THE SUPPLY OF MONEY IN A SITUATION OF DEMAND-CONSTRAINED CREDIT–AN ANALYSIS

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CERTIFICATE

This is to certify that the dissertation entitled **"The Supply of Money In A Situation of Demand-Constrained Credit – An Analysis"** submitted by me in partial fulfillment of the requirement for the award of **Master of Philosophy** has not been previously submitted for any other degree of this or any other University.

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We recommend that this dissertation be placed before the Examiners for evaluation.

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Dedicated to my mother whose quiet courage I have always admired

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If expression is the culmination of convictions, knowledge, thought and analysis, this dissertation is merely the expression of an idea developed and remodeled by economists over more a hundred years. Little could I imagine at the onset, how difficult it could be even to be able to express the basic elements of such evolution with some degree of precision. If I have succeeded in presenting at least a part of the essence of the debate in the two hundred year old literature, it has been solely for the support and guidance of my supervisor, Professor Prabhat Patnaik, without which this dissertation would never have materialized. To thank him is audacity, but if I can ever replicate even a fraction of his clarity of thought and his patient yet determined way of maximizing output given a confused and stubborn student like me, I will have at least in part honoured his cost of investment as a teacher.

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Chapter I

Introduction

A Monetary policy, which is to serve as a policy for demand-management, must work through a combination of two assumptions. First, the interest rates must be affected and which must in turn affect the aggregate demand - most commonly the investment demand. Second, the resulting change in the aggregate demand must call forth either an adjusting change in the level of real output or in the absence of such adjustment, a change in the price level. It is in this sense that a monetary policy can be expected to maintain a particular rate of growth of output and an acceptable rate of inflation in the economy. The responsibility for demand management through monetary policy being vested with the Central Bank, the latter must then control the intermediary tools that in turn affect, through aggregate demand, the rate of growth of output, the level of employment, the price level etc. In order to justify the effectiveness of these tools, it has to be assumed that a control on the tool is ipso facto a control on the aggregate demand. This intermediate tool may be of three kinds – the interest rate which is fixed by pegging of interest rates, money supply which is given by monetary targeting and supply of credit as given by credit rationing. While pegging of interest rates requires the supply of money to respond to the demand for it, thereby maintaining a given interest rate, credit rationing requires a regulation in the supply of credit to prevent excessive demand for credit from resulting in inflationary levels of money supply.

Since the literature on monetary policy in India often attributes a significant role to the tool of monetary targeting, this paper is concerned with the effectiveness of monetary targeting as a tool of monetary policy. It is however not our purpose to analyze the transmission mechanism[1] viz. to analyze whether a control on the tool is

[1] Mishkin (1995), Meltzer (1995), Taylor (1995)

transmitted to a control on the elements of aggregate demand. The more fundamental question raised in this paper is whether the tool itself can be controlled. Therefore the purpose of the paper is to analyze the premises on which the tool may be controlled and to find out whether such conditions are satisfied in the Indian economy. A control on the amount of money supplied, which is the essence of monetary targeting, is implicitly a control on the generation of high-powered money and a control over the volume of the money multiplier. However a policy control on the volume of the money multiplier necessitates the assumption that the multiplier is not simultaneously subjected to the offsetting influence of the other behavioural factors that it is dependent upon. Therefore, any behavioural factor that goes into the determination of the multiplier must be assumed stable in order to render, ceteris paribus, stability to the multiplier, which in turn is essential for the feasibility of a policy-determined money supply. This susceptibility of the money multiplier to policy measures thus not only assumes the constancy of the behaviour of the agents involved in the process but also the constancy of the behaviour of the circumstances that cause the behaviour of these agents. It is this assumption that the paper seeks to question. Therefore, the paper also questions the existence of a stable multiplier in case the double-layered behaviour cannot be assumed to be stable.

Chapter 2 draws up a sequence of the evolution of the monetary theory to which the perception regarding the monetary targeting owes it origin. In the process, the Old Monetarist view, the Keynesian revolution, the Monetarist counter-revolution and the Post-Keynesian views have been surveyed. The beginning of explicit monetary targeting in India with the recommendation of the Sukhamoy Chakravarty committee

report and the problems of carrying out such targeting in the face of demand-constrained credit have been discussed.

Chapters 3 and 4 provide empirical evidences that reveal a situation of demand-constrained credit in India. While Chapter 3 presents the empirical evidence regarding unutilized refinance, Chapter 4 presents the data regarding excessive investment on the part of Banks especially in Government securities, at the cost of advancing credit even as the interest rates earned from the latter are higher. It has been argued that the presence of either or both is evidence of idle resources with the banking system where the idle resources arise from the lack of absorption of these resources as credit. The central ingredient of monetary targeting, i.e. the creation of deposit liabilities through the multiplier process dwindles in the presence of a situation of demand-constrained credit. Therefore, the presence of unutilized resources or excess holding of government securities (when these can be attributed to unutilized resources) invalidates the claim for the stability of the multiplier process through which money supply, as targeted by the monetary policy, must be determined.

Chapter 5 concludes the same on the basis of an econometric study. It suggests that there have been situations where both unutilized resources and holding of government securities in excess of the SLR requirements have consistently existed and moved together. Since it cannot be argued that in a world where credit is not demand-constrained the movements of one must imply corresponding movements of the other, the conclusion is inescapable that there has been a third element, viz. the level of demand for credit, that has caused the simultaneous occurrence of both. The paper

concludes by questioning the stability of the multiplier in a situation of demand-constrained credit and consequently questions the feasibility of monetary targeting in such a situation.

Chapter II

The Supply of Money – A Survey of The Literature

Much of the contemporary view about monetary policy regards an expansionary monetary policy as essentially inflationary. Consequently, it discourages the maintenance of a budget deficit that requires borrowing from the Central Bank to sustain itself, and hence necessitates a rise in money supply. Put differently, the financing of the budget deficit through Central Bank borrowing, is supposed to be more inflationary than market borrowing since the former involves an increase in money supply while the latter merely diverts the available liquidity from the hands of the public to that of the government. Another commonly presented argument specifies that the ultimate policy aim of any government in terms of the economy's real growth, unemployment, inflation etc., is pursued through an intermediate target variable viz. the monetary aggregate. These and a myriad other forms of such arguments, are all based on two common assumptions.

a) Money supply is a tool required to target key indicators of economic well - being and thus should and can be policy determined.

b) Prices and output respond to changes in money supply and thus a change in the policy - determined money supply can make a dent on the working of the real variables in the economy.

These find a basis in the monetarist argument that first made its appearance in the writings of the Scottish philosopher David Hume[1]. According to Hume, a rise in the amount of money supply given by a rise in the amount of gold and silver in a country raises proportionately the prices of the commodities in that country. However, since any money locked away from circulation and any commodity that is hoarded, do not come in contact, they do not contribute to the determination of prices. So, the price

[1] Hume: "Of Money"

prevailing in a country is given by the ratio between that portion of the gold and silver, which is in circulation and those commodities that enter the market (i.e. require these gold and silver as medium of exchange). The higher the amount of gold and silver in circulation, the higher the price and the larger the number of commodities that use these as medium of exchange, the lower the price. Therefore, according to Hume, there cannot be any extra advantage accruing to the country with respect to the purchasing power over its own commodities arising out of the additional gold and silver that may have flowed in to it. The exogenous money supply given by these metallic coins in circulation serves only as a medium of exchange and the prices of the commodities are equal to the proportion of these metals they can command in exchange by virtue of their total volume with respect to the total money supply. Given a rise in money supply and a rise in the number of commodities therefore, prices are determined by the ratio of the two. Given the number of commodities, the prices are solely determined by the money supply.

Section 1: The Theoretical Background

A similar idea had been adopted by the Quantity Theory that used Fisher's "equation of exchange"[2] to express the causal relationship running from a rise in money supply to a rise in the price level. To express the idea, the Quantity Theory assumed that nominal money supply is exogenously determined by the Central Bank, the velocity of money is constant, the nominal income is determined by the aggregate demand as given by the product of M and V, and the output is fixed at the full-employment level.

[2] Fisher (1911)

Incorporating these assumptions, the causation arising from a change in money supply can be written as,

$$\dot{M}/M + \dot{V}/V = \dot{P}/P + \dot{Y}/Y \text{ where } \dot{V}/V = 0,\ \dot{Y}/Y = \text{constant}$$

Since a rise in the nominal money supply effects a rise in the aggregate nominal demand owing to a higher initial purchasing power, and since the output being fixed at the full-employment level is unresponsive in any period, the excess nominal demand would call forth an adjusting rise in the price level, and thus a rise in the nominal income, velocity of money remaining constant. Demand for money being a stable function (here assumed to be constant proportion) of nominal income would rise as a proportion of the rise in nominal income. Given a constant velocity of money and a fixed level of output therefore, a rise in the exogenous supply of money would result in an equivalent rise in the price level. It is this interpretation of the Quantity Theory, that is in agreement with Hume's idea of the rise in the gold and silver in circulation effecting an equivalent rise in the prices, given the volume of commodities in the country. The initial arguments that were presented at the onset are justified by the above explanation of the Quantity Theory. The arguments, however, would hold even if the rigidity of the quantity theory were relaxed by changing the assumptions of a fixed level of output and a constant velocity to an output growing at the "natural rate" and a velocity that is stable though not constant. The equation would then look like the following.

$$\dot{M}/M - (\dot{Y}/Y - \dot{V}/V) = \dot{P}/P;\ \text{where } \dot{Y}/Y = \text{constant and } \dot{V}/V \approx 0$$

In this case the rise in the price level, i.e., inflation would be driven by the degree to which money supply exceeds the output growth minus the growth in the velocity of money. The stability of the demand for money would be contingent upon the

assumption of the stability of the velocity of money. It was this stability of the velocity of money that was the central issue of a major controversy between the Monetarists and the Keynesians. The stable velocity of money that was instrumental in lending stability to the demand for money was essential for a defining a predicted relationship between the money supply and the nominal aggregate demand. In case money demand was unstable owing to changes in the velocity of money resulting from a change in the interest rate, a change in aggregate nominal demand could arise from a change in the demand for money rather than a change in the supply of it. If the velocity of money absorbed a major portion of the increased supply of money, the impact of the latter on the nominal demand would be lower than that with a constant/near constant (stable) velocity. Worse, with a fluctuating velocity of money, the extent to which a rise in money supply would be so absorbed cannot be calculated and thus the ultimate impact of a rise in the money supply on the nominal demand becomes *unpredictable*.

The Keynesian theory attacked the quantity theory on these lines. Output in Keynesian theory was determined by the effective demand (which need not be consistent with full-employment), price by the cost due to money wages rather than by money supply (i.e. price = marginal cost) and demand for money by the combination of the transactions, speculative and precautionary demands for money. This conflicted with the quantity theory, first, on the latter's assumption that a rise in money supply would not have an impact on output because it was already fixed at full-employment; second, on the latter's assumption that a rise in money supply would therefore lead to an equivalent rise in the price level; and third on the latter's

assumption that the entire exogenously supplied money would have an impact on nominal demand. Since a rise in the holding of cash balances due to a speculative demand for money, could reduce the velocity of money whereby much of the increased money supply would be so absorbed, the impact of a rise in money supply on nominal aggregate demand would be mitigated to the extent of the fall in the velocity of money. This could be starkly expressed as follows: given a certain amount of money supply, the effective supply of money, i.e. MV, was given from the demand side of the quantity equation. The causality of the quantity equation was thus *reversed* and could be written in the following manner.

$$\dot{M}/M = \dot{P}/P + \dot{Q}/Q - \dot{V}/V$$

More generally, the impact of a change in the money supply would be felt on all the three variables P, Q and V.

The Monetarist view that found its roots in the Quantity Theory believed that "*inflation is always and everywhere a monetary phenomenon* in the sense that it is and can be produced by a more rapid increase in the quantity of money than in output".[3] Therefore, the monetarist view also depended heavily on the stability of the demand for money[4] and thus at least in the stability of the functional relationship underlying, if not the constancy, of the velocity of money, to envisage a causal relationship between money supply and the price level in the economy. Theoretically, the interest sensitivity of money had always been acknowledged by most monetarist studies. In Friedman (1956 and 1970), the interest sensitivity of money demand has been taken

[3] Friedman (1970)
[4] Brunner and Meltzer (1963)

note of and it has been explicitly mentioned, that when the real interest rate rises, velocity rises and thus the demand for money falls. In keeping with this, Friedman proposed a money demand function based on the premises of the asset demand for money. Money was assumed to be one of the many[5] forms of assets between which the wealth holder chose to distribute his wealth. The amount of money held, it was argued, would be related to the rate of interest, the expected changes in the interest rates governing the capital gains / losses from each asset, the general price level and the expected inflation that determines the real value of money holding, the magnitude of real assets and the income level given by the permanent income. Calculation of such a large number of variables being virtually impossible, especially with the expected changes that are not statistically observable, the empirical determinants of money demand were reduced to nominal income as given the permanent income and the interest rate in a given state of expectations. The choice of the "permanent income" was instrumental since with the temporary income shocks not affecting the permanent income, money demand related to this relatively stable income would also remain stable to that extent. The only instability that could exist was due to fluctuations in the interest rate leading to fluctuations in the money demand due to changes in the demand for speculative balances. This potential instability was however removed on the empirical grounds of insignificant interest sensitivity of money demand. The velocity of money that was dependant on the interest sensitivity of money demand was thus rendered relatively stable and the nominal income remained the only adjusting factor that bridged the gap between the demand for and the supply of money. However, it was only in 1967 that the proportion in which the

[5] The other assets being bonds, equities, physical assets etc.

components of nominal aggregate demand i.e. price and quantity would adjust, was specified with the "natural rate hypothesis" introduced by Milton Friedman in his presidential address at the Eightieth Annual Meeting of the American Economic Association.[6] This aided a retreat to at least the weak version of the Quantity Theory, as defined earlier, thereby re-establishing a relationship between money supply and prices by fixing the growth of output by NAIRU and leaving money supply to determine the nominal aggregate demand, which means in effect the price level, in the long run.[7]

All of the above arguments assume a "given" money supply or a "given rise" in money supply and thus refer to an exogenously determined money supply. According to Hume, the exogeniety was given by the gold and silver in the country while Friedman believed in the exogeniety as given by the "helicopter money" and thus both the theories effectively referred to outside money. The Keynesian Theory, referred to an "inside money" i.e. money supply emerging from within the economic system (against private debt instruments held by the banks) which was exogenously determined by the banking system in a "policy-determined" sense[8]; it was only the effective supply of money MV, that was determined by the extent of the speculative balances held by the people (via its influence on V). The major difference between the Monetarist and Keynesian theories then was with respect to the *extent of the ultimate impact* of the exogenously given money supply on the nominal income. It was this

[6] Friedman (March 1968)
[7] Phillips (1958), Friedman (1968) and Phelps (1967)
[8] Keynes J.M., "A Treatise On Money"; Ch. 32; "It will be convenient to assume that the central bank is also the note issuing authority. On this assumption the currency in circulation in the hands of the public, plus the reserve resources of the member banks, will be equal to the total assets of the central bank other than member banks. Thus broadly speaking, the central bank will be able to control the volume of cash and of bank money in circulation if it can control the volume of its own assets.

difference that brought about a difference of opinion regarding the factors that caused the Great Depression. While the monetarists believed in an impact of the change in nominal money supply on nominal income to the full extent of the change, the Keynesians believed in a smaller impact owing to at least a partial absorption of the change in money supply by speculative balances. According to Milton Friedman and Anna J. Schwartz (1963) most historical episodes were witness to the fact that income expansions and contractions were preceded by expansions and contractions in the money supply. Even the Great Depression of the 1930's was, as per the explanation in the article, the result of a fall in the supply of money, which was in turn a result of a misconceived contractionary Federal Reserve monetary policy[9]. This was in direct conflict with the Keynesian explanation of the aggregate demand failure according to which a fall in the output resulted from a shortfall in effective demand. Having calculated a historical average growth rate of output per year at 3%, Friedman's suggestion for the magnitude of a rise in money supply per year was between 3% and 5% in order to avoid inflation and this "neutral" supply of money according to him ought to be controlled by the Central Bank through a "money supply process"[10] (Friedman, 1959).

[9] Friedman (1968), "The Role Of Monetary Policy", AER, "The quantity of money in the United States fell by one-third in the course of the contraction. And it fell not because there were no willing borrowers – not because the horse would not drink. It fell because the Federal Reserve System forced or permitted a sharp reduction in the monetary base, because it failed to exercise the responsibilities assigned to it in the Federal Reserve Act to provide liquidity to the banking system. The Great Contraction is tragic testimony to the power of the monetary policy – not, as Keynes and so many of his contemporaries believed, evidence of its impotence."

[10] Davidson (1972), "From a Keynesian view-point, money does not enter the system like manna from heaven, or dropped from the sky via a helicopter, or from the application of additional resources to the production of the money commodity. The supply of money in a modern economy can increase only via two distinct processes" (income generating process and the portfolio-change process) – "both of which are related to contracts. It is these processes and not the shadows on the cave wall" (observed movements of high-powered money, deposits and currency) "of the banking institutions through which these processes operate."

The central ingredient of this process were the deposit money multipliers that connected the various monetary aggregates i.e. M1, M2, M3 etc. to a monetary base viz. the high-powered money that was assumed to be under the direct control of the Central Bank. Friedman and Schwartz explained the stock of money in terms of three "proximate" determinants:

1. The stock of high-powered money H,
2. The ratio D/C of the commercial bank deposits (D) to the public holding of currency (C)
3. The ratio D/R of the deposits (D) in the banks owned by the public to the reserve (R) of the commercial banking system.

The money supply, narrowly defined as the aggregate of currency and deposits (M1) would be given by $M = H((1+C/D)/(R/D+C/D)) = (H)(m)$, where m is the money multiplier. A unit rise in the reserves (viz. a part of the high powered money H) that the banks maintain with the Central Bank will accordingly, lead to more than an unit rise in money supply, the extent of the rise given by the value of the multiplier. Therefore, if the Central Bank can target the high powered money, then with an appropriate calculation of the money multiplier the monetary authority is, according to the theory, capable of determining the money supply. This, however, may at best determine the narrow money (M1) since the broader aggregates that include the debt obligations of non-banking financial institutions are elusive with respect to Central Bank control, at least, to the extent of these obligations that arise in response to a demand for them. Even so, the money multiplier process itself is based on certain specific assumptions. First, it is assumed that in a fractional reserve system, where the commercial banks are required to maintain a fraction of their demand liabilities (R/D)

as reserves with the Central Bank, they always utilize the rest to advance fresh *loans*. Second, it is assumed that it must be profitable for the banks to lend out the maximum possible resources and therefore they must not be ready to maintain reserves in excess of the minimum requirement. Thus the lending rates must be fixed such as to ensure an acceptable profit margin of the banks. The first and second assumptions together then imply that there must always be an *adequate number of borrowers willing to borrow* at the institutionally fixed lending rates. Third, it is assumed that the amount of loans disbursed must not result from the conditions in the real sector of the economy i.e. the level of output etc. which implies, that there *must not exist a lack of demand for credit* in anticipation of a lack of demand for real output. Essentially then, the money multiplier theory treats money supply as "a creature of the central bank's policies"[11] and therefore assumes exogeniety on the basis of the constancy of the currency–deposit and reserve-deposit ratio. On the whole, this assumes away the fact that the loans that can be disbursed, may depend on the absorption of loans in the economy depending on real factors, and costs of loans i.e. the interest rates, apart from the supply of loans. Further it also assumes away the fact that the banking system itself may have portfolio preferences depending on the various interest rates available to it. In other words, the money multiplier theory overlooks the fact that the money multiplier is largely governed by the banks' own decisions about their assets and liabilities, which makes money at least partially endogenous.[12]

[11] Moore; "Monetary factors"
[12] Tobin (1965)

The Monetarist attack on the Keynesian explanations for the Great Depression led to the emergence of explanations regarding an endogenous supply of money. Many post-Keynesian economists for example, tend to regard the nominal money stock as endogenously governed by money wage levels i.e., wage increases raise business production costs and so even if production and sales continue at an unchanged pace, businesses require more working capital and unless they are able to run down their liquid assets, they borrow in expectation of future sales revenue to finance these costs. They explain that it is this endogenous nature of the money supply process that explains the correlation between changes in the rate of change of the stock of money and the level of money income. Kaldor (1970), on the other hand proposed that with money supply accommodating money demand, it was possible for the velocity of money to remain constant as claimed by the findings in the empirical studies of the Monetarists. He argued that changes in aggregate demand leading to a change in the demand for money would feed into changes in the money supply. Tobin[13] attempted to show through an "ultra-Keynesian" model, that money supply had no effect on income at all and yet it was possible for it to generate cycles where money supply changes precede output changes. He showed that as the government deficit is reduced due to a rise in tax revenues, the government debt, thus the demand for money and by endogeniety the money supply, is retired much faster than the output changes. Money supply then seems to precede output changes and thus is in compatibility with the Friedman-Schwartz evidence even as the line of causation is completely different. Some Post-Keynesians explained the endogeniety of money on the basis of demand for credit. According to them, it makes a difference as to whether the banks purchase

[13] Tobin (1970)

fresh financial assets or whether they purchase already existing ones. While the former finances deficit expenditure, the latter merely serves to make alterations in the wealth portfolio of the economy. Thus money supply is affected by the composition of the asset side of the banks balance sheet. Therefore, credit advanced being implicitly the purchase of a newly created security, leads to the monetisation of a newly issued debt. It is this monetisation that affects money supply, thereby making it endogenous. The extent of such monetisation then, depends on the credit disbursed which in turn depends on whether the there is demand for credit at the given lending rate. "In view of the low average borrower credit-utilization ratios, in over-draft systems it is primarily borrowers and not banks who determine changes in the quantity of bank loans. Banks should be viewed as essentially retailers of credit, and like other retailers, the quantity of credit they sell depends upon customer demand. As a result, changes in the supply of deposits are ordinarily beyond the direct control of the central bank."[14]

Section 2: The Indian Scenario

Any analysis of a change in the supply of the monetary stock in an economy requires a specification of the components that comprise the monetary aggregate because a change in those components, may potentially contribute to the change in the supply of the stock of money. While the money multiplier-based approach of the presentation of such data is just one such approach, the balance sheet approach is another. The money multiplier-based approach that relies on behavioral ratios like the currency-deposit

[14] Moore (1994)

ratio and the reserve ratio, holds the former constant and the latter fixed at the cash reserve ratio (viz. nil excess reserves) and thus does not explain much about the real factors causing the change in the money supply. The balance sheet approach, assumes less, and therefore is a clearer representation of the ingredients of the monetary stock. However, it being an accounting identity where a change in the stock of money is explained by the compensating changes in assets and other liabilities, it still remains inadequate in revealing the complete set of factors affecting the change. However, there is no general consensus on the existence of a theory of money supply determination and thus the best practice for the presentation of the data. The RBI analysis of the money stock and consequently the changes in it uses the balance sheet approach, where the variations in the money stock are explained in terms of the assets and liabilities of the Reserve bank, the other banks and the currency liabilities of the central government. The total assets being equal to the total liabilities, where the total assets comprise the monetary and non - monetary assets (MA and NMA) and total liabilities comprise monetary and non-monetary liabilities (ML and NML), the stock of monetary liabilities is given by,

$$ML = MA - (NML - NMA)$$

The variation in monetary liabilities is accounted for by the difference in the change in monetary assets and the change in net non-monetary liabilities other than time deposits (i.e., since time liabilities are included in money stock in India), i.e.,

$$\Delta ML = \Delta MA - \Delta \text{ (net non-monetary liabilities other than time deposits)}$$

Hence, the change in the monetary liabilities = (changes in the net bank credit to Government + Bank credit to commercial sector + net foreign exchange assets of the banking sector + the governments currency liabilities to the public) - (Net Non-

monetary liabilities of the banking system other than time deposits). The RBI presentation of the data regarding the monetary aggregates has a wide coverage and thus can claim a great degree of transparency. For example, with its data on bank credit to the commercial sector it leaves scope for an analysis of the degree of endogeniety in money supply in the following manner. A comparison of the data of the actual credit disbursed which may be determined by real factors like demand for output etc., to the credit limits fixed, may help to relate the level of underutilization in case the credit disbursed is lower than the credit limit to an explanation regarding endogeniety of money supply. The money multiplier approach on the one hand assumes behavioral ratios like the currency deposit ratio and also holds them constant. Since the behavioral ratios assumed do not consider occurrences in the real sector[15] they explain the determinants of the money stock as found in the monetary sector alone. Therefore, unlike the claim put forth by S.B. Gupta (1976), that the RBI analysis "is not at all empirically meaningful" the RBI analysis remains, despite being an "ex-post analysis", a better alternative than its "substitute"[16] the money multiplier – based analysis as suggested by him; mostly so because the data used by S.B. Gupta for his money multiplier – based analysis was taken from the data presented by the Reserve Bank due to which if the latter could be called an ex-post analysis the former would also have to be so. The RBI analysis on the other hand, in the least, made allowance for a theoretical analysis of the determinants of money stock that are to be found in the real sector. As S.L.Shetty, V.A. Avadhani and K.A. Menon (1976),

[15] S.L.Shetty, V.A.Avadhani, K.A.Menon; "Money Supply Analysis - Further Comments; EPW, "The real factors for instance, in terms of current and prospective output and investment, are as much important in the demand for bank credit as the banks' desire and capacity to supply credit. Are there not instances when there is reluctance to take what banks give as credit for want of current or prospective activity on the real side?"

[16] Khatkhate (April 17, 1976)

pointed out, the determinants of money stock are to be found in the real and monetary sectors as well as in institutional structures and development viz. a complex interdependence between the independently given state of the economy and the monetary base on the one hand and the public's demand for currency, the ratio between the time and demand deposits and the portfolio-behaviour of the banking system on the other. Once this interdependence is recognized, a given numerical value of the multiplier speaks little about the money supply process and its determination. The RBI data on the money stock and reserve money, together lay the foundations for the calculations of the derived ratios like the narrow and the broad money multiplier, and the currency-deposit ratio and consequent analysis about the relative contributions of the multipliers and the changes in reserve money in the change in the stock of money[17]. Since the data used by S.B. Gupta was derived from the data presented by RBI, an ex-post money multiplier-based analysis as suggested by S.B. Gupta is also an "intrinsic part" of the RBI type of analysis.[18]

A money multiplier that is expected to help predict the money supply in the economy must be stable and therefore must assume the stability of the behavioral ratios on which it depends. It is this that requires the constancy of the currency – deposit ratio and the cash reserve ratio. This assumes that in order for the multiplier to operate, the banks must not hold excess reserves i.e. reserves in excess of the required cash reserve ratio (unless the magnitude of "excess reserve" is itself constant). Excess reserves are the idle balances with banks that earn no interest.[19] Therefore, banks

[17] Menon (October 8, 1988)
[18] Khatkhate (April 17, 1976)
[19] Report of The Committee to Review The Working of The Monetary System, 1985, RBI

would only maintain excess reserves when it is not possible for them to use those resources to advance loans at the institutionally given rate of interest i.e. when credit is demand constrained owing to a lack of borrowers who are willing to borrow at that rate. An inadequate demand for credit reduces the amount of loans advanced at each stage of the multiplier, whereby the multiplier process breaks down. A determination of the money supply through the multiplier process assumes the stability of the multiplier and thus cannot be determined tenable in the presence of excess reserves. Such a possibility has often been ruled out by monetary economists in India, who argue that the since credit planning and credit rationing are regularly undertaken in India, whereby the credit supplied is always demanded, the money stock is determined by the monetary authorities. C. Rangarajan and R.R. Arif (1990), argue that in the Indian context with an administered structure of interest rates with varying rates of interest for different activities, demand for credit is not a binding constraint. Moreover, the rates of interest charged on some activities are well below the market rates and the demand for credit at those rates of interest is highly elastic. "In fact, the Indian commercial banks do not voluntarily hold any excess reserves and whatever excess reserves they may be holding are involuntary, due to inadequate facilities for quick transmission of funds from far flung branches."[20]

Monetary targeting became explicit in India with the recommendation of the Sukhamoy Chakravarty committee report, 1986, where, recognizing the control of inflation to be the primary objective of monetary policy, the committee recommended that the RBI should adopt monetary targeting as an important monetary policy tool.

[20] Rangarajan and Arif (April 21, 1990)

Thus for the first time, the central government budget for 1987-88 set out the target of net Reserve Bank of India credit to the government as an important part of the targeting exercise.[21] Any monetary policy using monetary targeting as a tool uses the money multiplier as a determinant of the targeted money supply and therefore is consistent with the monetarist approach. The recommendation of the Chakravarty committee was however, a diluted version of the monetarist approach, since it recommended a "monetary targeting with a feedback", thereby taking into consideration a feedback from the real sector. This gave rise to a recommendation for a mid-year review of the monetary target. It was explained, that considering the importance of agriculture in the Indian economy, the credit targets need to be reviewed and modified, if necessary in the light of the size of the major Kharif crop. The difference between the recommended approach and the monetarist approach has been expressed by the committee, in these words "Unlike the use of a monetarist approach to targeting in which other sectors of the economy are expected to bear the burden of adjustment, monetary targeting with feedback as recommended by the committee is aimed at facilitating the smooth functioning of the others sectors of the economy." However, certain issues require attention in this context. First, especially in India, money is created because credit is advanced either to the government or the commercial sector. Credit availability in the production process has a positive impact on output. If the control of inflation is the main objective of the monetary policy, then it needs to be noted that the inflationary impact of all types of credit are not equal and depend on the end-use of credit. While some loans like crop loans are by nature self-liquidating, others like a term loan advanced to industry have a long gestation period.

[21] Mujumdar (August 26, 1989)

Therefore, control required on credit is implicitly a discretionary control depending on the sector that absorbs the credit. Second, there needs to be a correct estimation of the currency deposit ratio where the currency expansion in India depends to a large extent on the net take-off of the food grains from the public sector stocks.[22] Even if all this is taken care of, it is required for the sake of the stability and existence of the multiplier that credit is not demand constrained. Therefore, as explained earlier, for the behavioral ratios to remain stable, the level of excess reserves, which is an indicator of demand constrained credit must be nil. Excess reserves are however, only one of the indicators of a lack of worthy borrowers. Taking into consideration the entire portfolio of the banking system, it is possible that there would be accommodating changes in the other assets whereby the demand constraint on credit which leads to an underutilization of the resource available to banks gives rise to a compensating increase in assets other than the idle cash. This accommodation may occur in two ways – first, by an increase in the investments of the banks and second by the underutilization of the refinance facilities made available to them.

Section 3: Problems with the Multiplier

In case of a lack of worthy demand for credit i.e. demand for credit at the given institutional lending rate, the idle resources available with the banks can be used to make investments either in the government securities or in the private sector. The commercial banks in India are required to hold a certain portion of their assets in the form of government securities, over which they have no choice. However, in the case

[22] Mujumdar (August 26, 1989)

of demand-constrained credit, the idle resources that result from it can be used to buy government securities from the RBI in excess of the minimum requirement. It is this excess holding of government securities that then becomes an indicator of a lack of credit demand from worthy borrowers.[23] It is also possible that the idle resources arising from demand-constrained credit are utilized for investment in the private sector. In case such investment is made in the secondary market by which the investment occurs only in already existing financial assets, it only leads to a change in the portfolio of the economy and does not create fresh assets which would have been created if the resources had been used to advance loans. Therefore, investment in the private sector, at rates of interest lower than the lending rate would be another definite indicator of demand-constrained credit, taking into consideration the profit maximization objective of the banks. However, investment by commercial banks in private securities being empirically insignificant in India, such investment is not of major consequence as far as the restriction in the potential to create fresh assets is concerned. The investment of the banks in government securities in excess of the statutory holding of government securities then becomes an indicator of demand-constrained credit. Since the lack of demand for credit was the "root source" that leads to an instability in the behavioral ratio included in the multiplier whereby the multiplier is rendered unstable, the presence of excess investment that is sourced from the same demand-constrained credit will also hinder the working of the multiplier by rendering it unstable. Monetary targeting through the money multiplier would in that case not be feasible since the money multiplier becomes unstable. Money supply then becomes endogenously given by the demand for credit.

[23] Patnaik (April 14, 2001)

It is also possible that the demand constraint on credit is revealed by the presence of unutilized refinance with the banking system.[24] The banks in India are allowed a certain limit called the refinance limit against the total amount of credit disbursed, up to which they can borrow from the RBI in order that the supply of credit can readily respond to the available demand. In case there is not enough demand for credit, a direct repercussion on the banks would be to cease borrowing from the RBI thereby underutilizing the available refinance. The degree to which the refinance has been underutilized would also then become an indicator of demand-constrained credit and would by the same reasoning of the excess reserves and excess investment render the multiplier unstable. The presence of excess reserves, of excess investment, and of underutilized refinance are all indicators of demand-constrained credit and therefore the presence of any one or all of them renders the multiplier unstable. Monetary targeting, which assumes the stability of the multiplier on the basis of the stability of the behavioral ratios, becomes infeasible with an unstable multiplier arising out of demand-constrained credit. Therefore, monetary targeting which implicitly assumes an exogenous determination of money supply in the "policy-determined" sense, cannot be expected to work in the presence of factors arising due to a demand constrained credit. In that case the arguments like a budget deficit being essentially inflationary and monetary targeting being ipso facto a determination of real growth and unemployment, presented in the beginning of the chapter that are based on an exogeniety of money supply also cannot hold true in the presence of either an excess investment or an unutilized refinance. The empirical evidences relating to the investment of commercial banks in excess of the Statutory Liquidity Ratio and those

[24] Patnaik (1986)

relating to the involuntary maintenance of unutilized refinance by commercial banks have been presented and analyzed in the following chapters.

Chapter III

Unutilized Refinance – A Case for the Endogeniety of Supply of Money

Refinance is an assistance offered by the Reserve Bank of India to the banking system[1] to help expand their credit creating capacity. Being a part of the RBI credit to banks viz. a component of reserve money[2], a rise in the refinance advanced is an equivalent rise in the reserve (high-powered) money where such increase accrues directly and solely to the banking system. As a determinant of money supply, however, refinance becomes important when the resources otherwise available are insufficient to satisfy the credit requirements in the economy, whereby the resulting excess demand for credit necessitates recourse to a borrowing from the Reserve Bank in the form of an accommodation viz. refinance. In this case it is as if a certain volume of credit advanced has been made possible due to this "extra" resource available to the banks. Or, in other words, a certain number of monetary liabilities that have been created through the process of credit creation have come into existence due to the availability of the additional resource called 'refinance'. In such a case, a control of the quantity of refinance would restrain the credit advanced from the supply side thereby restraining the deposit liabilities created and thus controlling the money supply. The maximum amount of refinance that the banks are entitled to borrow is given by the refinance limit, which is fixed by the Reserve Bank. The banks are therefore entitled to borrow any amount of refinance lower than or equal to this limit, depending on their requirement, which is in turn given by the excess of the demand for credit in the economy over and above the amount that banks can supply without this borrowing.

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[1] The financial accommodation to the State co-operative Banks and Regional Rural Banks for agricultural as well as certain non-agricultural purposes were provided by the Reserve Bank prior to the inception of NABARD in July, 1982 and has been taken over by the NABARD thereafter.

[2] Reserve money = Net RBI Credit to Government + RBI credit to Banks + RBI credit to Commercial sector + Net Foreign Exchange Assets of RBI + Government's Currency Liabilities to the public Less Net non- monetary liabilities of RBI

Controlling banks' access to refinance is considered an effective instrument for credit regulation in India. Therefore, depending on the requirement to restrain the total supply of credit, the refinance limit itself or the access to this entitlement is restricted. The measures for restriction, include the fixing of a particular refinance limit, generally fixed as a certain percentage of the total credit advanced to a particular sector by the banking system, and the raising of the costs of such borrowings, where the costs would be progressively higher with larger amounts borrowed. The very fact that these measures exist, is proof of the assumption that the demand for credit is invariably greater than what can be served without the refinance accommodation, which is why this way of restricting additional credit-creating capacity restricts the actual credit disbursed. Implicit in the assumption about the effectiveness of the control on refinance is the fact that the banks' dependence on the RBI for accommodation is considerable. In other words, the banks must not be able to dilute such restriction by borrowing from other external sources like the call money market etc. However, in case the demand for credit is very large, which is the assumption made by the multiplier process refinance would remain an important source of borrowing even in the presence of other sources. A restriction in the refinance accommodation then would still restrict from the supply side, the amount of credit disbursed. In case credit is not demand-constrained, as refinance restriction measures presume, monetary targeting becomes feasible owing to the stability of the multiplier and the money supply can be presumed to be restricted by a policy measure, viz. by restricting refinance advanced. It is the truth of this statement that this chapter seeks to analyze. Therefore, it is also the purpose of this chapter to present and analyze the evidence available, on the one hand for the restrictive measures on the refinance

facilities (Section 1) and on the other for the utilization level of the refinance facilities that bear witness to the level of credit demand with respect to its supply (Section 2).

Section 1: Policy Measures

Refinance has been provided to the scheduled commercial banks, under different heads at different points in time of which food refinance, export credit refinance, stand-by refinance etc are examples. The quantity of refinance allowed under these heads has been fixed on the basis of the expected credit requirements in these sectors and on the basis of the policy directives that decide the sectors that ought to receive greater assistance in terms of credit advanced. In an effort to restrict the credit advanced, the regulations on the refinance allowed to banks have been imposed both by raising the cost of such accommodation and by regulating its availability against eligible assets. Accordingly, between October 1960 and September 1964, the Reserve Bank framed a quota cum slab interest rate system. The basic quota of refinance entitlement given to banks was equivalent to a specific percentage of the statutory cash reserve requirement up to which they could access at the bank rate. Beyond this, an additional quota equivalent to or larger than the basic quota was available but at a higher borrowing rate. A "special accommodation" beyond the second slab was available at the discretion of the RBI at a still higher rate of interest. While the escalated rate of interest tried to restrict credit availability by raising costs, the quota system did so through quantitative checks. However, since the quantitative checks were imposed on all banks irrespective of the asset distribution and thus their relative liquidity positions, and the interest rates were imposed irrespective of whether the banks could neutralize the higher costs by simultaneously raising the lending rates,

the effectiveness of this policy was undermined to a great extent. The intended constraint on the lending operations was considerably diluted[3].

A further evolution happened with the introduction of the concept of the "Net Liquidity Ratio"[4] whereby refinance would be allowed to banks at the Bank rate as long as the net liquidity ratio was at or above a prescribed norm. For every percentage point drop from the minimum ratio, the rate of interest charged would be progressively higher for the entire borrowing. The NLR norm (shown in the table below) and the penal interest rate in case the NLR dropped below the norm, were changed from time to time as per the requirements of the credit policy to be enforced.

TABLE 1:

The NLR Norms

Year	NLR
April 1970	From 31% - 32%
August 1970	From 32% - 33%
January 1971	From 33% - 34%
November 1972	From 34% - 36%
March 1973	From 36% - 37%
September 1973	From 37% - 38%

Source: "Report of The Committee To Review The Working Of The Monetary System, 1985

[3] "Report Of The Committee To Review The Working Of The Monetary System", 1985; RBI, Bombay
[4] The 'net liquidity ratio' was defined as the ratio of the banks aggregate cash balances with the Reserve Bank and other banks in the current account and all its investments in the approved securities, less its total borrowings from the RBI, State Bank of India and the IDBI to its total demand and time liabilities.

The essence of the working of such a system lay in the fact that in case borrowings of the bank from the RBI, SBI etc. were high, the net liquidity ratio would fall thereby constraining access to refinance by raising its cost. Thus total excess resources that the banks could garner and thus the total credit they could advance was regulated. Moreover, in case the approved securities held by the banks were sold back, in order that the liquidity so gained could be advanced as loans and demand deposits thus created, the NLR would fall again owing to a rise in the denominator and a fall in the numerator whereby the cost of further expansion of resources by borrowing would be restricted again. Between 1973 and 1974 however, further restrictions were imposed on commercial banks borrowing from the Reserve Bank with a view to restricting inflationary pressures. These pressures are believed to have resulted from large increases in bank credit, because of which the twin objectives of monetary policy were to have been undermined. Accordingly in 1973, the automatic access to refinance facilities within the NLR system, which strengthened the banks' borrowing capacities at or above the Bank Rate, was stopped. The normal facility of automatic borrowings from the RBI stipulated by the RBI Act 17, was restricted to a ceiling for each bank known as basic borrowing limits which varied between 1 and 2 per cent of the banks' total demand and time liabilities up to May 1974. Beyond this, the restriction was limited to 1% of the total liabilities. The NLR system was however discontinued from November 1975, after which the refinance accommodation apart from the basic refinance limit, and refinance for food procurement advances, was made at the discretion of the Reserve Bank with respect to the quantity, duration and the cost as given by the rate of interest charged. With a view to further the restriction, the automatic refinance quota of 1 per cent of total liabilities, was discontinued with

effect from July 1, 1978, and the RBI provided refinance facilities under stand by and discretionary arrangements for a maximum period of 3 days, to meet clearing imbalances. With effect from July 1980, this facility was made available only against the collateral of government securities and trustee securities, at a rate of interest lower than the discretionary rate. Refinance against food procurement credit and export credit, however was automatic beyond the stipulated threshold level, and the refinance as referred to so long was in addition to this. The major categories of credit for which refinance has been available are as follow:

1) **Food Credit Refinance** – Refinance under this category has been provided by the Reserve Bank since November 1970 beyond a threshold specified in terms of the outstanding level of food credit extended by them. The threshold for food credit refinance as well as the rate of interest on such facility was varied by the Reserve bank from time to time. Before this the food procurement operations was mostly met out of budgetary resources up to 1970. On a limited scale, financial accommodation was also provided by a few banks particularly the State Bank Of India and its associated banks, which in turn were provided refinance by the Reserve Bank at the Bank Rate. Since 1969, however, the Food Corporation of India has been mainly responsible for food procurement; initially the equity funds of the corporation and the loans given to it by the government financed this activity.

2) **Export Credit Refinance** – The Export Bills Credit Scheme was first introduced by the Reserve bank in March 1963 under which concessions were

given to banks in respect of their borrowings from the Reserve Bank against declarations of rupee usance export bills drawn in Indian rupees. Advances under this scheme were granted to scheduled banks against their promissory notes, repayable on demand or on the expiry of a fixed period not exceeding 180 days provided a written declaration was furnished by the borrowing bank stating that they had granted pre-shipment loans to exporters or that they hold export bills of value not less than the amount of advances obtained by them from the RBI. Under Post – Shipment Export Credit denominated in U.S. dollars, introduced in January 3, 1992, banks were eligible for export credit refinance limits equivalent to 133-1/3 of such credit provided by them to exporters. Effective the fortnight commencing April 13, 1996, banks are provided export credit refinance against rupee denominated and dollar denominated export credit taken together.

3) **182-Days Treasury Bill Refinance** – This was introduced with effect from April 1987. Under this facility, scheduled commercial banks are provided refinance by the Reserve Bank of India equivalent to 50 per cent of their holdings of 182-days Treasury Bills while the interest rate on refinance under this facility was 10 percent at the onset.

4) **Government Securities Refinance** – This refinance facility was introduced in October 1992 and under this facility, effective October 31, 1992, banks were granted refinance to the extent of 0.5 percent of the fortnightly average outstanding aggregate deposits in 1991-92 against the collateral of dated

Government and other approved securities at the rate of 14 per cent per annum. With a view to augmenting the resources available under the Government securities refinance facility and imparting liquidity to the excess holdings of Government and other approved securities, effective September 1995, the base year for determining refinance limits was brought forward from 1991-92 to 1994-95. Further the proportion of refinance was raised to one per cent of the fortnightly average outstanding aggregate deposits in 1994-95. The refinance limit was provided under two separate limits: a) 0.5% of the fortnightly average outstanding aggregate deposits in 1994-95 against the collateral of Treasury Bills at the rate of 12.55 per annum, and b) 0.5% of the fortnightly average outstanding aggregate deposits in 1994-95 against the collateral of Government dated and other approved securities at the rate of 14% per annum. This refinance scheme was terminated with effect from July 6, 1996.

5) **General Refinance** - This facility was started effective fortnight beginning April 26, 1997 with a view to moving from a sector-specific refinance facility to a general facility under which all scheduled commercial banks (excluding RRBs) would be provided general refinance equivalent to 1 per cent of each bank's fortnightly average outstanding aggregate deposits in 1996-97 in two blocks of four weeks each: at Bank Rate for the first four weeks and Bank Rate plus one percentage point for the second block of four weeks. Banks availing of this facility beyond eight weeks would face automatic debiting of their accounts with the Reserve Bank. Further, banks can avail of this facility

afresh if there is a gap of two weeks during which there is no borrowing under this facility.

6) **Special Liquidity Support Facility** – This facility was introduced effective September 17, 1998 and continued up to March 31, 1999 and has been extended intermittently in times of liquidity crises faced by banks.

7) **Collateralised Lending Facility (CLF) / Additional CLF** – This replaced General refinance facility with effect from April 21, 1999. This was available to banks at a portion of 0.25 per cent of the fortnightly average outstanding aggregate deposits in 1997-98 and for two weeks at the Bank rate. The provision of an additional facility called the additional collateralized lending facility, also of Rs. 1314 Crore at the Bank rate plus two percentage points was made. There was an imposition of a penal rate of 2 percentage points on CLF and ACLF availed for second block of two weeks. The stipulation of a two - week cooling period of 'availment' of CLF/ACLF by banks was removed with effect from October 6, 1999, while ACLF was withdrawn with the introduction of Liquidity adjustment Facility (LAF) effective June 5, 2000.

Throughout the period under which refinance has been offered under the above categories, various stipulations at various points in time were made with a view to regulating credit advanced. This was both on considerations of sector specific credit requirements and the overall need to regulate money supply. Certain stipulations regarding the refinance have been tabulated in Table 2 as examples.

TABLE 2:

Some of the Policy Measures implemented on Refinance to Scheduled Commercial Banks showing the attempts to regulate the use of refinance, depending on the category of refinance and time period for which it is borrowed

Category	Effective Date	Stipulation
Discretionary Refinance	February 17, 1989	Limits were reduced to 0.50% of the banks average deposits during 1986-87 as against the earlier limit of 1% of their average aggregate deposits for the same year.
Export Credit Refinance	November 4, 1989	Eligibility for export credit refinance had been made equivalent to 75% of the increase in the export credit over the monthly average for 1987 as compared to 100% of the increase over the monthly average for 1986 earlier.
Export credit Refinance – Denominated in US Dollars	April 9, 1995	As refinance limits under this category were very large and required moderation, the export refinance limits were further reduced to 70% of outstanding export credit provided by the banks under PSCFC to exporters as against 80% so long. Rate of interest on this facility was raised from 5.5% to 6.5% per annum effective April 18, 1995.
Special Liquidity Support Facility	December 1, 1999 to January 31, 2000	Introduced to enable banks to meet any unanticipated additional demand for liquidity in the context of century date change. Provision of liquidity to the extent of banks' excess holdings of Central Government dated securities/ Treasury bills over the required SLR at an interest rate of 2.5 percentage points over the Bank Rate.
Export Credit Refinance	April 1, 1999	Rate of interest: Increased from 7% to 8%.
Export Credit Refinance	March 23, 2001	The export credit refinance limits decreased from Rs. 10,579 crore i.e. 30.6% of outstanding export credit eligible for refinance at Rs. 34,576 crore as on March 24, 2000 to Rs. 7192 crore i.e. 18.5% of the outstanding export credit eligible for refinance at Rs. 38,765 crore as on March 23, 2001.

Source: Report on Trend and Progress of Banking in India, RBI

Section 2: Analysis of the Data

Any measure that has tried to regulate the amount of refinance by restraining its availability or access, must implicitly have presumed that without such restrictions, the demand for refinance would be very large, because of which restricting money supply to a non-inflationary level would be impossible. Such reasoning, as has been proved in chapter 1 has been drawn from the quantity theory rationale where, the rate of growth of output being constant, velocity of money remaining stable, a growth in nominal money supply in excess of output growth, leads to a rise in the price level. The growth in nominal money supply has been said to arise from a rise in the high-powered money inflated through the process of credit creation, by the multiplier. It therefore also presumes the smooth functioning of the multiplier that requires an unlimited demand for credit. The restriction on the amount of refinance seeks to restrain the money supply created by restricting the amount of resources allowed to the banks to meet such credit demand. The lower the resources, the lower the credit supplied, the lower the amount of monetary liabilities created through the multiplier process, which implies a lower money supply. The lending rates of the commercial banks being greater than the refinance rates whereby the cost of borrowing of the banks would always be covered in case they borrowed the amount to be lent out, the refinance under the above assumptions always ought to be completely exhausted. Therefore, a conclusion about supply-constrained credit can only be valid if the refinance facilities are fully utilized. The figures showing the refinance limit and the amount outstanding in Table 3, however suggest otherwise. It can be seen that there has been consistent underutilization of refinance throughout the period between 1983 and 2001.

TABLE 3:

RBI Accommodation to Scheduled Commercial Banks as on the Last reporting Friday of March

	Total Refinance (Rs. Crore)			
Last Friday of -	Limit	Outstanding	Unutilised	Unutilised (%)
March 1983	678.20	457.00	221.20	32.6
June 1983	1287.70	146.30	1141.40	88.6
March 1984	1362.50	939.50	423.00	31.0
June 1984	2744.40	1364.50	1379.90	50.3
March 1985	2184.20	1150.20	1034.00	47.3
June 1985	2753.30	916.10	1837.20	66.7
March 1986	787.30	629.20	158.10	20.1
June 1986	1292.50	103.20	1189.30	92.0
March 1987	1353.10	995.10	368.00	27.0
June 1987	1846.80	343.40	1503.40	81.4
March 1988	2791.10	1511.80	1279.30	45.8
June 1988	2972.30	425.50	2546.80	85.7
March 1989	3591.80	3314.00	277.80	7.7
June 1989	4973.60	1987.80	2985.80	60.0
March 1990	4249.90	2221.10	2028.80	47.7
June 1990	4992.00	2347.50	2644.50	53.0
March 1991	7565.98	3346.22	4219.76	55.8
June 1991	8209.22	6014.31	2194.91	26.7
March 1992	5594.31	494.87	5099.44	91.2
June 1992	7163.94	1531.83	5632.11	78.6
March 1993	11429.58	1550.20	9879.38	86.4
June 1993	12255.24	537.53	11717.71	95.6
March 1994	9740.61	1783.59	7957.02	81.7
June 1994	8457.31	1854.93	6602.38	78.1
March 1995	10423.07	7398.31	3024.76	29.0
June 1995	10396.06	6875.26	3520.80	33.9
March 1996	17526.71	4844.71	12682.00	72.4
June 1996	16429.30	2497.39	13931.91	84.8
March 1997	6654.40	559.97	6094.43	91.6
June 1997	7214.68	282.07	6932.61	96.1
March 1998	3517.98	394.63	3123.35	88.8
June 1998	6494.85	755.45	5739.40	88.4
March 1999	11619.31	2893.80	8725.51	75.1
June 1999	11179.12	3863.21	7315.91	65.4
March 2000	13606.78	6490.96	7115.82	52.3
June 2000	12986.81	8712.61	4274.20	32.9
March 2001	8248.79	3891.82	4356.97	52.8
June 2001	10740.84	3616.03	7124.81	66.3

Source : Report On Trend and Progress Of Banking In India, 1983-84 to 2001-02

Therefore, the amount outstanding could have remained the same even with a lower limit of the refinance available. This denies the assumption that a decrease in the refinance limit serves to restrain the actual amount of credit that is advanced by virtue of the availability of this resource. Further, the figures also reveal a seasonality bias[5], whereby the month of March representing the busy season almost in all the years, show higher utilization, i.e., lower underutilization than the month of June i.e. the slack season of the same year. This has however generally been not only a resultant of a higher amount outstanding but also a lower limit allowed in the month of March as compared to that in June of the same year. Therefore, not only is the refinance limit not the binding constraint it is also not plausible that the amount of refinance advanced is positively related to the magnitude of the limit. Thus the positive relation between the credit creating capacity (a part of which is accounted for by the refinance limit) and the actual credit disbursed (a part of which is indicated by the amount of refinance advanced) does not hold in this case. The actual amount outstanding, of the refinance therefore must be determined by some factor apart from the refinance limit. This becomes more explicit in table 4, which shows the simple growth rates of the refinance limits and the amount outstanding. To support the claim that the credit creating capacity has the stronger impact on the actual credit disbursed, one could argue in three stages. First, and strongest of all the arguments is that the refinance limit must be completely exhausted by the amount outstanding, if there is unlimited credit demand, given that the refinance rates are lower than the lending rates. In this

[5] Busy season is the period between November and April while the slack season is the period between May and October.

TABLE 4:

A comparison between the percentage variation of Refinance limit and amount outstanding between two consecutive periods under consideration

Last Friday of	Refinance Limit	Amount Outstanding	Growth rate of the Refinance Limit (%)	Growth rate of the amount outstanding (%)
March 1983	678.20	457.00		
June 1983	1287.70	146.30	89.90	-68.0
March 1984	1362.50	939.50	5.80	542.2
June 1984	2744.40	1364.50	101.40	45.2
March 1985	2184.20	1150.20	-20.40	-15.7
June 1985	2753.30	916.10	26.10	-20.4
March 1986	787.30	629.20	-71.40	-31.3
June 1986	1292.50	103.20	64.20	-83.6
March 1987	1353.10	995.10	5.50	864.2
June 1987	1846.80	343.40	35.50	-65.5
March 1988	2791.10	1511.80	51.10	340.2
June 1988	2972.30	425.50	6.50	-71.9
March 1989	3591.80	3314.00	20.80	678.8
June 1989	4973.60	1987.80	38.50	-40.0
March 1990	4249.90	2221.10	-14.60	11.7
June 1990	4992.00	2347.50	17.50	5.7
March 1991	7565.98	3346.22	51.60	42.5
June 1991	8209.22	6014.31	8.50	79.7
March 1992	5594.31	494.87	-31.90	-91.8
June 1992	7163.94	1531.83	28.10	209.5
March 1993	11429.58	1550.20	59.50	1.2
June 1993	12255.24	537.53	7.20	-65.3
March 1994	9740.61	1783.59	-20.50	231.8
June 1994	8457.31	1854.93	-13.20	4.0
March 1995	10423.07	7398.31	23.20	298.8
June 1995	10396.06	6875.26	-0.30	-7.1
March 1996	17526.71	4844.71	68.60	-29.5
June 1996	16429.30	2497.39	-6.30	-48.5
March 1997	6654.40	559.97	59.50	-77.6
June 1997	7214.68	282.07	8.40	-49.6
March 1998	3517.98	394.63	-51.20	39.9
June 1998	6494.85	755.45	84.60	91.4
March 1999	11619.31	2893.80	78.90	283.1
June 1999	11179.12	3863.21	-3.80	33.5
March 2000	13606.78	6490.96	21.70	68.0
June 2000	12986.81	8712.61	-4.60	34.2
March 2001	8248.79	3891.82	-36.50	-55.3
June 2001	10740.84	3616.03	30.20	-7.1

Source: Calculated from "Report on Trend and Progress of Banking in India"

case the credit disbursed is determined by the refinance limit, which becomes the binding constraint.

This has already been negated on the basis of table 3. Second, if the first argument has failed, then it must at least be true that the extent of change in the two is equal so that they are incrementally balanced. In this case it can be argued that even though the magnitude of the two are not equal, it is the increase / decrease of the refinance limit that has caused an increase / decrease in the amount outstanding to the same extent. Third, if none of the above is true, then at least the weakest argument, namely, that the direction of change in the magnitude of the refinance limit and the amount outstanding is *similar*, must hold. In this case it could be argued that even though the refinance limit is not the binding constraint, the fact that it has increased or decreased has an impact on the amount outstanding. Therefore the liquidity position of the banks determined by the refinance limit, allows them to disburse more credit of which the amount of refinance outstanding is an indicator. A restriction in the refinance limit then would restrict the amount outstanding owing to a reduced liquidity position of the banks. The direction of the change in the refinance limit and the corresponding change in the amount outstanding as shown in table 4, do not coincide with each other. For example, in June 1983, the amount outstanding decreases by 68 percentage points while the limit has increased by approximately 90 percentage points. Similarly, in June 1994, the limit has decreased by 13.2 percentage points, which the amount outstanding has increased by 4 percentage points. Clearly, it cannot be argued that a decrease / increase in the limit was required to increase / decrease the amount outstanding. In this case, the increase or decrease in the latter must have been

determined by some factor other than the limit. The third and the weakest of the series of arguments therefore does not hold true. Further, in cases where the limit and the amount outstanding have moved in the same direction, the magnitudes of change in the two have been significantly different. It cannot be argued, for example with the figures in March 1987 that the amount outstanding increased by 864.2 percentage points over the previous season, due to a rise of 5.5 percentage points in the limit allowed. It cannot on the other hand be claimed, with the figures in March 1993, that the refinance limit had to rise by 59.5 percentage points to allow for a rise in the amount outstanding to the extent of 1.2 percent, unless the limit in the previous year was smaller than the amount outstanding, which is impossible. On the whole, it cannot be argued that the amount of refinance outstanding has been given from the supply side by the refinance limit. The extent of the amount outstanding then must have been determined by some other factor, which with the lending rates being higher than the refinance rates must be the demand for credit.

It could however be claimed, that the cases where the changes in the limit and the amount outstanding move in opposite directions should not be considered for an argument, since most of the negative variation in the amount outstanding with a positive corresponding variation in the limit occur in the month of June. Since the base for calculation in these cases is the busy season of March, it is obvious that the amount outstanding would decrease. While this is true, it still does not negate the fact that the lower amount outstanding has not resulted from the supply of the refinance. The seasonality factor undoubtedly influences the amount outstanding, but this

necessarily occurs through the influence of the seasonality factor on the demand for credit.

The amount of refinance outstanding then must be independent of the refinance limit and consequently be dependent on some other factor. If the refinance limit can be taken as reflecting the state of supply of credit and the amount outstanding as reflective of the actual credit disbursed, then with

Actual Credit Disbursed = Minimum (Potential Supply of Credit, Demand for Credit),

the amount outstanding refinance must be given by the minimum of the refinance available and the demand for refinance arising from the demand for credit. According to the tables, the amount outstanding has consistently been lower than the refinance available as given by the refinance limit. Therefore, it must have been determined by the lower value viz. the demand for refinance arising from the demand for credit.

The lack of dependence of the outstanding amount of refinance on the limit allowed can be shown also by calculating the standard deviation of the two sets of figures. The standard deviation calculated has yielded a higher value for the limits than for the amounts outstanding, thereby rendering the latter more consistent about an average. In case the supply of refinance were the binding constraint, then the amount outstanding ought to have responded readily to the fluctuations in it. Further, if some of the deviation in the amounts outstanding can be explained away by the seasonality factor by making adjustments in the figures (i.e. positive adjustments for slack and / or negative adjustments for the busy season) then the adjusted figures would yield a still smaller standard deviation. Since the seasonality factor is a determinant of the volume of demand for credit, the adjustments for slack and busy seasons would smoothen the

fluctuations in the amount of refinance outstanding that arise due to the fluctuations in the demand for credit. The resulting adjusted figures having a lower standard deviation would be more independent of the supply than the unadjusted figures. The standard deviation being different for the refinance limits and the amount of refinance outstanding, no matter which one is higher / lower is itself an indication of the mutual independence of the figures. If the two sets of figures are independently determined, it must be the case that the amounts outstanding have been determined by credit disbursed, which has not been restricted by the amount supplied and therefore must have been given by demand for it. The difference in the standard deviations then is by itself an indication of demand- constrained credit. The argument for credit being supply constrained is further weakened in that case. In case the unutilized refinance were utilized (table 5) to advance credit, they could have created monetary liabilities, to the extent of the 'unutilized refinance times the multiplier'. In other words, such monetary liabilities that could have been created through the multiplier process in case there was demand for credit advanced at each stage of the multiplier at the given interest rate, have been sacrificed due to the underutilization of refinance. This amount of potential money supply has thus been restricted due to a lack of demand for credit that has in turn restricted the amount of credit disbursed, thereby restricting the money supply. Underutilization of refinance that has already been shown as resultant of a demand-constrained credit, has now also been shown as a potential creator of additional monetary liabilities. The presence of unwanted excess cash reserves is an indicator of demand-constrained credit because it arises from the lack of demand for credit at each stage of the multiplier whereby the multiplier process eventually breaks down. The presence of unutilized refinance on the other hand is an indicator of demand-constrained credit because the banks use less of the available resource or

TABLE 5:

Additional Monetary Liabilities that could be Potentially Created by the Amount of Unutilized Refinance

Year	Unutilized Refinance (Rs. Crores)	Unmade liabilities = (Unutilised refinance)(1/CRR) (Rs. Crores)	Potential Increase in Monetary Liabilities as percentage of NTDL[1]
March 1983	221.20	3160.0	5.80
June 1983	1141.40	15218.7	26.75
March 1984	423.00	4700.0	7.11
June 1984	1379.90	15332.2	21.66
March 1985	1034.00	11488.9	14.51
June 1985	1837.20	20413.3	24.20
March 1986	158.10	1756.7	1.91
June 1986	1189.30	13214.4	-
March 1987	368.00	3873.7	3.52
June 1987	1503.40	15825.3	13.62
March 1988	1279.30	12793.0	10.06
June 1988	2546.80	25468.0	18.77
March 1989	277.80	2525.5	1.68
June 1989	2985.80	27143.6	16.86
March 1990	2028.80	13525.3	7.50
June 1990	2644.50	17630.0	9.39
March 1991	4219.76	28131.7	13.62
June 1991	2194.91	14632.7	6.87
March 1992	5099.44	33996.3	13.89
June 1992	5632.11	37547.4	14.52
March 1993	9879.38	65862.5	22.98
June 1993	11717.71	83697.9	-
March 1994	7957.02	56835.9	16.83
June 1994	6602.38	45533.7	-
March 1995	3024.76	20165.1	4.87
June 1995	3520.80	23472.0	5.68
March 1996	12682.00	90585.7	19.52
June 1996	13931.91	107168.5	22.29
March 1997	6094.43	60944.3	11.24
June 1997	6932.61	69326.1	12.27
March 1998	3123.35	29746.2	4.54
June 1998	5739.40	57394.0	8.44
March 1999	8725.51	83100.1	10.58
June 1999	7315.91	73159.1	9.06
March 2000	7115.82	79064.7	8.30
June 2000	4274.20	53427.5	5.62
March 2001	4356.97	54462.1	4.91
June 2001	7124.81	94997.5	-

Source: Calculated from "Report on Trend and Progress of Banking in India and "Handbook of Statistics On Indian Economy, 2001, RBI."

[1] NDTL i.e. Net Demand and Time Liabilities of the commercial banks are calculated from the as follows: Liability to Others + (Inter-bank liabilities – Inter-bank assets); wherever inter-bank assets have been greater than inter-bank liabilities, such excesses have been neglected for the calculation of NDTL in keeping with the system for calculation as given in the "Report of the Committee to Review the Working of The Monetary System, 1985; p – 246. The CRR used for the calculation of the potential monetary liabilities, are without the additional requirements as implemented from time to time. Where the percentage increase in the monetary liabilities has not been calculated, it is due to the unavailability of NDTL data as on those dates.

return part of the borrowed amount back to the RBI owing to lack of credit absorption. In both cases the amount of resource of the banking system circulating in the economy is lower than the amount that could have circulated had there been a worthy demand for it. Both instances therefore are indicators of a lack of credit demand at the given interest rate and therefore make a case for the infeasibility of monetary targeting through the multiplier process. The rationale for the regulation of refinance, which is to restrict credit advanced from the supply side and the rationale for the presence of unutilized refinance, which is the lack of demand for credit therefore suggest that the regulation of refinance limit is not ipso facto a restriction on the demand for credit.

Chapter IV

Excess Investment in Government Securities – A Second Case for the Endogeniety of Supply of Money

Unutilized refinance in the previous chapter has been adduced as an instance that results from the lack of adequate demand for credit at the institutionally given lending rate. Therefore, it had been concluded that the presence of unutilized refinance contradicts the assumption that credit is supply-constrained and consequently makes a case for the infeasibility of monetary targeting through the multiplier process. Unutilized refinance is however, only one indicator of inadequate credit demand. A rise in the investments of the banking system, in case it arises from the same, can be considered a second indicator. Investment and credit both figuring on the asset side of the balance sheet of banks and are alternative uses of the resources available with the them. Thus, an increase in the investments can be cited in support of any one of the following arguments. First, the investments increased because the banks *chose* to utilize their resources for investment in order to *avoid* catering to the demand for credit because of which credit is supply constrained. Second, the investments were *bound* to rise in order to utilize the resources available with the banks that could not be advanced as credit because there were "no worthwhile takers" on the terms at which the banks were willing to lend them. In the first case, since the choice to invest is the banks' decision, independent of a policy implementation by the Central Bank, it must be determined by their optimal portfolio decision. This would require the rates of interest net of risk earned by the banks from these investments to be higher than those earned from the loans advanced. In the second case, the rising investments become an indicator of demand-constrained credit and, by the same reasoning as in the case of unutilized refinance, negate the working of the multiplier process. The purpose of this chapter is to analyze the validity of these arguments in the light of the available empirical evidence. While the first section lays down the premise for the arguments with the empirical presentation of the relative

weights of credit and investments in the banks' asset portfolio, the second and third sections analyze the arguments on the basis of these figures.

Section 1: Shares of Investment and Credit in the Banking Portfolio

Table 1, shows the investment-deposit ratios and the credit-deposit ratios of the commercial banks in India through the period between the years 1983 and 2001. The figures reveal a steady decline in the credit-deposit ratio and a more than compensating rise in the total investment-deposit ratio where total investments include the entire investment portfolio of the banks. It is therefore the summation of investments in government and approved securities as well as those in the private sector. Clearly then, there has been a preference for investments as a whole over loans advanced as a mode of utilization of the resources available with the banks. Further, the ratio of the investments in government and approved securities to deposits is seen to account for a large portion, i.e., more than three-fourths of the total investment-deposit ratio. The question remains as to whether this increase in investments at the cost of credit advanced has been a choice on the part of the banking system or a compulsion. While a choice would result from the portfolio decision of the banks, the compulsion would result either from the policy end, which is a supply side constraint or from the demand end, which is a demand side constraint. Since the government and approved securities have accounted for most of the rise in investments, it is possible that these holdings are a requirement as per the policy enforced by the Reserve Bank as a measure to restrict the resources that may be used to advance credit. In that case a major part of the investments result from a compulsion on the banks, owing to specific policy measures than from the borrowers' end. The former would be a supply side constraint of credit.

TABLE 1*:

Investment and Credit Deposit ratios of Scheduled Commercial Banks

Years	Investment Deposit Ratio[1] (%)	Credit Deposit Ratio (%)	Total Investment Deposit Ratio[2] (%)
1971	23.1	79.3	-
1972	23.2	74.1	-
1973	25.0	70.8	-
1974	25.3	73.0	-
1975	23.9	74.1	-
1976	32.5	76.8	-
1977	31.5	75.0	-
1978	35.6	67.3	36.7
1979	33.7	65.9	34.0
1980	33.4	67.8	34.3
1981	34.7	66.8	35.2
1982	34.6	67.9	34.7
1983	35.7	69.1	35.9
1984	35.1	68.2	36.1
1985	35.8	65.7	35.9
1986	35.8	65.7	37.7
1987	37.6	61.6	39.7
1988	39.4	59.5	42.1
1989	39.0	60.5	42.4
1990	38.6	60.8	41.5
1991	39.0	60.4	41.7
1992	39.1	54.4	43.3
1993	39.3	56.6	45.0
1994	42.1	52.2	49.8
1995	38.6	54.7	45.6
1996	38.0	58.6	44.5
1997	37.7	55.1	47.2
1998	36.5	54.1	46.2
1999	35.7	51.7	46.0
2000	38.0	53.6	47.3
2001	38.5	53.1	-

Sources : Report on Currency and Finance, Report on Trend and Progress of Banking in India, Statistical Tables Relating to Banks in India and Handbook of Statistics On Indian Economy, 2001

* The data on investment and credit pertain to the Last Friday of March.

[1] Investment includes Government and Approved securities only

[2] Total investments include the entire investment portfolio; Data up to 1977 were unavailable. These data are mostly as on March, 31 and so not exactly comparable to that of investment and credit. However, since we are concerned only with the trends, this should not matter.

It is therefore useful to look at these figures against the stipulation regarding the holding of these securities, i.e., the Statutory Liquidity Ratio, as given the Reserve Bank.

Section 2:

i) The Statutory Liquidity Ratio

The Central bank generally requires the commercial banks to hold liquid assets such as government securities against their deposit liabilities in addition to a cash reserve requirement, which is known as supplementary or secondary reserve requirement.[1] This measure mainly serves the purpose of creating or supporting a market for government securities in economies, which do not have a developed capital market and also looks after the interest of the banks to the extent that it assures the solvency of commercial banks by compelling them to hold low risk assets up to the stipulated extent. Most importantly, the imposition of such a requirement that creates a captive market for government securities prevents the banks from disinvesting the government securities in favour of commercial credit even where there is an incentive in the form of *sufficiently* higher rates of interest offered by the latter. In India, the secondary reserves are prescribed by the Banking Regulation Act 1949, under which the banks are to maintain, at the close of business everyday, a minimum proportion of their demand and time liabilities as liquid assets in the form of cash, gold and unencumbered securities. This ratio of liquid assets to demand and time liabilities in India is known as the Statutory Liquidity Ratio (SLR). The level of SLR, which was stipulated in the Banking Regulation Act was a minimum of 25% to be maintained on any day and has been

[1] Report of The Committee to Review The Working of The Monetary System, 1985, RBI

increased for scheduled commercial banks from time to time through Reserve Bank policy announcements particularly since 1970. With the amendment to the banking Regulation Act in 1983, the Reserve Bank is empowered to increase the SLR for Scheduled Commercial banks up to 40%. The highest SLR imposed upon the scheduled commercial banks till the year 2001, was 38.5% effective between September 22, 1990 and January 9, 1993. Effective February 29, 1992, while the SLR was imposed on the net demand and time liabilities as on April 3, 1992, there was an additional requirement of 30% SLR on the increase on net demand and time liabilities over the level on April 3, 1992. The components included in the calculation of the SLR as imposed on the scheduled commercial banks, are explained as follows.

1. Cash – including 'cash in hand', balances in the current account with the State Bank of India and notified banks as subsidiaries of SBI, nationalized banks and balances with the Reserve Bank in excess of the amount required to be maintained on account of the stipulated Cash Reserve Ratio (including the additional required reserves if applicable).
2. Government Securities – including the Central and Sate Government securities, Postal Savings Deposit Certificates etc.
3. Approved Securities – including securities as approved for the purpose of investment under the Indian Trusts Act, 1882, which enjoy the guarantee of the government with regard to the payment of the principal and interest. Important approved securities in the portfolio of the banks are the bonds of IDBI, IFCI, NABARD, and the share capital of RRBs, subscription of debentures of co-operative institutions, State Electricity Boards and State Transport Corporations.

4. The demand and time liabilities as applicable to the Scheduled Commercial banks include all liabilities except paid-up capital and reserves, borrowings from the Reserve Bank, IDBI and NABARD. Effective March 29, 1985 however the liabilities calculated are on a net basis, whereby the net demand and time liabilities is the summation of the liability to others and the excess of the inter-bank liabilities over the inter-bank assets. Where the inter-bank assets have been greater, as in March 1989, March and June 1992 etc., *such excess is neglected for the purpose of the calculation.*[2]

ii) Observations Regarding the Investment Ratios As Against the SLR Requirements

Table 2 presents the ratio of the various components of the assets included in the calculation of the SLR to the demand and time liabilities of the commercial banks. However, none of the ratios include the complete set of such assets. Therefore, a shortfall of holding of SLR securities as compared with the SLR requirements cannot be concluded from this table. The relevant shortage in no year exceeds 2.6 percentage points and generally hovers around an average of 1.1 percent, which can be expected to be compensated for by the rest of the components i.e. current account balances in nationalized banks and possible excess reserves in some years. This however does not hinder the purpose of the data as related to the argument. The largest portion of the SLR securities has been accounted for by the Government and approved securities. Of the latter, the Government securities account for the larger part i.e. three-fourths of it. Beginning from the year 1994, the ratio of the sum of the cash in hand, government and

[2] Report of The Committee to Review The Working of The Monetary System, 1985, RBI

approved securities to the total liabilities are larger than the SLR requirement as on that date by amounts exceeding 5 percentage points. Most significantly, by 1998, the ratio of the government securities to total liabilities is greater than the SLR. Given the fact that the rates of interest on the government securities have been consistently lower than the lending rates, there can be no explanation as to why the banks would rather hold excess government securities (i.e. in excess of the SLR requirement) than advance credit with the same resources. A decision to hold government securities with the available resources instead of lending them out and thereby resigning to a lower interest return than that which could have earned though the loan advances cannot come forth from a profit maximizing portfolio decision of the banks. Therefore, it can be presumed that these excess securities in the banking portfolio are not a matter of choice for the banks' but indicators of inadequate credit demand. This means that with inadequate absorption of the resources by credit demand, the investment in government securities has been resorted to as a second alternative for utilization of these resources. It has therefore been proved, that the extent of investment of the banks in the government securities has neither been enforced from the policy end by the SLR requirement, nor has it been a resultant of a profit-maximizing behaviour of the banks. Both of these i.e. the institutionally given SLR and portfolio choice of the banks, could be accepted as supply side constraints of credit and would be included in the multiplier as behavioural ratios that are held constant; but the constraint in this case has arisen from the demand end and has merely expressed itself in terms of the holding of excess government securities.

It could however, be pointed out that with an availability of additional facilities to enhance the credit creating capacity, such as refinance and call money market borrowing,

TABLE 2:

Comparison of the various components of SLR securities as a ratio of total liabilities with the SLR

Last Friday of March	SLR (%)	Ratio of Government, Approved securities and cash in hand to Total Liabilities[3] (%)	Ratio of Government and Approved securities to Total Liabilities (%)	Ratio of Government securities to Total Liabilities (%)
1971	28.00	30.7	28.0	21.6
1972	28.00	31.0	28.6	22.6
1973	30.00	33.4	31.0	23.1
1974	32.00	32.2	30.0	21.5
1975	33.00	32.8	30.5	22.0
1976	33.00	31.9	30.0	21.4
1977	33.00	30.8	28.9	20.5
1978	33.00	34.8	32.9	24.6
1979	34.00	33.0	31.1	22.6
1980	34.00	32.6	30.8	21.6
1981	34.00	33.6	31.7	22.2
1982	35.00	33.5	31.8	21.3
1983	35.00	34.1	32.5	21.4
1984	35.00	32.4	31.0	19.7
1985	36.00	36.8	35.5	23.6
1986	37.00	34.4	33.1	20.7
1987	37.00	36.1	35.1	22.6
1988	38.00	37.6	36.6	23.9
1989	38.00	37.2	36.3	23.7
1990	38.00	36.6	35.7	23.4
1991	38.50	37.2	36.4	24.2
1992	38.50	37.7	36.9	25.6
1993	37.75	37.7	36.9	26.5
1994	34.75	39.9	39.3	29.9
1995	31.50	36.8	36.1	28.4
1996	31.50	36.2	35.5	28.5
1997	31.50	35.8	35.1	29.3
1998	25.00	34.0	33.4	28.6
1999	25.00	33.0	32.4	28.4
2000	25.00	33.0	32.4	29.2
2001	25.00	35.1	34.6	31.8

Source : Calculated from 'Handbook of Statistics On Indian Economy, 2001'; RBI and 'RBI Annual Report'

[3] All the ratios to liabilities have been calculated on the gross demand and time liabilities up to March 1984 and on net demand and time liabilities thereafter in keeping with the SLR regulations mentioned above. The SLR data on March 1992, 93, would require, to be exact, the NDTL as on April 3, 1992 but has not been so adjusted due to unavailability of data as on that date. Further March 1994 would require the NDTL as September 17, 1993 and an additional 30% SLR calculated on the increase in NDTL over September 17, 1993 which has also not been done due to unavailability of data. March 1995, 1996 and 1997 require the SLR to be calculated on the NDTL as on September 30, 1994 and an additional SLR of 25% on the incremental NDTL over that date. The security ratios however have been calculated on a higher value of NDTL i.e. as on the last Friday of March. Apart from the additional requirements, the NDTL as on a latter date (viz. higher than a previous date) would not harm our argument.

it is possible that the banks are faced with excess credit creating capacity after having completely satisfied the credit demand. Therefore, these excess resources at the disposal of the banks can be profitably utilized by making investments. This counter argument in fact supports the basic argument of the paper, but on premises that are slightly different. It supports the paper by denying that credit is supply-constrained with respect to the demand for it, which is the central argument of the paper. However, it suggests this on the assumption that all credit demand in the economy has been satisfied which is implausible in an economy like the Indian economy, which is characteristically credit starved. So, the argument may hold true only on the premise that the supply of credit creating capacity exceeds that demand for credit from "worthwhile" borrowers which is available at the given interest rate. Therefore, it is true that credit is demand constrained but it is the "worthy" demand for credit that is the binding constraint, which means that the number of borrowers willing to borrow at the institutionally given lending rate is limited. In that case, the excess holding of SLR securities has neither been made possible by a profit maximizing portfolio choice, nor has it resulted due to a credit creating capacity in excess of the demand for credit in the economy regardless of the "credit worthiness". The obvious explanation is that the banks hold excess SLR securities owing to the credit creating capacity in excess of the "satisfiable", i.e., "worthy" demand for credit.

Section 3: Analysis of the Composition of the Investment Portfolio

A further analysis of the investment portfolio of the commercial banks, (Table 3) clarifies the reason behind the holding of excess government securities. The investment in government securities accounts for a major fraction of the total investments of the

TABLE 3:

Share of Government Securities in total investments by Scheduled Commercial Banks

As on the 31st of March	Investment by the Indian offices of the Scheduled Commercial Banks in Government securities (Rs. Crores)	Total Investment by the Indian offices of the Scheduled Commercial Banks (Rs. Crores)	Share of investment of Government Securities to total investment (%)
1983	11268	17749	63
1984	13492	21614	62
1985	15661	25413	62
1986	19960	31902	63
1987	25826	40555	64
1988	31087	49087	63
1989	37504	58759	64
1990	43942	68530	64
1991	51582	79454	65
1992	64418	988916	65
1993	78764	119742	66
1994	108589	155812	70
1995	120860	174146	69
1996	135980	190233	71
1997	167495	232970	72
1998	189893	271219	70
1999	230687	325971	71
2000	284583	395869	72

Source: Calculated from 'Statistical Tables Relating to Banks in India'

banks' investment portfolio and its share has risen by about ten percentage points between the years 1984 and 2000. Such investments in government securities have been shown to be in excess of the SLR requirements. Therefore it requires justification as to the reason why the banks should rather invest excessively in government securities than in securities in the private sector i.e. the non-SLR / non-approved securities[4]. The most common argument that could be put forward is that the government securities are generally highly rewarding in terms of real interest rates offered, in addition to the lower risk that accompanies government securities. Consistent with this is the statement that has come forth from the RBI: "It is observed that there was a clear preference for the Indian Government securities, especially Central government securities in the investment choice of the banks in India".[5] If this is true, then such luring of the investments of banks by the Government to its favour and away from the private sector would be to detriment of the latter and therefore cannot be reasoned out as a deliberate policy measure. Therefore, an argument for a *choice of investment in government securities over that in private securities* cannot be accepted as logically tenable.

Further, since the use of resources with the banking sector in advancing loans would call forth a multiplier process, a one unit sacrifice in the government securities that increases the resources in the hands of the banking system by one unit, would through the multiplier, enable the banks to create credit for the private sector to a much larger extent. This however, would be true, provided there was an adequate number of 'takers' to sustain the multiplier process. If the interest rate earned on the government securities was

[4] Non-approved investments are investments that are not calculated for the asset aggregation of the SLR. Some such investments are those in UTI units, investments in Mutual fund, initial contribution to the Share capital of UTI etc.

[5] "Investments of Scheduled Commercial Banks (part 1 of 4), as on March 31", 2001 in the RBI website

'r' and that earned on investment in the private sector was 'i', then with interest rate sacrificed due to the sacrifice of one unit of government securities, the banking system could potentially gain '(1/CRR) times i' (assuming the multiplier to be given by the reciprocal of the cash reserve ratio i.e. the CRR) owing to the credit advances in the private sector[6]. With the CRR figuring at 10 per cent in the year 1996 when the share of government securities crossed 70 per cent of the investments, the interest rate earned with a unit sacrifice of the government securities would be '10i'[7] in the above manner and even greater in the year 2000, when the CRR reduced to 8%. Thus on assumptions of an infinite demand for credit excess holding of government securities by the banking system cannot be justified. The only remaining justification that rationalizes the increasing acceptance of government securities by the scheduled commercial banks is then the fact that with constrained "worthy" demand for credit the resulting excess liquidity available with the banks found a refuge in governments securities which in that case were the 'last resort' rather than objects of 'primary choice'. With such revelation of excess liquidity available with the banking system an argument about a supply-constrained credit cannot hold.

[6] Prabhat Patnaik, "On Fiscal Deficits and Real Interest rates", EPW, April 14, 2001

[7] Unless 'i' is so small that it is less than or equal to 1/10 of 'r', the net gain from the sacrifice of a unit of government securities is positive.

Chapter V

An Econometric Study

It has so long been argued that the presence of any one or both of unutilized refinance and excess investment in government securities indicates a situation of demand-constrained credit. This argument was based on the idea that the resources available with banks that were rendered idle owing to lack of absorption as credit were either utilized by investing in government securities or were returned to the Central Bank as repayment of loans viz. refinance. Therefore both resulted from the availability of idle resources that were rendered idle owing to a lack of sufficient demand for credit. In case of the presence of any one of these indicators, therefore, it can be concluded that the banks are not 'fully stretched' for funds and thus are burdened with excess liquidity. A correlation analysis carried out between the ratio of investment in government securities to net demand and time liabilities (gindtl) and the ratio of unutilized refinance to refinance limit (urrl) has shown that the two move in the same direction in most of the periods. The sample drawn consists of 18 observations between the periods 1983 and 2000. The null hypothesis is H_0: $\rho = 0$, where ρ is the correlation coefficient for the population from which the sample has been drawn. Therefore we begin by assuming that the variables in the population are uncorrelated. The alternative hypothesis is defined as H_1: $\rho \neq 0$ that claims a positive or negative correlation between the variables. This indicates that ours is a two-tailed test. Using the sample as a proxy for the population the correlation coefficient

TABLE 1. Correlation between gindtl and urrl (obs=18)

	gindtl	**urrl**
gindtl	1.0000	
urrl	0.6337	1.0000

'r'[1] for the sample has been calculated. The correlation coefficient r = 0.6337 viz. positive, has been tested with Fisher's t-test[2], for significance and has yielded a value of t = 3.23. The null hypothesis has accordingly been rejected at 5% level of significance with 16 degrees of freedom since t > 2.12. The same has also been checked with Fisher's Z- transformation test[3], which has yielded a value of 2.89 thereby rejecting the null hypothesis at 5% level of significance.

It has been proved that there are a significant number of periods where the two variables are correlated. Let us look at the implication of this correlation. If it is claimed that the banks prefer to invest in government securities rather than advance credit, then, investment in government securities being the most preferred option, the 'urrl' should if anything, be negatively correlated with 'gindtl'. This has been seen to be untrue. Therefore it must be true that the resources that have been invested in government securities have arisen from some other source (viz. insufficient credit relative to potential). Further, if the preference for government securities over the private securities calls forth a shift of resources from the latter to the former, with a given demand for credit, then this crowding out cannot ensure a correlation between 'gindtl' and 'urrl' since they result from two different sources. The existence of this correlation therefore constitutes evidence against "crowding out" of this sort. This has also been proved empirically untrue. Since each of the two correlated variables having

[1] Correlation coefficient r = covariance (x,y)/ $\sigma_x \sigma_y$, where σ_x = standard deviation of x, σ_y = standard deviation of y. In our case x = gindtl (ratio of investment in government securities to net demand and time liabilities) and y = urrl (ratio of unutilized refinance to refinance limit).

[2] $t = (r (n-2)^{1/2}) / (1-r^2)$ where r = correlation coefficient, n = number of observations is a test statistic that follows then Student's t distribution with (n-2) degrees of freedom.

[3] The statistic $(\frac{1}{2} \log_e ((1 + r)/ (1 - r)) + \frac{1}{2} \log_e ((1 + \rho)/ (1 - \rho))) (n-3)^{1/2}$ follows the Standard Normal distribution.

a positive sign is indicative of a "slack" in credit demand, the fact that they are positively correlated only confirms this "slack". Of course, any two variables being significantly correlated, must either suggest that they cause each other or are simultaneously caused by the movement of some third variable. However if any one of our variables were to cause the other, we would expect on economic reasoning, a negative relationship between them, which is contrary to our findings. We come to the prima facie conclusion therefore that both may be caused by a third factor, i.e., credit demand. The following analysis further confirms the above conclusion.

A second correlation exercise carried out between 'gindtl' and the ratio of credit disbursed to net demand and time liabilities (crdisndtl) and 'urrl' and 'crdisndtl' have yielded negative correlation coefficients of -0.9015 and –0.6055 respectively.

TABLE 2: Correlation between gindtl and crdisndtl (obs=18)

	gindtl	**crdisndtl**
gindtl	1.0000	
crdisndtl	-0.9015	1.0000

TABLE 3: Correlation between urrl and crdisndtl (obs=18)

	Urrl	**crdisndtl**
urrl	1.0000	
crdisndtl	-0.6055	1.0000

Using the t test, the two values yielded, i.e. –3.04 and –8.33, have rejected the null hypothesis H_0: $\rho = 0$ (that suggests that the variables are uncorrelated) at 5% significance level with 16 degrees of freedom. Therefore, in most of the years, the extent of underutilization of refinance has been high / low when the extent of credit disbursed has been low / high. In almost all the years, the extent of investment in government securities has been high / low when the extent of credit disbursed has been low / high. One can infer from this that there could be a certain number of years when both underutilization of refinance and investment in government securities have been simultaneously high / low when credit disbursed has been low / high. Moreover, regressing[4] 'gindtl' on 'urrl' and 'crdisndtl' we have found the two latter variables to explain the former to a large extent with $R^2 = 0.8249$ and adjusted $R^2 = 0.8016$. The 't' value of the explanatory variable 'crdisndtl' have been found to be highly significant with t = –6.02 whereas the 't' value of 'urrl' at t = 1.02 was insignificant. Since the two explanatory variables have been seen as correlated, the results of the regression suffer from an amount of multicollinearity.

TABLE 4: Regression of gindtl on urrl and crdisndtl

gindtl	Coefficient	t-statistic
urrl	0.01956	1.02
crdisndtl	- 0.57205	- 6.02
constant	0. 56092	9.51

[4] The regression equation used is $(gindtl)_t = a + b\ (urrl)_t + c\ (crdisndtl)_t + \varepsilon_t$, where a = constant, b & c are coefficients and ε, the error term at time t.

Moreover, 'gindtl' regressed[5] solely on 'crdisndtl' has yielded a highly significant t value of –8.33 with a high value of R^2 at 0.8128 and an adjusted R^2 = 0.8010. This shows that 'crdisndtl' explains 'gindtl' to a large extent. Therefore, if any one variable is to influence the remaining two, then it has to be the ratio of credit disbursed to net demand and time liabilities.

TABLE 5: Regression of gindtl on crdisndtl

gindtl	Coefficient	t- statistic
crdisndtl	-0.63081	-8.33
constant	0.60373	14.52

The regression of 'urrl' on 'gindtl' and 'crdisndtl' has not been run since the two explanatory variables are highly correlated whereby we would be faced with the problem of multicollinearity yielding insignificant t values. With a negative correlation between 'crdisndtl' and 'urrl', and 'crdisndtl' and 'gindtl' in situations where 'urrl' and 'gindtl' are positively correlated we can conclude that there were periods in which the level of credit disbursed had been low when indicators of credit availability had high values. Therefore credit disbursed which was not bound by a supply constraint, could be taken as determined by the demand for credit and so, can be taken as a proxy for it. Then, the extent of underutilization of refinance according

[5] The regression equation used is $(gindtl)_t = a + b\ (crdisndtl)_t + \varepsilon_t$, where a = constant, b = coefficient and ε, the error term at time t.

to our regression analysis has been explained to a great extent by the demand for credit. The correlation analysis between 'urrl' and 'crdisndtl' has shown that the two are negatively correlated. Therefore, with 'crdisndtl' explaining 'urrl', it must be true that a high / low level of underutilization is explained by a low / high level of demand for credit. We may conclude that it is the change in the level of credit demand that explains the change in the level of utilization of refinance. Since we have already shown that 'urrl' cannot be a cause for the simultaneous movement in 'gindtl' when the two are seen to be positively related and since we also have found a highly significant 't' value by regressing 'gindtl' on 'crdisndtl' we may also approximately conclude that 'crdisndtl' explains the movement of 'gindtl'. Therefore, it is again the level of demand for credit that explains the extent to which banks invest in government securities.

We may conclude that it is the level of demand for credit that explains the extent to which refinance has been utilized (has been left unutilized) and also explains the extent to which the banks have invested in government securities in excess of the statutory requirement viz. SLR. According to our empirical study where both underutilization and investment move in the same direction in most of the years, the level of the demand for credit therefore explains the simultaneous occurrence of the two.

Chapter VI

Conclusion

This paper has arrived at one major conclusion based on two observations. It has concluded that monetary targeting is infeasible in the presence of either unutilized refinance or investment in government securities in excess of the SLR requirements. A policy of monetary targeting which seeks to regulate the amount of money supply in the economy by regulating the reserve money assumes the smooth functioning of the multiplier. The value of the multiplier is regulated, by making variations in the Cash reserve Ratio. The existence of a stable multiplier on the other hand presumes a constant currency deposit ratio and the given cash reserve ratio. Thus in case any one of the two is unstable, the multiplier also becomes unstable whereby monetary targeting by the regulation of reserve money and the cash reserve ratio, becomes infeasible. While the constancy of the currency-deposit ratio assumes a given *behaviour of the people about their choice regarding the form in which they hold money*, ensuring that the reserve ratio is kept pegged to the statutorily fixed CRR assumes a given *portfolio behaviour* of the banks on the one hand and the *condition of the real variables* in the economy on the other. The portfolio behaviour is given in the sense that it must always be profit maximizing for the banks to lend out the maximum possible resource available after meeting the cash reserve requirements (and the SLR requirements especially in case of India). The given condition in the real economy must ensure that the loans thereby made available by the banks must always be absorbed at the given interest rate. The multiplier remains stable conditional upon the stability of all such behaviour. The second and third chapters have provided evidence of the instability of the behaviour of the economy with respect to absorption of credit. Both unutilized refinance and excess investment in government securities arise from the fact that the credit absorbed at a given rate of interest is lower than the amount

that is available with the banks for supply. In case such excess supply of credit is revealed by the maintenance of excess reserves by the banks, then the multiplier is rendered unstable owing to the instability of the reserve ratio that therefore no longer remains pegged at the cash reserve ratio. Similarly since both unutilized refinance and investment in government securities in excess of the SLR requirements arise from the fact of more credit being available than is demanded, the presence of any one of them also renders the multiplier unstable. The banks, whose portfolio behaviour no longer remains *given*, now may choose to invest excessively in government securities and maintain unutilized refinance rather than maintain idle balances in the form of excess reserves especially since they earn no interest returns. Therefore, excess investment in government securities, maintenance of unutilized refinance and excess reserves are alternative manifestations of the excess of available credit over the demand for it at the given lending rate. The fourth chapter seeks to establish this through an econometric study. Since the ratio of unutilized refinance to the refinance limit ratio (urrl) and investment in government securities to the net demand and time liability ratio (gindtl) showed significant positive correlation, it was concluded that they move together in the same direction in a number of years. First, significant correlation suggests that the simultaneous movement is not a mere coincidence and therefore there must be some consistent factor that accounts for such occurrence. Second, the variables that generally move together must either do so if one causes the other whereby a change in one always ensures a change in the other. Or, there must be some third factor that simultaneously causes them, whereby the movement of this third factor ensures the simultaneous movement of the two. The former, has been shown to be implausible since the correlation coefficient between 'urrl' and 'gindtl' is positive

while any causal relation between the two variables must ensure a negative correlation, other things like credit conditions remaining the same. It has also been shown that a third variable, i.e. the ratio of credit disbursed to net demand and time liabilities (crdisndtl) is negatively correlated with both and explains the occurrence of each of them to a significant extent. Therefore, it has been concluded that a low value of 'crdisndtl' explains a high value of 'gindtl' and 'urrl', in which case 'crdisndtl' must be an indicator of the demand for credit rather than an indicator of the available supply. It must be the case then, that a low demand for credit explains a high value of investments in government securities and underutilization of the refinance facility. Having argued on both theoretical and empirical grounds that credit is demand constrained, we can no longer justify the claim for a stability of the multiplier. If the stability of the multiplier is questioned, we must also consequently question the feasibility of monetary targeting for which the stability of the multiplier is of primary importance.

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