

## CHAPTER THREE

### MONETARY POLICY THEORY

#### 3.1 INTRODUCTION

This chapter sets the scene for the major hypothesis of the study, namely that the role of monetary policy is to induce economic growth in the Republic of South Africa (RSA), by creating a conducive climate. This entails, inter alia, the implementation of sound policies aligned with overall economic objectives, the creation of a developed financial infrastructure and the ability of the monetary authorities to act independently, unimpeded by political aspirations. That is in accordance with the structuralist approach (see paragraphs 2.7 and 2.8). The question to be answered is what the role of monetary policy is. "Since monetary policy is part of total public economic policy, its broad objectives must be the same as those of public policy generally. As in most other countries, these objectives in South Africa include high levels of employment, rapid economic growth, and domestic and external monetary stability" (Lombard, 1993: 27). In the RSA, monetary policy is applied by the Reserve Bank, and the sign of monetary stability is price stability.

The South African Reserve Bank plays an essential role in contributing to real economic growth, by helping preserve stability in the economy (De Kock 1985:13). Price stability maintenance by the Reserve Bank seeks to contain inflation, has created a headache for the South African monetary authorities. The view that low levels of inflation can stimulate economic growth was not supported by central bankers in the early 1970s, when it was rejected outright in South Africa, the influence of inflation on the gold mining industry (De Jongh 1971: 11). Since then the debate in South Africa on monetary policy can be described as lying between the orthodox quantity of money school, which preaches that "money matters" and the other extreme, the structuralist approach, that believes "money does not matter", since no connection is seen between the control of money supply, and

changes in national output and prices (Lombard 1970: 32; Fourie 2000:119-121; Mollentze 2000:S 32-36). Those who maintain, "money does not matter", argue that the demand for money is very variable, implying that the quantity of money demanded adjusts to the quantity supplied without having much effect on the real sector (Fleming 1972:367-379). Thus, it is argued that money supply has become less important as a key variable of monetary policy (Mollentze, 2000:S -19). The intention of this study is to test the outcome of this debate empirically.

The debate during the 1980's and 1990's changed when the Reserve Bank moved away from regarding the money supply as an important variable for effective monetary control, instead of seeing interest rate management as the sole variable for monetary control (Mollentze, 2000:S -10). Economists who reject the importance of money supply control (i.e. the orthodox position) in favour of interest rate management policies, the other side of the debate (as postulated by structuralists), base their argument on the ineffectiveness of monetary authorities in containing inflation in South Africa. While they recognise that direct controls to limit bank credit and liquid asset requirements have rendered monetary policy ineffective in South Africa, they still do not impute blame to these measures (see the empirical testing in chapter 9). Instead, to them "money does not matter" (Whittaker 1992:53-73). It is argued that the "credit multiplier", through which banks can create money, is non-existent and fallacious, since it is held that new deposits in banks are not automatically lent out. Furthermore, it is argued that the expansion in money supply and currency issue, which accompanies inflation, is a result, and not a cause of inflation. Inflation instead is considered to be a result of holding the cost of borrowing, that is the interest rate at too low a level, and not a consequence of and excess supply of money (Whittaker 1992: 69). It is the intention of this study, however, to establish whether "money matters" or not and whether the central bank can, by expanding its credit, supply the banking sector with additional reserves, through which this sector can create more money or near-money, thereby causing inflation. During inflationary periods, the reverse is true, when the central bank contracts its credit and limits the money-creation process (De Kock 1985:6). The South African experience will be fully covered in subsequent chapters, where it will be shown that inflation became rampant in South Africa, not because "money does not matter", but because the monetary authorities pursued mistaken policies. The alternative hypothesis will also test whether the change in the money supply affects

economic growth and development. The outcome of these results should establish the link between monetary policy, price stability, growth and development (see chapters 7 to 9).

## 3.2 MONEY SUPPLY THEORIES: AN ANALYTICAL SURVEY

The money supply theories presented in this section are meant to formulate a framework within which this study is conducted, and not to be tested. It should also be noted that various theories will share some similarities and because they are propounded by different authorities in the field, the equations they use will obviously not be the same, albeit similar.

### 3.2.1 Pre-war developments

It is unnecessary to attempt to trace the origins of money supply theory. However, it is safe to regard JS Mill's text, *Principles of political economy* (1920), as a fore-runner. Mill lived during an era when all writings on money supply theory were couched in terms of gold. The price of gold was professed to be a function of its cost, the wealth propensity of its holders and the international flow of specie. Taking the real price level, as the real opportunity cost of holding nominal money, Mill in his book (1920) argues that an increase in the real price will stimulate the demand for nominal money expressed in gold, imparting a positive short-run elasticity to the supply of money gold, in line with the non-linear money supply hypothesis equation, given as:

$$M = mB, \quad (6)$$

where  $M$  = money stock;  $m$  = money multiplier and  $B$  = monetary base or high-powered money.

In terms of this equation, increases in  $M$  will occur as a result of increases in  $m$  or  $B$ . The money multiplier, as a multiplicative component of the above non-linear money supply hypothesis equation, incorporates all possible relevant factors concerning the banking

sector, private sector, and various different types of money (demand deposits, time deposits and currency). It is the interaction of the private sector and the banking sector, in dividing their assets, that leads to variations in the money multiplier. Assuming that the private sector holds currency in some fixed ratio,  $k$ , to demand deposits, and the banking sector's demand for reserves as a ratio of demand deposits,  $r$ , is constant, we get:

$$m = 1 + k/r + k. \quad (7)$$

Substituting for  $m$  in the equation  $M = mB$ , we get:

$$M = (1 + k/r + k) B. \quad (8)$$

Setting the private sector's currency demand to zero, the multiplier becomes the familiar reciprocal of required reserves:

$$m = 1/r. \quad (9)$$

However, if the private sector's currency demand ratio,  $k$ , is non-zero, the lower multiplier,  $1 + k/r + k$ , implies a lesser response of money supply to an exogenous injection of reserves. This is so because, part of the new supply of reserves leaks out of the banking sector, which limits the money creating power of banks. With reduced credit availability, investment is reduced, thus limiting the rate of growth.

Grick (1951) developed the theory further, by introducing commercial banks' reserves and changes in bank deposits, as banks seek to maximise profits. He also considers the question of monetary policy effectiveness, by examining the extent to which central banks can control the quantity of deposits via variations of statutory required reserves,  $r$ , in the multiplier,  $m$ , where:

$$m = 1 + k/r + b. \quad (10)$$

Grick further examines the constancy of the money multiplier, by focusing on the stability of  $r$ . It should be noted in passing, that the Classical-Keynesian duel pivots around this

constancy issue of the multiplier, with monetarists regarding the multiplier fairly stable, while Keynesians consider it highly volatile (Grick 1951:4-53).

Holding the stability assumption, monetarists (orthodox approach) concentrate their efforts on the monetary base for purposes of controlling the supply of money. In contrast, fiscalists (structuralists) do not pay much attention to the monetary base, instead propagating policies directed at controlling the interest rate, via free reserves. This latter position was the one pursued in South Africa during the 1980s and recommended by the De Kock Commission of Inquiry into the Monetary System and Monetary Policy in South Africa (De Kock Commission 1985: 214). In terms of this policy, the monetary base is subordinated to interest rate stabilisation programmes and balance of payments considerations.

Another point of concern is the perceptual difference that exists between bankers and economists. Bankers contend that they can only lend the cash they have received, whereas economists believe that banks, via the multiplier effect, can create deposits by lending. The bankers' argument is based on the consideration of a sole bank seeking to maximise its profits, while constrained by the cash reserves that have to be maintained against deposits. Economists, on the other hand, take a broader view, considering the entire banking sector, rather than a single bank. According to Grick's analysis,  $r$  is dependent upon the liquidity preferences and opportunity costs, because the adjustment process that takes place when reserves or deposits enter the banking sector follows the adjustment of interest-bearing assets in banks. Because banks will only hold desired reserves, lending out the excess, which in turn increases deposits, the stability of the money multiplier,  $m$ , is contingent on that of  $r$  (Grick 1951:4-54).

Grick's theory is further developed by Meade (1951:54-62), who examined the British monetary system for the period between 1925 and 1930. It was during this period, that currency convertibility for gold was terminated in the Western World. Meade's approach incorporated a more sophisticated money multiplier analysis, which facilitated the determination of the effects of change in the ratio parameters on the money stock. His approach concerned the behavioural relationships of the Central Bank in dealing with the banking and private sectors. Meade examined the Bank of England, which is assumed to

be the sole issuer of bank notes, with no circulation of gold or coins, under three regimes:

- (1) where the Bank of England is assumed to back issues of notes and deposit liabilities of the banking sector with gold reserves. Using symbol  $L$  as ratio of note-issue to gold,  $L$  is considered not to be equal to  $M$ , symbolising the ratio of deposit-liabilities to gold reserves;
- (2). then,  $L = M$ ; and
- (3). when a fiduciary note-issue is introduced as an asset of the Central Bank.

If  $r$  is cash reserves to deposit ratio, and  $q$  currency to money ratio, the money multiplier,  $m$ , becomes:

$$m = m(r, q). \quad (11)$$

Meade (1951:45-62) also introduces a ratio for vault cash to demand deposits as  $v$ , and distinguishes between time and demand deposits. In addition, he incorporates private sector wealth behaviour into the analysis. That gives:

$$r = r_t + r_d, \quad (12)$$

where  $r_d$  is reserve requirements on demand deposits and  $r_t$  is reserve requirements on time deposits, and:

$$r = r_t + d(r_d - r_t), \quad (13)$$

where  $d$  is the ratio of demand to total deposits, that is  $D/(D + T)$ , with  $D$  being demand deposits and  $T$  time deposits. Thus, the money multiplier becomes:

$$m = m(r, q, v, d), \quad (14)$$

In defining the money aggregate,  $M$ , as the sum of gold stock and fiduciary note-issue, Meade's contribution constitutes a foundation of the modern monetary base. By including time deposits in his money supply analysis, his approach to money supply analysis closely

resembles contemporary monetarists' approach to money supply analysis (Brunner & Meltzer 1964:56-63).

### **3.2.2 Post-war developments**

Economic theory in the post-war was marked by two basic modifications. Firstly, additional explanatory variables were added to account for the financial behaviour of economic participants and secondly, behaviour postulates were further added to render the multiplier co-efficient dependant upon endogenous factors. Hicks (1951) suggested what became to be known as the "marginal revolution", while Tobin (1961) and Friedman (1968) propounded a theory of optimum portfolio selection. As a response to the "marginal revolution" of Hicks, the Keynesian liquidity preference theory was developed into a general theory of determination of different types of financial assets (Tobin 1961). Accordingly, the sets of relative prices of assets in the financial markets are said to be determined by preferences of economic units and relative qualities of assets with differing risk characteristics. This was later translated by Tobin and others, who developed the theory of optimum portfolio diversification in a multi-asset world (Tobin 1961:65-86).

For the purposes of exposition of the literature on monetary policy's role in affecting the money supply, further theoretical developments, namely the credit view; the monetarist approach; the "new view"; or the balance of payments approach to money supply are discussed next.

### **3.2.3 Credit view**

The credit view is succinctly articulated by the work of Brunner and Meltzer (1964) on free reserves and the role of the Federal Reserve Bank in the United States of America. The Federal Reserve Bank did not have any coherent theory or deliberate approach towards the money supply process. The position of the Federal Reserve was reflected by the pronouncements and writing of staff members of the system. The writings of the time were focused on the availability of credit or "credit shortage", which was thought to determine aggregate demand. Emphasis was placed on interest rates and bank credit, said

to be determined by the supply of credit by banks, where supply is a function of interest rates and reserves. It should be observed that still in the 1980s South Africa, as indicated by above-mentioned Report of the De Kock Commission (1985, RP70/1984), had long been surpassed by the United States. This will be demonstrated in the next chapter.

Free or discretionary reserves are the difference between excess reserves and borrowed reserves, or the residual from total reserves, when the sum of required and borrowed reserves is deducted. In paying attention to free reserves, it is maintained that changes in the balance sheet items of the monetary authorities are responsible for bank borrowing, that is, bank borrowing is not determined by the desire of banks to borrow. The rationale for this conviction is that bank borrowing is dictated by the reserve position and not so much by a bank's profit motive (Riefler 1936:52-70).

A brief notion of the Riefler-Burgers hypothesis is that the volume of bank borrowing is not determined by interest rates, but is a consequence of changes in balance sheet items. In line with this notion, is the belief that open market purchases have a decreasing impact on bank borrowing. According to this contention, open market purchases pump money into the economy, with the resultant impact of rising prices. Because of the inverse relationship between prices of interest bearing assets and the interest they yield, the increase in price means a decrease in the yield of these assets. The impact of this drop in value induces holders of such assets to get rid of them or exchange them for more attractive assets. Consequently, banks get stuck with increased interest-bearing assets and deposit liabilities (Riefler 1936:52-70).

For a country like South Africa, where the interest rate, that is the prime rate, has been linked to the discount rate, the Riefler-Burgers approach in its neglect of the role of excess reserves, can frustrate the policy measures pursued, as was the case during the depression of the 1930's. As a measure to remedy this deficiency, the free reserves would facilitate bank credit and prompt banks to search for alternative investment opportunities, rather than remain with idle cash balances. In turn, the money supply would be increased, which leads to deposit creation being permitted by these free reserves. As a result, the supply of credit will also increase, with the ultimate decline in interest rates and stimulation of investment, thus promoting economic growth. Accordingly, given the fractional money



supply reserve system, bank borrowing has a contractionary effect, since it reduces the required reserves at the disposal of banks to “create money”. On the other hand, the repayment of debt is expansionary because that increases the bank reserves which permits additional loans, thereby increasing the money stock. According to the Report of the Commission on Money and Credit in the United States (1963:7), “The Federal Reserve restrains (or encourages) bank credit expansion by reducing (or increasing) the banks’ primary liquidity”. However, the free reserve doctrine did not prove satisfactory.

The credit view is taken to improve the free or discretionary reserve doctrine (Brunner and Meltzer 1964:95-118). The credit view broadens the free reserves doctrine by taking into account the rate of increase in bank credit, the treasury bill rate, and the distribution of free reserves among member banks of the Federal Reserve. Free reserves are said to play an important role in determining the portfolio of earning assets position of banks. An increase in free reserves is expected to induce an increase in bank portfolios or the retirement of debt. In contrast, a decrease in free reserves is said to have the opposite effect. The Brunner-Meltzer hypothesis will be discussed in detail under a separate section later.

Because of the importance of free or discretionary reserves, monetary policy aims to control the level of these reserves. This can be accomplished by changing the level of reserves required by statute against various types of liabilities of banks (demand and time deposits). Such changes in the level will in turn affect the reserve ratio, a component of the money multiplier. Thus, the change is ultimately transmitted to the multiplier. Assuming there is no need to borrow from the Federal Reserve Bank, the so-called rush to the “window”, a change in free reserves will necessitate the re-adjustment of the bank's portfolio position. To permit the empirical testing of such a sequential process, the expanded version of the free reserves doctrine had to be modified, hence the Brunner-Meltzer response (Brunner & Meltzer 1968:1-37).

In his contribution Meigs (1962: 66); negates the free reserves doctrine's position that bank borrowing is independent of interest rates. His study reveals that banks adjust their holdings of free reserves in response to market conditions. The disparity between the actual and the desired levels of free reserves generates a portfolio readjustment process,

which in turn affects the money supply and interest rates. The difference between the desired and actual levels of free reserves is eliminated or narrowed by the impact of changes in interest rates on bank behaviour. In contrast, Brunner and Meltzer's study revealed no significant relationship between bank credit and money supply, and showed that the levels of free reserves do not explain changes in these aggregates. There are important theoretical lessons for South Africa, but testing these theories falls outside the scope of this study. Another theoretical progression is the monetarist approach, which will be discussed next discussion.

### 3.3 THE MONETARIST APPROACH

Three approaches will be discussed under this heading, namely the Friedman-Swartz approach, the Cagan Approach and the Brunner-Meltzer hypothesis.

#### 3.3.1 The Friedman-Swartz approach

Friedman and Swartz (1963:32-64) in their study of the money supply process in the United States, define money stock,  $M_s$ , in broad terms, as a multiplicative product of the money multiplier,  $m$ , and the monetary base or high-powered money,  $H$ . This relationship is expressed by the following equation:

$$M_s = mH, \quad (15)$$

where:

$$M = \frac{D/R(1+D/C)H}{D/R+D/C} \quad (16)$$

where  $D/R$  is deposit to reserve ratio, and  $D/C$  is deposit to currency ratio. In this form, the ratios move directly with the change in money stock,  $M_s$ , otherwise when they are given in the traditional form, i.e. their reciprocals of the form  $R/D$  and  $C/D$ , they cease to move directly with the change in money stock.

The monetary base or high-powered money is the liability of the monetary authorities,

$$H = R + C, \quad (17)$$

where R is bank deposits with the Federal Reserve System and C is currency held by the public.

The deposit to reserve ratio,  $D/R$ , is a function of reserve requirements, interest rates and currency flows. On the other hand, the deposit to currency ratio depends on interest rates, income and public desire to hold currency. These ratios reveal the inter-relationship between the behaviour of the monetary authorities on the one hand, and the public and banking sectors on the other. The public and banking sector react to measures taken by monetary authorities, by re-adjusting their position in terms of policies adopted (Friedman & Swartz 1963:32-64).

In the responses of banks and the public sector, the motive is to attain desired positions. The reactions are reflected by the money multiplier,  $m$ , and the monetary base,  $H$ , components of the money supply equation,  $M_s = mH$ . According to the Friedman-Swartz study, high-powered money or monetary base was the dominant factor affecting the money stock from 1875 to 1960 in the United States (Friedman & Swartz 1963).

### 3.3.2 Cagan's Approach

Phillip Cagan's study (1965:26-40) follows similar approach to that of Friedman-Swartz, with a slight difference in the ratios he uses. In explaining money stock,  $M$ , as a product of money multiplier,  $m$ , and the monetary base,  $H$ , he uses the following equation to portray the relationship:

$$M = mH, \quad (18)$$

where:

$$M = \frac{1}{C/M + R/D + (C/M \times R/D)} \quad (19)$$

Substituting for  $m$ , in  $M = mH$ , we get:

$$M = \frac{1}{C/M + R/D - (C/M \times R/D)} H \quad (20)$$

where,  $C/M$  is the currency to money ratio and  $R/D$  is the reserves to deposits ratio.

Although Cagan's study involved a detailed analysis of the elements determining the money supply, he nevertheless reached a similar conclusion as that of Friedman and Swartz; namely that high-powered money or monetary base was the principal factor in determining the stock of money. An additional conclusion reached by the Cagan study was that the  $C/M$  ratio was pro-cyclical and that this ratio was in turn influenced by economic activities. In the short-run, the  $R/D$  ratio was found to reflect movement in economic conditions (Cagan 1965:26-40).

The Friedman-Swartz and Cagan analyses came under fire, and were criticised for being of the after-the-effect or ex post variety, not providing explicit hypothesis. Fierce criticism came from Brunner (1965). To offer an alternative, the Brunner and Meltzer hypothesis was postulated, which now follows.

### 3.3.3 The Brunner-Meltzer Hypothesis

As an improvement on the Friedman-Swartz approach, Brunner and Meltzer (1968:56-63) propounded their hypothesis. The present study has drawn much from this hypothesis. In terms of this hypothesis, the money supply process is studied in the light of the interdependence of the behaviours of the public sector, banking sector and the monetary authorities. This inter-connection is explained by the money stock,  $M_s$ , money multiplier,  $m$  and the monetary base,  $B_a$ :

$$M_s = mB_a. \quad (21)$$

The monetary base is obtained by consolidating the balance sheet items of the Federal Reserve Bank and the Treasury. Two angles on the monetary base are described as the uses side and the sources side. The use side of the monetary base is found by adding bank reserves to the Federal Reserve and the total amount of currency in circulation. In

equation form, this is represented as:

$$B_a = R + C_p, \quad (22)$$

where R is total reserves with the Federal Reserve and C<sub>p</sub> is currency held by the public.

The sources side, on the other hand, comprises the Federal Reserve's credit, Treasury cash outstanding (TC), gold stock (U), less Treasury deposits at the Federal Reserve (td), float (FI), foreign deposits at the Federal Reserve (fd), Treasury cash (tc) and other deposits (od). The relationship is captured by the following equation:

$$B_a = S + A + A_d + FI + U + TC - (tc + td + fd + od), \quad (23)$$

where S is government securities (including those bought outright by the Federal Reserve banks and those held under repurchase agreement by the Federal Reserve banks); A is bankers' acceptances; and A<sub>d</sub> represents discounts and advances. The items in parenthesis constitute the negative factors of the monetary base (Weintraub 1979:136-160).

The monetary base is regarded a strong policy instrument, by reason of the fact that most of its components are under the direct control of monetary authorities. It should be mentioned in passing, that monetary authorities in South Africa have historically rejected this approach (De Kock Commission 1985:13). Instead, in South Africa money supply has been considered an intermediate target of monetary policy, with the emphasis on interest rate stabilisation programmes. By definition, the injection of monetary base into the economy increases money stock. However, it will be seen that such increases in the growth rate of money are counter-acted by variations of the money multiplier. All the same, when money is injected into the economy, the public and private sector behaves accordingly, thus allocating such supplies among themselves. In South Africa, the monetary base (MB), also represented as K, is defined as follows:

$$MB = R + B - S + W, \quad (24)$$

where: R = gold and foreign exchange reserves of the SARB

B = SARB's holding of bonds and securities

$S$  = government deposits with SARB

$W$  = residual of other assets and liabilities

Those determinants of money supply and the effect of changes in the repo rate, which replaced the bank rate, will be tested empirically in chapter nine.

The impact or contributions of the money multiplier to changes in the money stock are also considered; the Brunner-Meltzer money multiplier is given as:

$$M = \frac{1+k}{(r+e-b)(1+d+t)+k} \quad (25)$$

where  $k$  is public currency holdings to demand deposits ratio;  $r$  is weighted average or reserve requirements to deposit liabilities;  $e$  is excess reserve to total deposits ratio;  $b$  is borrowing relative to total deposits ratio;  $d$  is Treasury deposit demand and  $t$  is time deposits to demand deposits ratio.

Currency is held in favour of demand deposits, for three main reasons:

- (1) to minimise transactions costs
- (2) to pay for transactions
- (3) to satisfy preferences for liquidity and safety

These underlie the size of  $k$ , which in turn affects the money multiplier,  $m$ . Differentiating  $m$  with respect to  $k$ , gives us:

$$\frac{\delta m}{\delta k} = \frac{[(r+e-b)(1+d+t)+k] - (1+k)}{[(r+e-b)(1+d+t)+k]^2}, \quad (26)$$

where:  $\delta m / \delta k > 0$ , provided  $(1+k) > [(r+e-b)(1+d+t)+k]$

or  $(r+e-b) < 1$ .

The changes in the t-ratio are transferred to the reserve ratio,  $r$  as shown below:

$$r = \frac{rdD^* + rtT}{1 + t}, \quad (27)$$

where  $rd$  is required reserves to total demand deposits ratios;  $rt$  is required reserves to total time deposits ratio, and  $D^*$  is the ratio of total demand deposits to the public's demand deposit claims,  $D_p$ . An increase in  $t$  will reduce  $r$ , provided  $rt < rdD^*$ , as can be seen from:

$$\frac{\delta r}{\delta t} = \frac{(1 + t) rT - (rdD^* + rtT)}{(1 + t)^2}, \quad (28)$$

However, the drop in  $r$  is less than the rise in  $t$ , in terms of percentages, because  $t$  appears in both the numerator and the denominator. Consequently, a rise in  $t$  is certain to decrease the money multiplier  $m$ , even if such decline is mitigated by the fall in  $r$ , as  $t$  rises. In contrast, a decline in  $t$  leads to an increase in  $m$ , which increase is attenuated by the rise in  $r$ .

While currency is favoured over demand deposits, for the reasons stated above, time deposits were held to earn interest income. Demand deposits were, however, still held even if they did not earn any interest. Among other reasons, such deposits were held to foster bank relationships, which in turn determined lines of credit opened to clients, compensating balances to hold, etcetera. The size of time deposits increases as wealth increases; that is the t-ratio will rise with wealth. Also, in absolute terms, increases in the rate of interest on time deposits increased the t-ratio. These changes in the t-ratio affected the money stock,  $M$ , via the money multiplier,  $m$ . An increase in the t-ratio led to a decrease in money stock,  $M$ , holding the monetary base constant. Conversely, a decrease in t-ratio caused the opposite effect. This inverse relationship is reflected by the differentiating  $m$  with respect to  $t$ :

$$\frac{\delta m}{\delta t} = \frac{[(r + e - b)(1 + d + t) + k]}{[(r + e - b)(1 + d + t) + k]^2} \quad (29)$$

The t-ratio also induces changes in the e-ratio, of a negative kind. This is the case because demand deposits are withdrawn more frequently from banks than time deposits. In response to this phenomenon, experience has dictated that reserves held against demand deposits,  $rd$ , should be more than those held against time-deposits,  $rt$ . In formula form, the e-ratio is expressed as follows:

$$e = \frac{rdD^* + rtT}{1 + t} \quad (30)$$

The e-ratio will tend to rise with a fall in  $t$ , provided  $rt$  is less than  $rd$ . Again, the fall in  $e$ , associated with an increase in  $t$ , is as large as the rise in  $t$ , because  $t$  appears both in the numerator and the denominator. Factors influencing the b-ratio, on the other hand, are interest rates on earning assets and the discount rate.

The important role played by the ratio-parameters of the money multiplier in the non-linear hypothesis is further described by Weintraub (1970:136-160). To summarise, the ratio relationship of the multiplier in the Brunner-Meltzer hypothesis is as follows:

$$\delta m / \delta k, \delta m / \delta r, \delta m / \delta e, \delta m / \delta d, \delta m / \delta t < 0, \text{ and } \delta m / \delta b > 0.$$

The Brunner-Meltzer approach, which is monetarist in outlook, was challenged and attacked for its alleged over-emphasis on the role of money. This opposition was labelled the "new view", to which we now turn.

### 3.4 THE "NEW VIEW" HYPOTHESIS

Tobin challenged the Brunner-Meltzer approach because of what he called the textbook bank multiplier approach (1958:65-86). The "New View" focused on the difficulty of defining money, given other forms of "near money", the similarities between banks and other financial intermediaries, and the inter-relationship of banks, the public sector and the monetary authorities in the process of money supply.

Tobin in showing the similarity between banking and other financial intermediaries, which



only differed in terms of legal restrictions, contrasted two systems: one with reserve requirements and ceilings on rates and the other free from such constraints. The conditions of the type of system, namely credit and deposit expansion, would be restricted by the supply of assets which yield enough to reward banks for costs incurred in attracting and holding corresponding deposits. With restrictions, expansion falls short of competitive equilibrium, because the marginal yield of bank loans and investments is greater than the marginal cost of deposits to the banking system. This leads to profits, which permit the acquisition of additional assets: "The expansion process lowers interest rates ... but ordinarily not enough to wipe out the bank's margin between the value and cost of additional deposits" (Tobin, 1963: 416).

The "New View" hypothesis assigns a dominant role to the banking and public sector and not to the monetary authorities. The Humean perspective on flow mechanism contributed to this approach, in that it repudiated the Mercantilism obsession for accumulation of precious metals within a country, as a balance of payments surplus objective. Translating the Humean perspective into current terms, this is analytically demonstrated by the amount of money in a country that is adjusted automatically to the demand for it, via deficits or surpluses in the balance of payments, induced by the effects on relative national money price levels of excess demand for or excess supplies of money .

Hume's price-specie-flow mechanism can be discussed in terms of the following three points:

- (1) It assumes that all money is "outside" money (precious metals), that is all money is backed by international reserves, regarding domestic money and international reserves as being the same thing.
- (2) The mechanism of adjustment focuses on international transactions in gold, as distinguished from securities.
- (3) Domestic prices can vary from purchasing-power parity under the influence of imbalances between money demand and money supply, but such variations lead to changes in trade flows which alter the balance-of-payments and thus the domestic stock of money in the longer run.

This approach places emphasis on the influence of excess demand for or supply of money on the balance between income and expenditure, and thus on the overall balance-of-payments. Also, this Humean analysis subscribed to the automatic mechanism of international adjustment emanating from money flows and the impact of such on national money price levels. Up until the 1930s, this formed the general basis of the theory, with additions to account for the then emerging credit money made available by commercial banks and the role of central banking relative to international reserve holdings, concluding the influence of interest differentials on international short-term capital movements.

However, with the collapse of the international regime of fixed exchange rates, the emergence of mass unemployment and the eruption of the Keynesian revolution, automatic international adjustment gave way to a perception of the process as a policy problem for governments. The classical wage and price mobility with full employment was replaced by the Keynesian rigidities with mass unemployment. With wage rigidity, devaluation would change the real price of domestic goods relative to foreign goods in both the foreign and the domestic markets. As a result, production and consumption substitution occur. On the mass unemployment assumption, the impact of these substitutions on demand for domestic output could be assumed to be met by changes in output and employment, with any impact on the balance-of-payments being secondary. As such, the Keynesians, concerned with the short-run, refuted any connection between the balance-of-payments and money supply, and between money supply and aggregate demand. Instead, the emphasis was placed on the "elasticity conditions" required for the impact-effect of a devaluation as an improvement of the balance-of-payments. These conditions were that the sum of the elasticities of the home and foreign demand for imports should exceed unity, that is the Marshall-Lerner condition (Yeager 1976). This condition is based on the assumption of perfectly elastic supplies and initial balance of trade. However, in the real world, we seldom start from a condition of equilibrium in the balance of trade. The Marshall-Lerner condition is also seen as an exchange stability condition surrounded by two unstable equilibrium positions. Using the Walrasian adjustment process:

$$\delta p / \delta t = p = g \text{ (excess demand)}$$

where  $p$  is price and  $t$  is time. Using Say's Law we get:

$$p = g(D_2 + D_2^* - X_2 - X_2^*), \quad (31)$$

where  $D_2$  is domestic demand for commodity two and  $X_2$  is domestic supply of commodity two, while the asterisks show foreign demand and supply. In a two-commodity model, in accordance with international trade theory, Say's and Walrasian Laws imply excess demand for commodity one, as well (Chick: 1983). We then get:

$$p = g(M_2 - E_2^*), \quad (32)$$

with  $g(0) = 0$  and  $g' > 0$ .

Stability requires that:

$$\delta(M_2 - E_2^*)/\delta p < 0, \quad (33)$$

as the price of commodity two increases, excess demand should become smaller.

From the balance-of-payments constraint of the rest of the world, the value of exports equals imports:

$$pE_2^* = M_1^*, \quad (34)$$

which leads to:

$$E_2^* = M_1^*/p. \quad (35)$$

And because what is exported must be imported by another

$$E_2^* = M_2. \quad (36)$$

Thus:

$$\begin{aligned}
 \delta(M_2 - M_1^*) &= \delta M_2 / \delta p - 1 \delta M / P \delta p + M_1^* / \delta p^2 \\
 &= M_1^* / p^2 [p / M_2 \delta M_2 / \delta p - p (\delta M_1 / M_1^* \delta p + 1)] < 0 \\
 &= -\varepsilon + \varepsilon^* + 1 < 0,
 \end{aligned} \tag{37}$$

where:

$$\varepsilon = -P / M_2 \delta M_2 / \delta p \tag{38}$$

is the elasticity of import demand of the home country, and

$$\varepsilon^* = P / M_1^* \delta M_1^* / \delta p \tag{39}$$

is the elasticity of import demand of the rest of the world. By re-arranging, we therefore get:

$$\varepsilon + \varepsilon^* > 1, \tag{40}$$

which is the Marshall-Lerner condition.

Turning to the traditional balance of payments theory, the balance of payments has to be in equilibrium, after all international transactions of a country have been taken into consideration. An imbalance or disequilibrium is explained, as discussed below, in various sections of Mundell's book (1968), in terms of the "accommodating" or "induced" international transactions, as opposed to "autonomous" international transactions. "Autonomous" international transactions are those transactions that are undertaken freely and out of voluntary choice by individuals, regardless of the economic conditions operating at the time they are transacted. On the contrary, "accommodating" or "induced" international transactions are those undertaken by foreign exchange authorities to reconcile and modify the free choice of individual residents. The foreign exchange authority operates in the foreign exchange market through the use of official reserves, with the objective of influencing the exchange rate. The ultimate aim is to maintain the strength of the country's currency relative to those of other countries. Mundell argues that this is

so, because an imbalance is associated with the disparity between foreign receipts and foreign payments of residents of the country. Defining the balance of payments is defined as:

$$B = R - P, \quad (41)$$

where R represents aggregate receipts and P aggregate payments. Two possibilities exist, when  $R > P$  or  $R < P$ . In the former case, where receipts exceed payments, we get a surplus, while in the latter there is a deficit; that is receipts do not cover payments. The formulation of the balance of payments deficit in terms of excess aggregate payments by residents over aggregate receipts was the starting point of the "absorption approach" sometimes known as the "balance of payments approach"(Mundell 1963:517).

According to Mundell's argument, the balance of payments deficits necessarily imply two possible situations. In the first case, the cash balances of residents are running down, since domestic money is transferred to the foreign exchange authority, so as to receive foreign currencies to make the foreign payments. This process will only continue as long as cash balances of the community exceed their desired minimum holdings. As soon as this minimum is reached, the process ceases and in turn corrects the deficit, for less foreign payments are now being made. Thus, when a deficit is financed by dis-hoarding, as time goes on, it becomes self-correcting. This self-cure comes via rising interest rates, tighter credit conditions, reduction of aggregate expenditure and possibly an increase in aggregate receipts. In spite of this, monetary authorities might not have the leverage to allow the self-correcting process to run its course, for international reserves at their disposal relative to domestic money supply might be low. In such a case, the monetary authorities would take action to reinforce and accelerate the effects of diminishing money balances.

It is on this basis that the existence of international reserves, as part of domestic money supply would facilitate the self-correcting process of financing a deficit through dis-hoarding. Meade (1951:54-62) is one of the chief proponents of this approach. Larger reserves are said to allow the monetary authorities more time to make adjusting corrections to the balance-of-payments problems. However, this reserves-argument did not go unchallenged. A counter-argument was presented in book form by a prominent

adversary, Friedman (1953). Friedman argued that there was no presumption that a longer time period would be a magic wand in the hands of monetary authorities that would guarantee balance-of-payments corrective policies.

Secondly, Friedman argues that the cash balances of residents are replenished by open market purchases, in a way similar to interest rate pegging or re-lending to residents. Thus, domestic money supply would be maintained by the creation of credit. In this case, excess aggregates and foreign payments over aggregate receipts could continue indefinitely, until there was a change in policy. In both cases, where international reserves relative to money supply are low to allow self-correction of the deficit, and where monetary authorities finance the deficit credit creation, the problem is fundamentally that of the ability of monetary authorities to create money that has no internationally acceptable backing.

It is crucial to distinguish between two types of decisions, namely "stock" and "flow" decisions. "Stock" decisions involve a point in time changes, whereas "flow" decisions are period changes. As such, a "stock" deficit is inherently temporary in the sense that it does not cause a deterioration in the balance of payments. When this type of deficit sets in, to discourage substitution of stocks of goods for domestic currency, the authorities may either raise the cost of holding stock by credit restriction or reduce its attractiveness by currency devaluation. The impact of both policies is uncertain, to the extent that controls are suggested as an alternative. In South Africa, the Blocked Rand was introduced after the Sharpeville episode of 1960, to avoid a flight of capital out of the country; the Securities Rand served the same purpose in 1976, as did the Financial Rand in 1979 (Kahn 1992: 74-98).

In contrast, "flow" deficit, on the contrary, according to Mundell's argument above, is explained in terms of international capital movements. Considering the current account, and defining the balance of payments as the difference between the value of the country's output (i.e. national income),  $Y$ , and its total expenditure,  $E$ , we can write:

$$B = Y - E. \quad (42)$$

It follows that correction of the current account deficit can be attained by increasing output,  $Y$ , or decreasing expenditure,  $E$ . And since output is determined by its demand, changes in  $Y$  can be effected by expenditures on domestic output. In contrast, expenditure reduction, minimisation of  $E$ , can be attained by diverse means which include monetary restriction, budgetary policy or direct controls. Such policy will be attractive if the country is concurrently plagued by inflation, for such policy tends to reduce income and employment. However, a policy of that nature would be unpopular in cases of high unemployment. Therefore, policy measures will be dictated by the inflationary-deflationary situation of the economy. Furthermore, since they involve a reduction and/or an incentive for domestic producers in comparison with their foreign counterparts, expenditure-reducing policies may lead to expenditure-switching effects. There are two types of expenditure-switching policies, namely devaluation and trade controls. The main objective of devaluation is to switch domestic and foreign expenditure towards domestic output, whereas that of controls on imports is to switch domestic expenditure away from imports towards home goods. It should be stated that controls are at times used to stimulate export trade, rather than to discourage imports, in which case the objective is to switch foreign expenditure towards domestic output. Both policies may have direct impact-effects on residents' expenditure. Devaluation may cause an increase in expenditures from the initial income level via the "terms-of-trade effect" of an adverse terms-of-trade movement in reducing real income and therefore the proportion of income saved (Johnson 1976:147-167).

Johnson argues that on the contrary, the trade-controls effect is via the reduction of income resulting from the reduced choice of goods. These policies pre-suppose that expenditure switching occurs in the desired direction and that there is capacity for additional output to meet the additional demand. It should be noted that export promotion will divert foreign expenditure money from the country's output if the foreign demand is inelastic, while import restriction will divert domestic expenditure abroad if demand for imports is inelastic, in which case, the foreigner benefits from the increased value of imports which was added to dissuade residents from importing (Johnson 1976).

Furthermore, Johnson also considers the situation in which the above conditions are not

satisfied. He uses the equation (42), which is the same as explained above, from which he argues that it follows that if direct effects on expenditure from initial income levels are neglected, devaluation can worsen the balance of payments only if it reduces total world demand from the country's output. Johnson says such a country's output would in a sense imply a "Giffen case" in world consumption, and that the market for at least one of the commodities it produces is in unstable equilibrium. A second problem stated by Johnson is related to the source of additional domestic output relative to additional demand following expenditure-switching policies. In this regard, two cases are distinguished, that in which the economy is underemployed and that in which it is at the full-employment level. In the former case, required additional output can be provided by tapping the unused resources, which increases employment and income. The domestic price level will be inclined to increase, as a result of the increase in output, because of increased marginal real costs of production. These additional costs have a depressing effect on foreign prices, which results in mitigation of the price level. In the case of full-employment, according to Johnson, required additional output cannot be obtained through increased production, but through reduction of real expenditure,  $E$ , in the above equation. If expenditure-switching policy is not accompanied by an expenditure-reducing policy, that will create an inflationary excess of aggregate demand over supply, leading to price increases that tend to counter-act the policy's expenditure-switching effects. What is important is that these effects depend on factors that are monetary in nature.

Johnson (1976:147-167) distinguishes between "expenditure-reducing" and "expenditure-switching" policies, a combination of which is considered by Meade (1951:103) to be the ideal policy. This constitutes another opposed version to the "elasticity approach". According to Meade, a country needs two policy instruments if it is to simultaneously achieve internal and external balance, namely full-employment and balance-of-payments equilibrium. These instruments are said to be demand managed by fiscal and/or monetary policy and the exchange rate. Management by means of rigid wages, controls and exchange rate changes, dictated by national and international political considerations, fiscal expansion and money stock increase has the same effect on the current account and opposite effects on the capital account. On the current account, this kind of management increases imports and possibly decreases exports, whereas on the capital account, fiscal



expansion increases interest rates and attracts capital inflow and monetary expansion leads to a drop in interest rates and an outflow of capital. Thus, the two policies can be "mixed" to attain capital account surplus, which amounts to current account deficit or surplus at the level of full-employment of the economy. For the sake of completeness, I should mention that the fiscal-monetary policy mix approach is propagated and advanced by Mundell (1960:227-257; 1961:153-170; 1962: 70-77; 1963:509-517; 1971:cp.9; 1991:21-51), whose model sought to bridge barter and monetary models on the one hand and classical and Keynesian models in international economics, on the other.

### 3.5 NEO-CLASSICAL VIEW

Orthodox economists or neo-liberals economists are mainly neo-classical and they take a different view from structuralists, who are mainly Keynesians, on whether or not market economies have the capacity to self-adjust or self-correct. In this section the focus is on the neo-classical view, covering the Keynesian perspective in the next section. According to the neo-classical school of thought, markets left to themselves function efficiently and will adjust to full employment levels, should they be disturbed. Accordingly, government intervention is seen to be unnecessary, since deviations from equilibrium output and employment levels are said to be temporary. This neo-classical argument is based on four assumptions (Nattrass 2000:15-16). These are :

- (1) All agents are rational and maximize utility and profits
- (2) All markets are perfectly competitive
- (3) All agents have perfect information and stable expectations
- (4) Trade only takes place when market-clearing prices have been established in all markets by a fictitious auctioneer, the Adam Smith "invisible hand"

To neo-classical economists, the aggregate supply (AS) curve depicts the relationship between output ( $y$ ) and the price level ( $P$ ) as determined by the labour market and the production function. Nominal wages are assumed to adjust quickly and efficiently,

thereby clearing the labour market at the equilibrium real-wage level. The production function is the technological relationship between inputs - usually labour, capital, land and technology - and real output.

Since output is a positive function of both the inputs, capitals and labour, increasing employment of either factor of production,  $N$  or  $K$ , will have a positive effect on growth. Because of logistical problems and the delays associated with increasing the stock of capital,  $K$ , economists usually assume that only labour,  $N$ , can be varied easily in the short run. Equilibrium in the labour market is at that point where workers are prepared to offer their services at the going wage. Departure from this point where demand for and supply of labour are equal, say because of a real-wage increase, will result in an excess supply of labour. Employers will demand fewer labourers and the real-wage will ultimately revert back to the equilibrium level, as the resultant involuntary unemployment force workers to take lower real-wages. Similarly, a fall in real-wages below the equilibrium level creates excess demand for labour. The shortage of labour ultimately pushes real-wages higher, back to the equilibrium level (Nattrass 2000:22-27).

Consequently, according to the neo-classical view, where markets function perfectly, money wages will always adjust to restore labour market equilibrium, and when the economy stagnates at less than full employment, real-wages are too high to ensure full employment. The monetary policy implication is to make the market more “flexible” and able to “adjust” both upwards and downwards, so as to clear the labour market. Given that government intervention is abhorred by neo-classical economists, optimal economic policy is said to be one which follows clear and steady rules, such as expanding money supply at a stable and predictable rate to accommodate growth while avoiding inflation. This policy is said to avoid business cycles. The neo-classical view, advocated in the articles edited by Lucas and Sargent (1981), reconfirms the dichotomy between the monetary and real sectors. It is argued, according to this view, that changes in technology may cause the marginal productivity of labour to fall, which in turn reduces the amount of labour demanded. Thus, it is said, as wages drop, people opt for leisure and reduce consumption.

Above all, it is the neo-classical view that attempts by government to boost the economy are, at best, ineffective and at worst, harmful according to Snowden, Vane, and Wynarczyk (1994:cps.6 & 8). The underlying neo-classical assumptions and arguments are challenged by neo-Keynesians, which is the subject of the next section.

### 3.6 NEO-KEYNESIAN VIEW

The neo-Keynesian school came into being in response to the neo-classical challenge to the Keynesian view that market economies left to themselves function imperfectly. This is in contradiction to the neo-classical view that market economies are self-correcting or self-adjusting towards full employment equilibrium levels. To gain a deeper understanding of the new-Keynesian view, Keynesian beliefs are briefly discussed as a prelude. To Keynesians, there is no reason why savings should equal investment, or why market forces should result in full employment. Prices are said not to adjust quickly, instead adjustment tends to occur through changes in output and employment. Accordingly, market coordinated failures have to be explored, to determine intervention policies that will nudge the economy onto a path of full employment. The underpinning assumption is that market forces can easily generate perverse and socially undesirable outcomes such as extended and deep depressions. The neo-Keynesian view is in answer to the neo-classical demand to know what is causes the “market failure” postulated by Keynesians. This answer addresses the explanation why prices are “sticky” and why labour markets do not clear (Natrass 2000:38-50).

The Keynesian view gained prominence as the world experienced falling prices, falling profits and social distress. In response, the neo-classical criticism is that Keynesians treat the tail-end of the great depression and make it the central part of their argument about what caused it, as well as what could be done to cure and prevent it (Skidelsky 1992:538-615). Furthermore, Keynesians reject the neo-classical notion of perfect information, arguing instead that economic decision-making is profoundly structured by imperfect information, business confidence, risk and uncertainty. These points are restated and emphasised by neo-Keynesians, who say business neo-classical beliefs that Adam Smith’s “invisible hand” drives the economy towards some socially

optimal full employment position, and that perfect knowledge exists, are incorrect. Economic agents are also said to operate according to good, rather than perfect information rules of thumb and to be “near-rational” rather than rational. With lots of individuals in the economy who are “near rational”, working in an environment of less than perfect competition, the result, it is said, can very well be strong output and employment fluctuations (Snowdon, Vane & Wynarczyk 1994:chs.6 & 8).

According to neo-Keynesians, wages are “sticky” and persist at higher than market-clearing levels, resulting in unemployment. The reasons given for this include efficiency wages and insider-outsiders theories of wage determination. Efficiency wage theories argue that reducing wages does not work, because that is likely to spark a morale nose-dive and ultimately a drop in labour productivity. Yet, if wages are above market-clearing levels, workers are likely to be more cooperative and productive. Thus, lowering real wages during recessions is likely to harm relations on the shop floor, which can damage future relationships and attempts to gain worker-commitment. Also, some workers may opt to quit rather than take a wage cut. Replacing them involves the additional costs of hiring and training (Greenwald & Stiglitz 1993:33-34).

Insider-outsider theory, in contrast, pivots around turnover costs. It starts with the premise that there are turnover costs, to which is added the proposition that trained “insiders” are not perfect substitutes for untrained “outsiders”. This implies that employed insiders can to some extent protect their wages against undercutting by unemployed outsiders. Above all, given that employed insiders are used to train the newly hired, employers have an incentive to keep the already employed workforce, which could lead to the harassment of new recruits if employed at lower wages or if these recruits demand higher wages. Aligned to this argument, is the argument involving sticky prices or “nominal rigidities”. The basic contention is that firms are reluctant to change prices regularly and that small nominal rigidities at firm level add up to large macro-economic effects (Greenwald & Stiglitz 1993:33- 34). It must be noted that the project of providing a rationale to neo-classical economists for alleged rigidity of money wages and prices is rejected by a body of neo-Keynesian. In spite of that, Keynesian economics is again becoming popular and respected in the

economic profession, as is manifested by a recent book by Krugman (1999:chs.1-3). This surge in importance is also reflected by the current debate on inflation, covered in section 3.8, after the following brief discussion of supply-side economics.

### 3.7 SUPPLY-SIDE ECONOMICS

Theoretically, the supply-side economics is an extension of neo-classical theory. It became popular in the United States in 1981, during the Reagan administration, as a guiding principle behind tax cuts. Proponents of supply side economics take the classical view that output is determined by real variables on the supply-side of the economy, namely growth of factor supplies and changes in technology. Supply-side economists also adhere to the fundamental classical faith in the free-enterprise capitalist system, which abhors government intervention in the economy (Froyen 1996:403-433). The following are four important broad elements of the supply-side economics (Gilder 1981:15-16):

- (1) Output growth is predominantly supply-determined in the intermediate term, by growth rates in factor supplies and the rate of technological change
- (2) The rate of growth of the capital input is determined primarily by the incentives for saving and investment, the incentives being the *after-tax* returns to saving and investment
- (3) The rate of growth in the labour input, although determined in the long-term by demographic factors, can also be affected significantly by incentives, in this case by changes in the after-tax wage
- (4) Excessive government regulation of business has discouraged capital formation, contributed to the slow-down in the growth of labour productivity, and reduced growth rate

There are two separate groups of supply-side economists, the *moderate group*, which

includes Feldstein (1986:116-121) of Harvard, the former president of the National Bureau of Economic Research and past Chairman of the Council of Economic Advisers in the United States. This group stresses the role of the importance of tax incentives in promoting growth, by affecting savings and investment. It also analyses the effect of tax changes on labour supply and many other issues. The second group known as the *radical fringe*. It is because of this group's radical and fervent support of President Reagan's policies in 1981 and 1982 that their rhetoric became known as Reaganomics. The main aim of this group was to cut taxes, in the belief that government was too big and that government spending could be cut by denying tax revenues to the government to spend. The arguments were that tax cuts would rapidly increase economic growth and reduce inflation. The radical fringe supply-side predictions were criticised at the time by mainstream macroeconomists, on the grounds that tax reductions do affect incentives and increase output, but that there was no evidence that incentives would result in higher government revenue after a tax cut (Feldstein, 1986:116-121). However, the moderate supply-siders fall very much within the mainstream of orthodox "classical" economic theory. Their concern is with the impact of taxes and budget deficits on saving and investment and hence on the real rate of interest. Their analysis of saving and investment and the real rate of interest manifest their "classical" character, which assumes that wage and price flexibility restores the economy to its position of full employment and potential outputs. This can be contrasted with the neo-Keynesian view that saving and investment do not determine the rate of interest (Dornbusch, Fischer, Mohr & Rogers 1996:366-376).

### **3.8 THE CURRENT DEBATE ON INFLATION AND MONETARY POLICY**

At the heart of the debate between structuralists and neo-liberals or monetarists is the question of whether, or to what extent, money supply is exogenous or endogenous. To monetarists, the quantity or supply of money is exogenously determined by the monetary authorities. Closely related to this monetarist position is their theory of inflation, which postulates a positive relationship between changes in the quantity of

money and changes in the price level. Structuralists, on the other hand, contend that the positive correlation between changes in the quantity of money and changes in the price level is meaningless, since it does not say anything about causality. Structuralists challenge the monetarists view, that an expansionary monetary policy is inflationary, or that excessive monetary expansion is the sole or principle cause of inflation. Instead, they argue that inflation cannot occur in a money-less economy, so that it is a mere tautology for monetarists to assert that inflation is a monetary phenomenon. Put differently, a sustained increase in the supply of money is said to be a necessary condition for inflation, in the same sense that water is a necessary condition for drowning, and similarly, it cannot be said that drowning is caused by water (Dornbusch, Fischer, Mohr & Rogers 1996:346-353).

Accordingly, structuralists contend that the underlying factors that cause inflation have to be recognized and analysed if monetary policy is to be effective. These underlying factors are said to include a wide range of non-economic factors, which are, for example, social, political and historical, and which must be taken into consideration when analysing inflation. The structuralist approach is a challenge to both the monetarists' assumptions which transforms the Irving Fisher Equation of Exchange into a theory of price, and the Keynesian approach of demand-pull and cost push inflation. There are three key underpinning monetarist assumptions: that income velocity of money is fixed or at least stable; that the level of real-output or income is also fixed, at full employment level; and that nominal money stock is exogenously determined by the monetary authorities. These are said to be another way of asserting *the neutrality of money*. This is another way of stating that the quantity theory of money is based on the notion of a *vertical* aggregate supply curve at the full employment level of income (Dornbusch, Fisher, Mohr & Rogers, 1996: 346-353).

The first criticism of the Keynesian distinction between demand-pull and cost-push inflation by structuralists, is that what appears to be cost-push is always a delayed response to prior increases in aggregate demand. Secondly, it is argued that cost-push cannot be an independent cause of inflation, since it has to be accommodated by the monetary authorities by allowing an increase in the money supply. The third

argument is that inflation is a *process* and the dichotomy between demand-pull and cost-push does not help in the analysis of the process and the formulation of policy measures to reverse the process. Thus, structuralists in contending that non-economic factors should be considered in order to gain an understanding of inflation, argue that cognisance of the process whereby prices and wages are determined should also be taken. In terms of this argument, the structures of the goods market and the labour market should also be examined. Structuralists consider this to be critical, since “for the economist to disregard the socio-economic environment of his Economics would be indicative of a lack of perspicacity” (Sadie 1980 : 281).

The other aspect of the monetarist approach questioned by structuralists is the concept of the *neutrality of money*, which connotes that changes in the stock of money do not have an impact on real variables, such as real output or income and employment. Although most monetarists maintain that “money does not matter”, others argue that nominal or monetary variables, like interest rates and exchange rates, do affect real variables. In negating the neo-liberal or traditional views on inflation and their concomitant implications for anti-inflation policy, structuralists distinguish three interrelated sets of factors, the *underlying factors*, which are responsible for the economy’s inflationary bias; the *initiating factors*, which trigger or intensify a particular inflationary episode; and the *propagating factors*, which transmit the original impulse(s) through the economy over time, thereby generating or sustaining the process of rising prices (Dornbusch, Fischer, Mohr & Rogers 1996: 346-353).

### 3.9 CONCLUSION

This chapter covered the money supply theories that underlie monetary policy theory, both pre-war and post-war. In the pre-war era Mills is considered the enunciator of money supply theory. During this period, writings on money supply theory are couched in terms of gold, which reigned as the sole medium of exchange. Real price level, the inverse of nominal price level is considered the real opportunity cost of holding nominal money. According to the theory in the pre-war era, an increase in the real price will produce a demand for nominal money gold, thereby importing a positive short-run elasticity to the



supply of money gold.

The pre-war approach was further developed after the Second World War, by introducing commercial banks' reserves and changes in bank deposits. This is done by examining the extent to which central banks can control the quantity of deposits via variations in the reserves required by statute. Grick (1951) further examines the constancy of money multiplier by focusing on the stability of the reserves required by statute. To monetarists, the monetary base is important in controlling the supply of money, whereas fiscalists focus on controlling the interest rate, via free reserves. The fiscalist approach of subordinating monetary base control to interest-rate stabilisation programmes and balance of payments considerations was the earlier policy pursued in South Africa, as recommended by the De Kock Commission on the money supply system and monetary policy in South Africa (1985:13).

The chief proponent of the pre-war theory was Grick. Meade built on Grick's theory by using a more sophisticated money multiplier. Because time deposits are included in his money supply analysis, Meade's approach resembles that of Brunner and Meltzer. Two basic post-war modifications of the pre-war developments are, firstly, the additional explanatory variables added to account for the financial behaviour of economic participants and secondly, the behaviour postulates added to render the multiplier coefficients dependant upon endogenous factors. The Hicksian writings of the time became known as the "marginal revolution", while Tobin and Friedman were propounding the theory of optimum portfolio selection. Sets of prices of relative assets in the financial markets are said to be determined by the preferences of economic units and relative quantities of assets with differing risk characteristics.

Three further money supply theoretical developments are the credit view, monetarist approach and the "new view" or balance of payments approach to money supply. The credit view was advanced mainly by Brunner and Meltzer. The emphasis is placed on availability of credit, which is said to be determined by demand. The monetarist approach was developed by Friedman-Swartz, Cagan and Brunner-Meltzer. According to Friedman-Swartz, the monetary base, which they call high-powered money, is the dominant factor in determining money supply changes. Cagan, while sharing the same

view of Friedman-Swartz, also draws an additional conclusion that the currency to money ratio is pro-cyclical, influenced by economic activities. The monetarist approach has further developed by Brunner-Meltzer who highlighted the behaviour interdependence of the public sector, the banking sector and the monetary authorities. The monetary base is considered a strong policy instrument under the direct control of monetary authorities. The “new view”, with Tobin as the primary proponents, challenges this direct control of monetary base by monetary authorities. The challenge is based on the difficulty of defining money, given other forms of “near-money”. Instead, the “new view” assigns a dominant role to the banking and private sectors, and not the monetary authorities.

The chapter also covered the on-going debate over inflation and monetary policy, highlighting the two different positions adopted by the contending structuralists and neo-liberal or orthodox schools of thought, which, respectively, are primarily neo-Keynesian and neo-classical in orientation. Inflation, to structuralists, in opposition to the neo-liberals, is not primarily caused by changes in money stock, but is largely a function of socio-political factors, which makes it impossible for the monetary authorities of a small and open economy (that of South Africa), to determine current money stock,  $M3_t$ , by applying monetary instruments to the previous period money stock,  $M3_{t-1}$ . This relationship will be empirically tested exclusively in chapter nine.

Aligned with this structuralist argument is the argument that inflation is “imported”. Also covered are the neo-classical view and neo-Keynesian views, giving a touch-and-go exposition on the *endogenous* and *exogenous* money supply arguments, respectively advanced. The neo-classical view, in line with the neo-liberal theory, considers money supply *endogenous*, and thus controllable by monetary authorities, whereas it is regarded as *exogenous* by neo-Keynesians and structuralists, rendering it uncontrollable. For completion, supply-side economics, made popular by President Reagan of the United States in the 1980s, is also presented.

This chapter covered the theory of monetary policy, in preparation for subsequent discussion on monetary policy in South Africa. Emphasis is put on the money supply process, since it is the crux of this study to determine whether or not the monetary authorities can control money supply, and thereby are effective in influencing the

economic growth of a small and open economy. This chapter concludes the theoretical framework. The next chapter covers South African reality, the interplay of monetary policy and economic growth in South Africa.