy and it should not be directed or controlled by a government or outside agencies. It helps a central bank to establish its credibility enabling it to contribute to the furtherance of economic activity.

The empirical studies show that less the central bank independence, more the inflation: thus, there exists negative relationship between the central bank independence and inflation.\textsuperscript{65} The other major findings are: larger accommodation to meet the government deficit by the banking system accompanies lower economic growth, and central banks in low-growth countries exhibit no independence.\textsuperscript{66}

Central banks of many countries namely New Zealand, Canada, Japan, USA, etc. have enjoyed independence by legislation. The central bank must be free to formulate, implement monetary policy and choose instruments, and independence and accountability should go hand-in-hand. The most desirable contribution that a central bank can make is to create and maintain a stable financial environment by maintaining a stable value of currency.\textsuperscript{67}

The Reserve Bank of India by the RBI Act 1934 has to accommodate the Central Government. In India, not much discussion has taken place about the central bank independence. In many developing countries, central bank statutes provide dominance of


the government in overall economic policies, including the monetary policy, because of an enthusiasm to use all instruments to achieve rapid economic growth. However, most countries have suffered from high inflationary pressure instead of high growth rate.

2.2.5 Money and Economic Activity

Whether money influences or does not influence economic activity is one of the most controversial issues that has attracted the attention of many economists. The classical economists were of the view that money did not matter either in growth or in redistribution. The Quantity Theory viewed that changes in the money stock had no effect on the real income in the long-run but would produce fluctuations in the short-run. They did not regard the role of money in economic growth. According to the Keynesians, the quantity of money is only one determinant of the rate of interest and income. In the Keynesian view, the most important factor was aggregate demand; monetary factors had little importance, as they are unable to influence real factors like consumption, investment, etc. The rate of interest serves as the main link between money and economic activity. If the money stock increases, the rate of interest will go down and, as a result, more investment and total spending will take place.68

The monetarists view is that the rate of monetary expansion is the main determinant of total spending, commonly measured by the GNP.69 They regard monetary changes affect the whole range of financial and real assets (including current consumption). They believe that the substitution between financial and real assets is large and important. The monetarists emphasize the following three points: (i) the monetary authority can dominate movements in the money stock; (ii) movements in money stock are most reliable sources of the thrust of money impulses; and (iii) monetary impulses are also transmitted to the real economy through a relative price process, which operates on a vast array of financial and real assets.70

Rational Expectations view, propounded by Lucas71 and Sergent72, states that correct anticipation of monetary policy by economic agents renders it ineffective in regulating the

level of economic activity. It views that anticipated monetary actions affect the price level only, whereas unanticipated monetary shifts may have transitory effects, for example, on output and employment. Since the private sector is as quick as the authorities to perceive changing conditions, there is little scope for discretionary policy. This hypothesis does not agree with any role of monetary or fiscal policy in the short-run or the long-run. Rational Expectation hypothesis is based on a complex set of assumptions, which are questioned even in the context of the developed countries.\textsuperscript{73}

Monetary impulses that alter nominal and real stock of money also change the actual and anticipated prices of a variety of domestic and foreign assets. Any change in money stock alters the purchasing power temporarily, and the people adjust their holding of money to the desired level, by purchasing both financial and real assets. As the prices of these assets go up, it becomes profitable to produce these assets. Hence, the demand for productive resources increases leading to rise in their prices. Thus, increase in money stock increases economic activity, income and prices.

Monetary shocks affect holding of real money balance of the people, and thereby affect their spending; hence, produces income effect, wealth effect and substitution effect. In a non-monetarists view, an unanticipated change in the money supply produces liquidity effect and a change in the short-term interest rate takes place.

Both monetarists and structuralists have conducted many empirical studies to examine the factors that determine the income. Monetarists used money supply to investigate the relationship with income whereas the Keynesians accorded primacy to interest rate. Friedman and Schwartz carried out a detailed study for the United States for the period 1867–1960.\textsuperscript{74} In the case of the US, the variation in the quantity of money took place independently of the variations in the level of income to which they are related and it has firmly established the importance of the quantity of money as a determinant of the level of economic activity.\textsuperscript{75} Anderson and Jordan of the Federal Reserve Bank of St. Louis used reduced-form equation to estimate the relative response of \emph{GNP} to monetary and fiscal actions by statistically relating to a set of exogenous variables such as supply of narrow money (\emph{M1}) and high powered federal expenditure and receipts, covering the

\textsuperscript{73} Paulson M. Chunkapura, \textit{Op. cit.}, pg. 160
Their empirical test found the economic activity responded strongly and quickly to the monetary actions than to the fiscal actions. In addition, the response of the economic activity to the monetary actions was predictable and more reliable when compared to that of the fiscal actions. They also suggested that the findings of strong empirical relationship between monetary actions and economic activity can play a more important role in economic stabilization that had been the case hitherto.

The Keynesians have developed various models for the US economy and among them, the FRB–MIT model is popular. An empirical study conducted to investigate the effect on money multiplier under the FRB–MIT and the St. Louis models has a finding that the full impact of a change in money supply on GNP in the US is realized in 12 quarters in the former model, whereas 4 quarters in the latter model. As regard to the US economy, another empirical finding shows that the movement in real output follow monetary-policy actions and it may last for two years. However, the relationship between money and income in the UK has not been found strong as in the USA. Artis and Nobay found for the UK data for the period from 1958-67 that fiscal policy worked faster and performed better in explaining changes in GDP than the measures of monetary policy.

In the Indian context, Kamala Prasad tested the quantity theory model following the Friedman-Miselman methodology and confirmed the validity of this approach. Nachane and Nadkarni conducted causality test covering a period of two decades (from 1960 to 81) and all their tests revealed money supply as the major determinant of GNI. N. R. Bhanumurthy studied nine developing countries to examine relation between money, output growth or inflation. In the context of India, his finding is that the data satisfies the monetarists claim that there is a positive correlation between money supply growth and

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output growth for both $M1$ and $M2$, but there exists a negative correlation between output growth and inflation.

### 2.2.6 Monetary Transmission Mechanism

Economists do not hold a single view regarding how monetary policy affects the economy and they offer varied views regarding the various specific channels through which monetary policy works. Despite all the differing and conflicting views, an understanding of the transmission process is vital to the suitable design and implementation of monetary policy. Identifying the relative importance of various channels of monetary transmission is useful because: (i) understanding of which monetary aggregates are influenced by policy would improve our understanding of the links between the financial and real sectors of the economy; (ii) understanding of the transmission mechanism would help policymakers to interpret movements in monetary aggregates more precisely; and, (iii) more information about the transmission mechanism may lead to a better choice of targets.

(a) **Assets Markets Channel**: If a central bank does open market purchase of securities, the wealth-holders get additional money and they will try to buy assets causing the price of assets to rise. Initially the nominal interest rate does not change, but the assets prices go up and real interest rate goes down. When the relative prices of different assets change, the effect spills over the output market and causes changes in the spending, output and price level. Therefore, an increase in the monetary base would not lower the nominal interest rate, but the asset prices’ would go up.

(b) **Output Markets Channel**\(^85\): Changes in relative prices on the asset markets spill over to the output market, and have two effects. One process distributes monetary impulses between prices and output. The other process is on the spending side.

Assets market adjustment following the open market purchase disturbs the output market equilibrium. Since the price of existing assets is above the unchanged cost of production, the relative price of new production falls: it is cheaper to purchase as well as produce new production. Aggregate demand rises, and the price level and

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output increase. At higher prices and output, more money is demanded for transaction.

The interaction of the asset and output market continues and is supplemented by two other channels of transmission: (i) changes on the output market affect the current government budget deficit, and tax-collections rise with output and price level; and (ii) anticipations respond to the initial impulse. Information is incomplete and costs of information are often high. As information accumulates about the size and persistence of open market purchases, wages and other costs of production more fully reflect the higher anticipated price level or rate of inflation.

Monetary impulses are transmitted through relative price changes and the changes in the real money balances. The relative price impulses may be a change in the term structure of interest rates, the relative house price, etc. Whatever the origins of the initial impulse, the magnitude and persistence of an economy’s response depends on the policy that follows an initial impulse.

(c) **Credit Channel:** The credit channel theory states that that the direct effects of monetary policy are amplified by endogenous changes in the external finance premium, which is the difference in cost between funds raised externally and funds generated internally. Two mechanisms explain the link between monetary policy actions and the external finance premium: (i) the balance sheet channel, and (ii) the bank-lending channel.

(i) **The Balance Sheet Channel:** Strong financial position of a borrower enables him to minimize external financial premium by self-financing the main portion of his investment project or to provide sufficient collateral to guarantee the liability and get finance at a comparative lower rate. Any fluctuation in the quality of borrower’s balance sheet affects his investment and spending decisions. If the monetary policy is tight, then it weakens the borrower’s balance sheets.

(ii) **The Bank Lending Channel:** Monetary policy may also affect the external finance premium by shifting the supply of intermediated credit, particularly loans by a commercial bank. This is the bank-lending channel. A reduction in the supply of bank credit, relative to other forms of credit, is likely to increase the external finance premium and to reduce real activity. In India, credit rationing has been employed as an instrument of monetary policy taking the form either of
(i) specification of ceilings on credit to different sectors, or (ii) variation in reserve requirement and conditions of refinance.86

(d) The Exchange Rate Channel: This channel examines the relationship between net private capital inflows and monetary policy after financial liberalization. Taylor87 emphasizes on the importance of an international aspect. Under a flexible exchange rate system, the channel of monetary policy involves interest rate effects. When domestic real interest rates rise, domestic currency deposits become more attractive in comparison to deposits denominated in foreign currencies, leading to currency appreciation. The high value of the domestic currency makes domestic goods costlier than foreign goods, and causes a fall in net exports and aggregate output. The central bank can still maintain its monetary independence and take actions to reduce the volatility of real GDP and inflation although the exchange rate is volatile. Thus, the linkages are from the short-term interest rates to exchange rates and long-term interest rates, and finally to GDP and inflation.88 However, under a fixed exchange rate system, an expansionary monetary policy initially lowers the domestic interest rate and raises income, resulting in capital outflows and a current account deficit. Since the government’s acquisition of domestic bonds is offset by the losses it faces in account of foreign exchange reserves, any attempt by the government to increase the money supply fails. This leads to a constraint in conducting monetary policy.

2.2.7 Monetary Instruments

The central bank attempts to achieve economic stability by varying the quantity of money in circulation, the cost and availability of credit, and the composition of a country's national debt. The central banks have two broad categories of instruments available to them to implement monetary policy: (i) quantitative measures, and (ii) qualitative methods.

Through the pursuance of quantitative measures (controls), namely open market operations, variation in reserve requirements, and bank rate or discount window, the

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88 Taylor, J.B., Fall 1995, Ibid., p 14
central bank achieves its monetary policy goals by influencing the lending and borrowing behavior of market participants through changes in price and interest rate brought about by its technical intervention in the financial markets. Qualitative policy instruments (controls) seek to attain the goals of monetary policy by means of certain rules prescribing the behavior pattern of banks and possibly other financial institutions. These instruments usually involve either rigid behavior rules or the fixing of certain variables. Selective credit control, moral suasion, and margin requirements are three major instruments.

Open market operations refer to the purchase or sale by the central bank in the market of any kind of asset in which it deals, whether it is the government securities or other securities, or bankers' acceptances. The main objective behind these operations is to affect banking liquidity either positively or negatively. This is the most widely used instrument in the day-to-day control of the money supply due to its ease of use, and the relatively smooth interaction it has with the economy as a whole.

Reserve requirements are a percentage of commercial banks' and other depository institutions' demand deposit liabilities that must be kept as deposit at the central bank as a requirement of banking regulations. Altering reserve requirements is not merely a short-term corrective measure because it causes a long-term shift in the money supply. Therefore, variation in reserve requirements is the least used. Variations in reserve requirements for banks may be used along with open market operations as a supplement to the central bank's refinancing policies.

Minimum Secondary Cash Reserves Ratio: This instrument curtails the capacity of the commercial banks to expand credit by limiting their capacity to convert government securities and surplus cash assets into business loans.

Bank Rate is one that the commercial banks, and other depository institutions, are able to borrow reserves from the central bank at a discount rate. This rate is usually set below short-term market rates (Treasury Bills). Usually, the central banks maintain discounting as a privilege, and not a right of depository institutions.

Selective or qualitative measures are meant to regulate and control the supply of credit among its possible users and uses. Unlike quantitative instruments, selective controls do not affect the total amount of credit but the amount that is put to use in a particular sector of economy. In developing countries, these are used to prevent
speculative activities, and encourage flow of credit to the socially desirable and economically useful sectors.

*Regulation of Margin Requirements:* In this mechanism, the central bank fixes minimum margin requirement on loans that a borrower can have from the banks to purchase securities on the basis of the security or collateral. Hence, it aims to prevent excessive use of credit to purchase or hold securities by speculators.

*Regulation of Consumer Credit:* This method of credit control aims at regulating consumer instalment credit or hire-purchase finance. The central bank regulates the use of bank credit by consumers to buy consumer durable goods on instalments or hire-purchase.

*Rationing of Credit* aims to control and regulate the purpose for which the commercial banks provide credit. It becomes important when the demand for credit outstrips the total available resources. In *variable portfolio ceiling*, the central bank fixes a ceiling on the aggregate portfolios of the commercial banks and they cannot loan beyond this ceiling. In *variable capital assets ratio*, the central bank fixes capital of a commercial bank to its total assets.

*Direct Action* involves issuance of directives to the commercial banks to follow a particular policy that the central bank wants to enforce immediately. It may be used as an alternative to discount rate or open market operations or as supplement to these instruments.

*Moral Suasion* is a combination of persuasion and pressure that the central bank exerts on commercial banks in general, and the erring banks specifically. It is exerted through speeches, discussions, etc. It can be applied for both quantitative control and qualitative controls of credit.

### 2.2.8 The Goal of Monetary Policy

The level of knowledge regarding the economy needs modification on account of the effect of implementation of policy measures as they affect changes in the structure and functioning of an economy. On the basis of such change, they have to readjust the goal set for the national economy. Every goal generally is given in a variable or quantity and is accepted that it is influenced by some exogenous variable. The success of achieving that goal implies that the implementation of policy measures to achieve or reach very close to goal variable.
In order to formulate policy measures and become successful, it is necessary to give attention to adopting certain aspects. These aspects are concerned with choosing certain a set of variables and using them to achieve the goal.

First, there are some variables that are beyond the power of the authorities to influence. These must be taken simply as facts of life and they are neither instruments nor targets of the policy. The policymaker should, at the best, obtain future values of these non-controllable variables. Import prices as well as level of demand for exports from a given country would be examples of non-controllable factors. Second, the policymaker sees one set of variables as being primary targets or objectives of the economic or monetary policy. The policymaker is assumed to be capable of ranking the combinations of value of target variables. The third set of variables consists of instruments available to the policymaker for influencing the economy in the direction of the desired target. The usability or practical availability of different instruments varies considerably from country to country, and from one decade to another in a given country. The fourth set of variables is regarded as irrelevant or neutral at a particular time for a particular policy.

The essence of the problem of macroeconomic policy is to use available instruments of economic or monetary policy in such a way as to achieve the desired levels of variables as closely as possible even though the time-path of the target is strongly influenced by factors that are uncontrollable for the policymaker.

The monetary authority’s objective is to use its policy tools to achieve monetary policy goals. It wants to promote economic growth and price stability but it has no direct control over real output or price level. In addition, its policy tools have indirect effect on output and price. Information lag and impact of lag often act as the impediment in effectiveness of monetary policy to rectify situation in timely manner. However, the monetary authority usually keeps itself alert about the movement of the economy and attempts to rectify situation in time.

The monetary authority attempts to solve problems by using the targets to meet its goals. Targets partially address the monetary policy’s inability to control the variables directly that determines the economic performance, and they reduce time lags in observing and reacting to economic fluctuations. Targets are those variables that the monetary authority can influence directly and that help achieve monetary policy goal.
Usually, the central banks have the monetary instruments available to achieve the given targets. Jan Tinbergen\textsuperscript{89}, in 1952, pointed out that to achieve a certain number of targets requires \textit{at least} the same number of instruments as targets. Thus, one target can be achieved with one instrument, provided the instrument exerts distinct influence on the targeted variable. Since all the monetary instruments at the disposable of the central bank are able to influence the aggregate demand, it does not have control over any instrument that can influence the aggregate supply. Thus, the central bank has to trade-off between the attaining of one set of goals for the achievement of another set.

2.2.9 Monetary Policy Targets

In most countries, the authorities seldom rely on a single target to achieve macro-economic objectives. Even if a target, say price stability, is fixed as a final target, the different aspects or variables are regularly monitored to determine the condition of the economy to make an adjustment, if necessary, in the final target. If the authorities do not make timely adjustment, it may do more harm to the economy than good.

The ultimate objectives of monetary policy pursued are: (i) stable and high employment levels; and (ii) stable prices and low inflation. In recent years, the central banks, however, increasingly emphasize price stability as a single major objective. Since the monetary policy cannot affect the long-term growth of the economy, any effort to stimulate growth above its potential rate leads to higher inflation.

2.2.9.1 Price Stability

Inflation targeting is adopted by many central banks to achieve price stability in the economy. Price stability does not mean static price year after year, but a very mild increase in the price level in order to move economy forward. Inflation targeting is a condition wherein the central bank is made responsible to achieve a specified inflation objective. The central bank’s policy actions will then be targeting the deviations between the actual inflation and the specified inflation target.

Inflation targeting was first adopted by New Zealand in 1990, and by 2001, more than 19 countries had adopted inflation targeting.\textsuperscript{90} Explicitly adopting price stability as

the principal goal of monetary policy serves to promote transparency, accountability, and credibility to it. In a condition wherein price instability is minimized, there will be less price anomalies resulting in an overall economic and financial stability.

The countries adopting explicit inflation targets generally have specified target bands, usually tolerance width is of about two percentage points, rather than point estimates for their inflation targets. These bands allow for the realities of measurement imprecision as well as unexpected shocks to specific prices. The two options as a measure of inflation rate are: the Consumer Price Index (CPI) and the GDP deflator.91 Most inflation-targeters focus on the underlying (core) inflation. It excludes the CPI items that are subject to irregular price changes arising from supply shocks, such as energy and food.92

To ensure inflation targeting works successfully, (i) a formalized and coordinated approach to set inflation targets; (ii) providing instrumental independence to the central bank; and (iii) commitment of the government are necessary. The announcement of inflation targets clarifies central banks’ intentions, which makes forecasting explicit and transparent as well as reducing uncertainty about the course of monetary policy. “Unlike targeting the nominal exchange rate, inflation targeting allows the monetary authorities to respond to short-term shocks with some flexibility, while keeping the long-term focus of monetary policy on price stability.”93

The empirical results have been somewhat mixed. According to Croce and Khan, Brazil's inflation was projected at about 8 percent in 2000 after adopting inflation targeting.94 Chile and Israel had similar experiences in reducing inflation to international levels without incurring substantial output costs. Freeman and Willis95 find that long-term interest rates fell in New Zealand, Canada, and the UK in the early 1990s indicating improvement in monetary policy credibility. Mishkin and Posen96 present accounts of the inflation targeting experiences in New Zealand, Canada, and England, and point out that

91 GDP deflator is appealing since it reflects the notion of domestic inflation. However, CPI has operational advantages because (i) it is the most familiar index to public and is available on a timely and monthly basis, which makes it easier to be monitored on a regular basis; and (ii) it is rarely revised.
the disinflation had actually been almost completed in these countries before the introduction of inflation targeting suggesting that inflation targeting might have served to lock-in the gains from disinflation rather than to facilitate disinflation. According to Epstein\(^7\), in many countries, inflation targeting has generated significant costs – slow growth, sluggish employment generation and high real interest rates – while yielding minor benefit and was unable to reduce the so-called sacrifice ratio, the unemployment costs of fighting inflation.

According to Reddy\(^8\), while there is no explicit legislation for price stability in India, the maintenance of price stability and ensuing adequate flow of credit to the priority sectors of the economy are the primary objectives. The problems with the developing countries to adhere to the inflation-targeting regime are their concentration in a smaller range of products and limited output, and underdeveloped and limited financial markets that are incapable to diversify risk. These make them more vulnerable to destabilizing internal and external shocks, creating a greater need for counter cyclical monetary policy.

### 2.2.9.2 Monetary-Aggregate Targeting

Under the system of monetary-aggregate targeting, the central bank uses available monetary instruments to control monetary aggregates that are considered key determinants of inflation in the long-run. By controlling monetary aggregates, it tries to stabilize the inflation rate around the target-value. During the 1970s, many major central banks moved toward targeting monetary aggregates to facilitate the control of inflation.

The usefulness of monetary-aggregate targeting depends on the stability of the money-demand function, which also influences the choice of particular aggregates to be targeted. If money-demand function is stable, fluctuations in the money-income relationship (velocity) will be associated with variations in the determinants of money demand. Provided that trends in the determinants\(^9\) of velocity are predictable, the trend in velocity will also be predictable. With a mechanism to adjust expected velocity movements, a monetary target may be set to achieve potential output growth and the target rate of inflation in the long-run. However, if the velocity moves independently of the

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\(^7\) Epstein, G., “Myth, Mendacity and Mischief in the Theory and Practice of Central Banking“, Political Economy Research Institute (PERI), University of Massachusetts, Amherst


\(^9\) Determinants of velocity are real income, interest rates, and inflation expectations.
determinants of money demand, then regulating the quantity of money will not be an efficient approach to achieving final objectives for output and inflation.

When the financial institutions started developing money substitutes in the developed countries, the money-demand function became increasingly unstable. Though money and inflation were highly correlated in the long-run, they were not satisfactorily correlated in the short-run and led to disappointing experience with monetary targeting during 1980s.

However, monetary-aggregate targeting has been used as a successful strategy for monetary policy in two countries, viz. Germany and Switzerland, since the targeting regimes were very far from a Friedman-type monetary targeting rule in which a monetary aggregate is kept on a constant-growth-rate path. The very flexible approach to monetary-aggregate targeting was adopted because the relationship between monetary aggregates and goal variables such as inflation and nominal income did not remain strong or reliable, in Germany and Switzerland, as well as in other industrialized countries. The target ranges for money growth were missed often in Germany because of the Bundesbank’s concern about other objectives, including output and exchange rates.

Other industrialized countries that have pursued monetary-aggregate targeting, such as the United States, Canada, and the United Kingdom, have found it to be an even less successful strategy, partially because it was not pursued seriously, but also because of the dramatic breakdown of the relationship between monetary aggregates and inflation when monetary targeting was adopted.

Emerging market countries, particularly in Latin America, have also implemented monetary targeting, but they rarely practiced monetary-aggregate targeting because of (i)

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visibility in instability of the money-inflation relationship, (ii) they rarely announced targets publicly, and (iii) accountability mechanism was absent.\textsuperscript{104}

India enjoys reasonable stability in money-demand function. India follows monetary targeting using $M_3$. It uses inflation rate and exchange rate movement as intermediate target. If necessary, it monitors movements in monetary indicators to review and adjusts monetary targets at interval.\textsuperscript{105}

\subsection*{2.2.9.3 Exchange Rate Targeting}

The exchange rate policy is usually tailored to short-run period. In the long run, the economic fundamentals determine the exchange rate in an economy. When economic fundamentals do not permit to keep the present level of exchange rate of a country, that rate should be changed in all exchange rate systems to have favorable effect on the economy. Since 1973, instead of free-floating exchange rate system, managed or dirty floating system has been practiced. Under the managed exchange rate system, the monetary authority intervenes to buy and sell foreign currencies in an attempt to influence the foreign exchange rate. Under this system, the monetary authority presumes permissible ex-ante limit in the movement of the exchange rate; and its variation above or below the ex-ante rate; then it intervenes to smoothen the fluctuations in the exchange rate.

In the fixed exchange rate system, if a country has pegged its currency to a particular foreign currency as an anchor currency explicitly, the exchange rate varies when the exchange rate of the anchor currency varies. If the exchange rate variation in anchor currency is very volatile, the pegged currency also witnesses volatility. If the variation in the exchange rate of the anchor currency is relatively stable, monetary measures, such as change in the interest rate or conduction of open market operations affecting the liquidity of the market or credit control, can smooth out exchange rate fluctuations. The country that pegs to SDR or to a basket of currencies, the fluctuations in its exchange rate may not be sharp because many currencies are in the basket. However, if the basket of currencies has implicit anchor currency, whose value is fixed to a particular foreign currency, the scenario will be the same as regards to the exchange rate as mentioned above in respect of pegging of exchange rate to a single currency. If a change in economic fundamental is


noticed, then a country should allow the market to determine the exchange rate in the managed floating; and the exchange rate should be revised in pegging system to make it more realistic and the representative of the prevailing economic conditions.

Some nations in the European community started the European Monetary System (EMS) in 1979, in which exchange rates between the member countries were pegged to a narrow band of ±2 percent. This system pegged these currencies to Deutschemark. Later, the European Monetary Union (EMU) came into existence. A new currency named as Euro was introduced in January 1999 with exchange rate immutably fixed and was completed by January 2002 with introduction of actual currency – coins and notes.¹⁰⁶

While some central banks used exchange rate targeting as final objective, others chose it as an intermediate target of monetary policy. During 80s and 90s, many European nations adopted the fixed exchange rate target and their experience in this regard is neither encouraging nor good. The reputation of exchange rate targeting has been tarnished by various crises. In September 1993, the UK, in order to smoothen sharp volatility in the exchange rate, intervened in the market by pumping about US $70 billion, but it did not work, and after a few hours, the British government allowed pound to float. Sweden floated Krona in November 1993. Most of the European nations have already given up fixing the exchange rate target as a final objective. The experience of some European nations in respect of exchange rate targeting exposed that it could bring higher inflation expectations than higher growth. Secondly, it could place a heavier burden on fiscal and wage policies because of doubt of the long-run sustainability of the target, and domestic policies tying solely for exchange rate target. Thirdly, free capital flows can cause the exchange rate target more demanding, such as intervention policy may not provide any period of respite to implement other policy measures; and exchange rate targets become more susceptible to volatile market sentiments, thereby minimizing scope of monetary actions or communications aimed at anything other than the exchange rate target.¹⁰⁷

No developing country has ever opted for the exchange rate as its final objective. Such a country usually fixes the exchange rate target as an intermediate target to achieve other final target. The exchange rate target as final objective, given the experience as yet derived, suggests that it is not possible to achieve the target in any system of exchange rate but can be used as an intermediate target to achieve other prescribed final objective.

2.2.9.4 Stability in the Balance of Payments

International transactions of every country are recorded in the balance of payments statement or account. It is a record of all economic transactions that take place during a specified period or time, say one year, between the country’s residents and the rest of the world. This account is divided into: (i) the current account (includes goods, services and income); (ii) the capital account excluding international reserves; and (iii) international reserves. The total of the net of both accounts if in surplus will increase the official international reserve and termed as overall balance of payments surplus. The movement of its international reserves influences the exchange rate adjustment of a country, and the international reserve is also a part of domestic monetary account.

The monetarists regard adjustment in the balance of payments as a monetary problem. The monetary approach to the balance of payments was introduced by Robert Mundell and Harry Johnson\textsuperscript{108} in academic circles and later economists Polak, Agry, Fleming, etc contributed to its development.\textsuperscript{109} This approach asserts that the balance of payments is an essentially but not exclusively monetary phenomenon and its analysis makes sense only in an explicitly monetary model. The monetary approach implies that, firstly, the change in the foreign assets takes place when monetary policy changes interest rate; secondly, the monetary authorities are concerned with what causes the stock of international reserves to change in a fixed exchange rate system; and thirdly, the monetary authorities control the rate of change in the domestic component of the monetary base (other component is international reserves), thereby the supply of money.

In an open economy, the total stock of money is determined by the people through their ability to convert money into goods and services in the international market. The people either withdraw their deposits or take loans from the banking system to carry out such international transactions, and which will affect either money supply or domestic credit; hence, the monetary policy can exert influence on the movement in the international reserve.

If an economy is closed and fully controlled in both current account and capital account, then the monetary policy will become ineffective because the authorities decide


\textsuperscript{109} See Polak, J.J., Nov 1957, “Monetary Analysis of Income Formation and Payments Problems”, \textit{IMF Staff papers} 6; Agry, V., July 1969, “Monetary Variables and the Balance of Payments”, \textit{IMF Staff Papers} 16
everything. However, all developing countries have open economy at present and current account may be partially controlled in some countries. Monetary approach confines itself to short-run changes in the money account of the balance of payments.

In a free floating system and free capital account system, the demand for and supply of foreign currencies will determine the exchange rate and the balance of payments of a country, where the balance of payments position will be zero. In other words, change in the current account will be matched by opposite movement in the capital account making the net balance zero. The automatic adjustment takes place because of change in liquidity in the market brought about by movement in both the current and capital accounts, and thereby the movement in the interest rate and financial assets take place. International reserves will not change in the short-run.

In managed floating exchange rate system, because of arising difference in the ex-ante and ex-post exchange rates and which is expected to exert unfavorable impact on inflation or output, the monetary authority may intervene in the market by buying or selling foreign exchange, or by influencing liquidity, or by changing interest rates, or by implementing some sort of monetary control, and these measures will check or smoothen the exchange rate variation. The above episode will affect the international reserves in the balance of payments account and such monetary measures are capable of influencing both the exchange rate and the balance of payments in the short-run in developed and well-integrated financial and foreign exchange markets.

Under the fixed exchange rate system, with partially controlled capital account or wholly free current account, the stock of money becomes endogenous variable. The foreign exchange rate is determined by outside system. However, the adjustment path to long-run equilibrium permits the monetary authority even in the fixed exchange regime to influence the course of transitory adjustments in the short-run and medium-run. Further, under the fixed exchange rate regime, the monetary base or money supply is no longer determined by the policy because it becomes an endogenous variable of the system which itself is influenced by the surplus or deficit in the balance of payments. Thus, the domestic credit, instead of money stock, becomes appropriate instrument of monetary policy.\footnote{Guitan, M., 1977, “Credit versus Money as an Instrument of Control”, in The Monetary Approach to the Balance of Payments, IMF, Washington DC, pp 227-242}

Therefore, the monetary authorities could use the domestic credit policy as an instrument to bring adjustment in the international reserves; thereby, in the balance of
payments. Thus, the domestic credit policy is a potent weapon to maintain the stability in the balance of payments under a fixed exchange rate regime.

2.2.10 Development of Banking and Financial Sector

In 1973, McKinnon as well as Shaw wrote about distortions of the financial markets in the developing countries. They expressed that these markets were repressed and highly controlled by the government. The standard recommendation is, therefore, that the government controls should be dismantled so that the true scarcity price of capital should emerge for the savers and investors; and infrastructure relating to financial institutions be expanded and strengthened, thereby improving the savings mobilization, promoting efficiency in investment and accelerating economic growth. Deepening of financial sector is a prerequisite of economic growth and it connotes extension of different financial institutions, both horizontally and vertically, and squeezing or reducing of the non-monetized sector to a possible extent. Schumpeter considered that the financial services represented an essential element in the promotion of economic growth.

The development and deepening of the financial sector generally initiates economic growth in the developing countries. However, in a developed financial market or sector, the causality may flow from economic growth to financial growth. Several studies confirm the existence of a first order positive relationship between financial development and economic growth. The financial liberalization phenomenon gained prominence during 80s and 90s in the past century, and is continuing till the present day. The financial reforms embrace the financial intermediaries, money market and capital market.

2.2.10.1 Capital Market

Long-term financial assets issued by the private and the public sectors are traded in the capital market. The capital market development exerts positive impact on economic growth in the developing countries. Recent evidence suggests that stock market can give a

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big boost to economic development. More liquid the market, more funds flow and more investors will come because they can liquify their investment in a short notice and without cost. Empirical evidence strongly supports the hypothesis that greater market liquidity boosts credit or precedes economic growth.

The capital markets of developed countries are thick, well-integrated with international stock markets, developed and there is a free capital movement, but these markets in developing countries are less efficient, thin and without adequate international integration. Even then, the stock market development in the developing countries can help channel increased funds to productive industrial and services sectors, thereby help to accelerate economic growth. However, care should be taken to install good supervision system and regulation of the stock exchange in order to preserve its credibility and protect it from spurious and unscrupulous activities. Mandatory disclosure of reliable information about firms and financial intermediaries may enhance investors’ participation in the capital markets.

### 2.2.10.2 Finance-led Economic Growth

Development of the financial sector enhances economic development in developing countries by improving efficiency in two ways: (i) by providing a means of payment and a payment system, the financial system reduces search and information costs; and (ii) by providing a vehicle for mobilizing savings and a mechanism for gathering information of borrowers, the financial system improves allocation of credit by minimizing the default risk.

Liberalization and deregulation of financial sector makes real rate of interest positive and increases savings. Moreover, extension of financial intermediaries, monetization of the economy, and increase in income would achieve increase in investment, capital formation, and economic growth initially. This process will continue by forcing and reinforcing the above variables of economic growth in a developing country, provided it monitors change in the economic fundamentals and takes corrective measures in time.

In order to improve allocation efficiency of the financial sector, at least two prerequisites are to be fulfilled: (i) a reduction in intermediation cost, and (ii) an increase in the

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in competition in the banking sector. If there is effective coordination and concerned action among the banks, they can internalize fully the benefits from lower intermediation costs by not raising deposit rates and/or lowering loan rates. “Interest rate liberalization alone cannot encourage more competition. It should be accompanied with liberal bank entry.”\textsuperscript{117}

Recent sources of financing in developing countries are domestic commercial banks, development banks, and other financial intermediaries such as micro-financing institutions. There are also a few foreign commercial banks in the financial system.

The monetary authorities need to devise and implement measures of liberalization and deregulation of the financial sectors. They need to make continued effort to expand and integrate financial intermediaries and markets in the developing countries in order to develop them because such development is necessary to increase the efficiency and effectiveness of the monetary policy measures. Thus, the monetary policy can efficiently and effectively ease out the problems of excess or deficiency in the liquidity of the financial sector. Financial development is also necessary in the economy to initiate and push forward the pace of economic development. Thornton used annual monetary data from 1950 to 1980 and found that financial-led hypothesis was supported by data of the Philippines and Thailand.\textsuperscript{118}

However, hasty financial liberalization may create grave problems in developing countries. It is dangerous to adopt the ‘big bang’ approach and remove all controls completely; hence, gradual pace of the financial system liberalization is suitable because the financial institutions and other market agents are accustomed to operate within an environment of government intervention and controls to allow them to adjust to new dispensing. Even the theoretical construct outlined by Stilitz and Weiss strongly suggests that it may be rational for the LDC governments’ controls and involvement in credit allocation.\textsuperscript{119} However, all reforms would prove useless if undue political interferences prevent regulators from enforcing controls. Rangarajan expressed that some aspects have to be given serious concern before embarking on financial reforms: (i) a prudential regulation is necessary; (ii) the speed and nature of liberalization should be planned by

\textsuperscript{118} Mentioned by Habibullah, M.S., 1999, \textit{Op. cit.}, p 280
taking problems of bad debts into account; (iii) maintaining macro-economic control during reforms; and (iv) introduction of convertibility should move from trade to current account and then to capital account.\textsuperscript{120}

The review of various theories would help in framing and implementing monetary policy to increase general economic welfare of every citizen of a country by achieving price stability and economic growth. It would also allow the policymakers to choose the appropriate instruments to achieve monetary policy goals. At the same time, social milieu and economic conditions influence the efficacy of monetary policy, and instruments to achieve its goals. In this regard, the subsequent chapter endeavors to illustrate the socio-economic conditions of Nepal.