

## Chapter 4: Interest Liberalization and Bank Financing of Private Investment in Kenya

### 4.0.0: Introduction

In the analytical framework discussed in chapter 1, the financial sector plays an important role in the accumulation of resources by entrepreneurs by providing financial services. However, in many developing countries, distortionary interventions in the financial system by the government may limit the contribution of this sector to the rest of the economy. These distortionary interventions or financial repression include: controlled lending and deposit rates, mandatory credit ceilings, directed credit and mandatory borrowing by the government. Mckinnon (1973) and Shaw (1973), argued that 'financial repression' especially the fixing of interest rates below the market clearing levels constrain the flow of financial resources to the formal sector which affects investment and growth adversely. Since the work of Mckinnon and Shaw it is now widely accepted that credit in developing countries is supply constrained. These ideas have influenced the thinking of the two leading international development agencies, World Bank and IMF, as is evident from the financial reform policies integrated in Structural Adjustment Policies. The consequence of financial repression, it is argued, is to distort and reduce the flow of resources to the formal financial sector thereby reducing the levels of financial savings, investment, productivity and output growth.

In a repressed market, governments have usually placed lending requirements on banks. According to the World Development Report (1989), such requirements constrain banks in that they can not lend as they wish, this leads to allocative inefficiency. Proponents of financial liberalization, therefore conclude that removing interest rate ceilings and other restrictions on the financial system will increase growth since high interest rates will lead to increased financial savings and greater efficiency in the allocation of resources.

The implication of the above argument is that banks are constrained through their deposits or that lending institutions are constrained by lack of loanable funds. Although the argument by proponents of interest rate liberalization that high deposit rates may mobilize financial savings may be acceptable, the assumption that credit is deposit constrained, without due consideration of demand factors and the willingness of banks to lend is too simplistic.

This chapter attempts to highlight, the importance of demand factors and the willingness of banks to lend. Repression theories emphasize the importance of the supply of funds at banks. We argue that the supply and demand of funds from formal financial institutions are determined by different factors. Consequently, it is possible that the demand for credit may be lower than the supply of funds or vice versa. Availability of funds at banks may not automatically lead to increased credit, if banks are unwilling to lend or if the demand for credit is low. If credit is constrained by demand factors such as lack of credit-worthy borrowers and investment opportunities, then these issues are equally important and thus deserve to be addressed in the efforts to enhance private sector activity.

#### **4.1.0: Origins of Financial Repression In Kenya**

Financial repression in Kenya dates back to the 1960's after independence. At independence, Kenya inherited a financial system composed of the East African Currency Board (EACB) and commercial banks dominated by foreign banks. These banks concentrated mainly on short-term commercial and trade finance with few branches to serve the country-side<sup>50</sup>. To ensure that resources are allocated in line with the development strategy,

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<sup>50</sup>The EACB which had its origin in the colonial days served Kenya, Uganda and Tanzania. Due to differences among the newly independent states and a desire by each country to have a national monetary system, the EACB broke up. In May, 1966, by an act of parliament, Kenya established the Central Bank of Kenya (Ngugi and Kaburo, 1998).

the government opted for direct participation in the banking system<sup>51</sup>. New financial institutions were established to collect savings and finance investment. Among the financial institutions established were Development Finance Institutions under the ownership of the government. Banks were also directed to lend to priority areas as agriculture and small scale business. Apart from ownership the government also controlled interest rates. Selective credit allocation schemes were also introduced<sup>52</sup>. The Banking Act of 1968, eased entry and minimum capital requirements for Near Bank Financial Institutions (NBFI's) mainly owned by indigenous Kenyans.

These easy entry requirements saw a rapid growth in the number of NBFI's. As can be seen from chart 4, assets of the banking system grew rapidly especially NBFI's. However, when Kenya's economic growth faltered in 1980's the financial system also ran into problems. In 1986, the banking system faced a serious crisis with a number of NBFI's going under. To address the challenges facing the financial system such as under-capitalization, inadequate regulatory and legal framework, the government started undertaking reform measures (under SAPs). The reforms that have been undertaken emphasize, interest rate liberalization<sup>53</sup> and move toward use of indirect instruments of monetary policy, that is, open market operation (OMO) as opposed to direct credit control. Other measures include privatization of state owned banks, strengthening the regulatory and legal framework for prudential supervision of the financial sector by the Central Bank, increasing minimum capital requirements for setting up banks. These measures are aimed at creating a healthy financial system. However, in the

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<sup>51</sup>One of the objectives of the development strategy at that time was to 'Kenyanize' the economic management, and develop areas that had been neglected the colonial days.

<sup>52</sup>The main selective credit allocation used by the government was a requirement that banks lend 17 per cent of their deposit liabilities to agriculture.

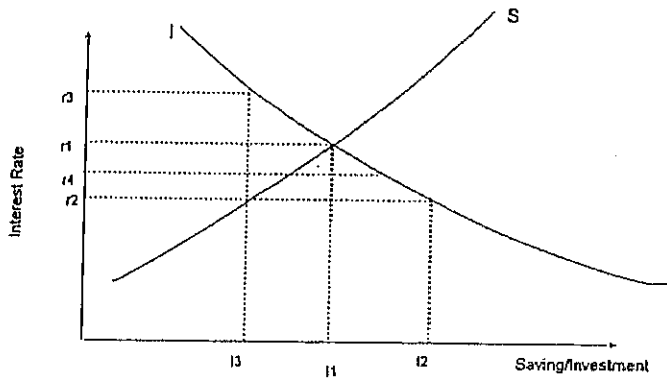
<sup>53</sup>Interest rates were fully liberalized in June 1991.

subsequent discussion, the emphasis is on the relationship between interest rates and bank lending.

#### **4.1.1: Interest Liberalization and Investment Spending**

Mckinnon (1973) hypothesized complementarity between money holdings and capital accumulation. He argued that, in developing countries, investors rely on self finance and since capital markets are underdeveloped, they (investors) need to accumulate money before investment takes place. High positive real deposit rates are necessary to encourage agents to accumulate funds. The other channel argued by Shaw (1973) is that high positive rates on financial assets encourage financial savings, with increased deposit liabilities, the financial sector lends more resources for productive investment. The diagnosis presented implies that credit is constrained by deposits. It neglects demand factors and the willingness of banks to lend. It is as Says Law says 'supply determines its own demand' increased deposits at the banks will automatically result in increased lending. Proponents of the repression theory have also argued that high lending rates will discourage low yielding investments, thus increase overall productivity of capital resources. The interest rate liberalization theory can be illustrated diagrammatically as shown below.

Figure 4.1 : Interest rate Liberalization and Investment Spending<sup>54</sup>



With no controls, the equilibrium interest rate and level of savings and investment is  $r_1$  and  $I_1$  respectively. Under financial repression, the government imposes a ceiling on interest rates, say the interest rate is fixed at  $r_2$ , below the equilibrium rate,  $r_1$ . The intention of such regulation has been to encourage investment and to reduce the cost of government borrowing. According to proponents of financial repression investment is constrained at the level  $I_3$  by the supply of financial savings.

At this level there exists excess demand for credit for investment spending ( $I_2 - I_3$ ). This excess demand over supply necessitates credit rationing<sup>55</sup>. If there were no ceilings on lending rates, then the interest rate spread corresponding to  $I_3$  level of investment is  $r_3 - r_2$ . In case where ceilings are set on lending rates, say at  $r_4$ , then interest rate spread may be limited to

<sup>54</sup>The savings function slopes upwards on the assumption that interest rate is the reward for foregoing consumption. The investment function slopes downward on the assumption that the marginal returns to investment falls as investment increases thus a lower interest rate is necessary to induce investment.

<sup>55</sup>However, Stiglitz and Weiss (1981) have shown that even in competitive loan markets credit rationing may persist due to imperfect information or information asymmetry between borrowers and lenders. Thus credit rationing may not be limited to repressed financial markets.

$r_4-r_2$ . The central message in the diagram above is that as interest rates increase toward  $r_1$ , realized investment increases due to increased savings. For any level of interest rate beyond  $r_1$ , investment is expected to fall as we move along the negative slope of the investment demand function. At high interest rates, there may be adverse effect through the cost of working capital. Therefore, *ceteris paribus*, investment and growth is expected to grow with the increase in interest rate up to  $r_1$  but beyond  $r_1$  both investment and growth will fall. Thus suggesting an inverted U-shaped relationship between interest rate and investment and growth.

#### 4.1.2: Financial Liberalization and the Performance of the Financial Sector in Kenya

In the literature the two important indicators of financial development are: the ratio of money supply to GDP and the ratio of banking sector claims to the private sector as a ratio of GDP (for example see , Tun wai 1957; WDR, 1989 and King and Levine, 1993). Shaw (1973) has emphasized the importance of financial intermediation, the share of credit to the private sector is an indicator of the level of financial intermediation in the economy. The ratio of money supply to GDP measures the extent to which transactions take place in money terms or the level of monetization of the economy. It is expected that an increase in these ratios reflect growth of the modern financial sector and thus economic performance.

As for the ratio of credit to the private sector to GDP, an increase in this ratio will reflect increased intermediation only if, credit to the public sector does not increase. It is also possible that financial savings may increase yet credit to the private sector does not increase especially when the government apportions the increase to itself through direct borrowing or high legal reserve requirements or if credit expansion is constrained by the characteristics of the enterprise sector as discussed below.

Prior to interest rate liberalization in Kenya, the monetary authorities adjusted interest rates from time to time to reduce interest rate differentials between NBFIs and commercial banks to ensure financial stability. For example in 1981 deposit rates were raised upwards to 10 percent from 6 percent in 1980. In 1988, deposit rates for both banks and NBFIs were reduced from 11 percent to 10 percent. In April 1990, restrictions on commercial bank fees and charges were lifted. This was part of a policy to gradually move toward market determined interest rates.

The charts below show movements in major financial development indicators. There was a rapid increase in the assets of commercial banks as a ratio of GDP in late 1970's, however, for most part of 1980's this ratio fell. This has been explained in terms of competition from the NBFIs. Assets of NBFIs as a ratio of GDP increased from about 6 percent in 1975 to about 19 percent in 1985. NBFIs were subjected to less stricter supervision by the central bank and entry requirements were relatively easy.

In 1986, a number of NBFIs faced insolvency due to non performing loans and inadequately secured loans. Since NBFIs accounted for about 16 % of total assets of the banking system, the government had to implement a proper restructuring program to restore confidence. In 1989, a new bank- the Consolidated Bank of Kenya was established by merging the weak financial institutions. The deposit protection fund was also strengthened at the same time. The banking act was revised in 1989 enhancing the role of the central Bank in inspection and supervision of financial institutions.

As can be seen from the indicators of financial development, immediate years following 1986 are characterized by dismal performance. The level of monetarization of the economy, as

represented by the ratio of monetary supply to GDP fell, so was growth in bank assets and provision of credit actually stagnated.

An important consequence of financial reform is the declining importance of NBFIs, both in terms of intermediation and share of assets. The assets of NBFIs as a ratio of GDP fell from 19.5 percent in 1991 to 10.64 percent in 1996. On the other hand credit to the private sector as a percentage of GDP fell from 13.9 percent to 4.6 percent over the same period of time. The fall in the share of NBFIs is as a result of conversion<sup>56</sup> of a number of non bank financial institutions to banks. The share of NBFIs assets in the banking system fell from about 13% in 1996 to 8.5% in 1997.

Money supply both M2 and M3 as a ratio of GDP at current prices increased drastically starting early 1990's. Broad money supply M3 which comprise ; M1+M2+quasi-money<sup>57</sup> held by NBFIs is an indicator of financial savings. Although this shows improvements , a better indicator of the capacity of the financial system to finance investment activity would have to take into account the cost of investment goods. M3 deflated by the investment deflator as a ratio of GDP is shown below as financial savings in Chart 4.2. Generally, the charts show improvements in the indicators after 1989 when reforms were initiated.

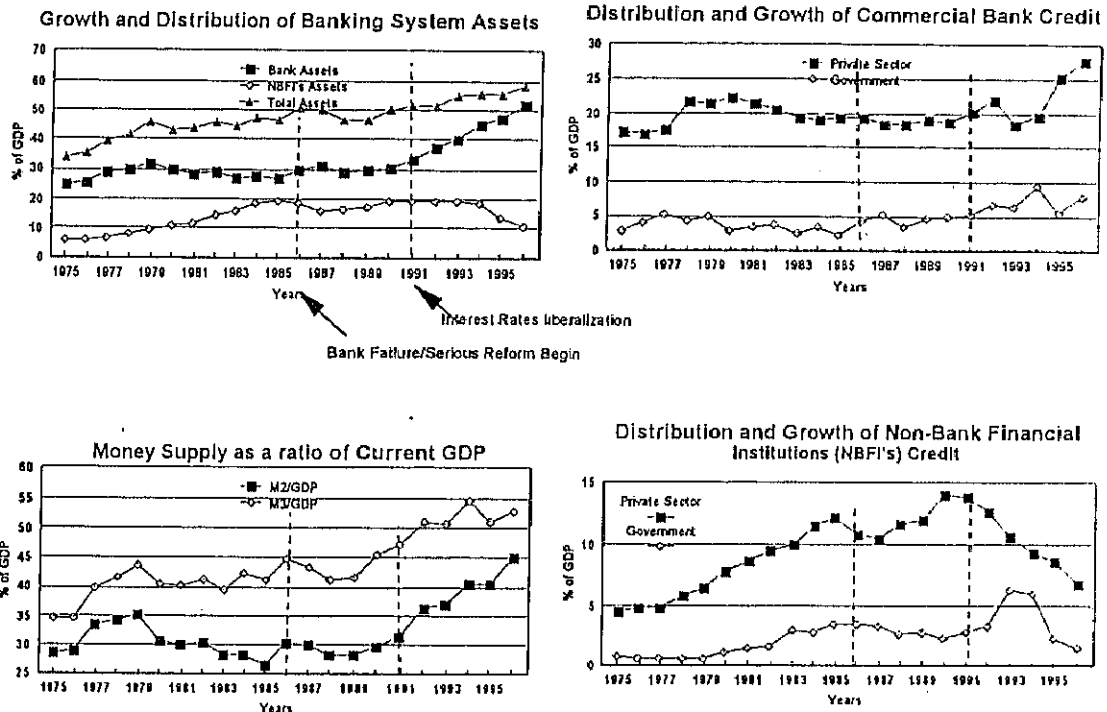
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<sup>56</sup>By December 1996, about 38 percent of NBFIs had converted to commercial banks.

<sup>57</sup>M1 comprise; demand deposits and currency outside banks, while M2 comprises time and savings deposits

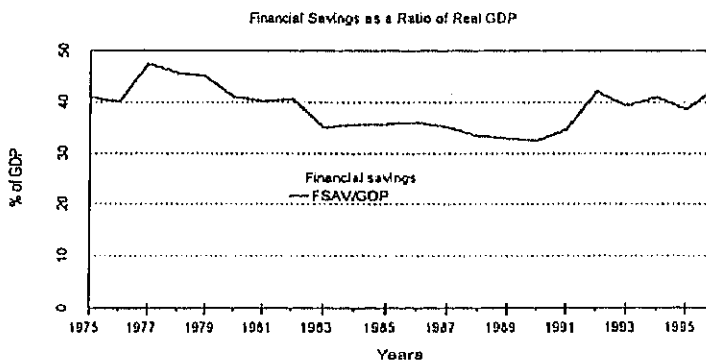


Chart 4: Financial Development Indicators (1975-1996)



Source: IFS, IMF various Issues and Economic Survey, Republic of Kenya, Various Issues

Chart 5: Financial Savings as a ratio of Real GDP



Note:  
Financial savings is broad money M3 deflated by the investment deflator. It is hoped that this measure represents better the capacity of the financial system to provide real credit.  
The capacity of the banking sector to provide credit declined rapidly in 1980's upto to the beginning of the 1990's, specifically 1989 which corresponds to institutional reforms

#### 4.1.3: Limitations of the Financial Liberalization Theory

The financial liberalization theory has met criticism mainly from post-Keynesian and structuralist models (Taylor, (1983) and Dutt, (1991)). It has been argued that raising interest rates may increase the cost of borrowing and financing of working capital. This is likely to impact adversely on investment. It is also argued that higher interest rate may induce increased capital inflows, which may appreciate the exchange rate. Exchange rate appreciation may result in expenditure switching from domestic to external consumption, which may worsen the balance of payments position. High interest rate are also likely to worsen public sector deficit through increased interest repayments. In Kenya, interest payments on domestic debt increased from about 12 percent in 1991/1992 to about 20 percent in 1992/1993 and further to 25 percent of total government expenditure, mainly due to large interest payments to treasury bill holders.

The financial liberalization theory has also been criticized for paying no attention to the structure of the financial system. The dual nature (informal and formal money markets exist side by side) of the financial system may actually complicate the overall results of financial liberalization. Buffie (1984) argues that if a large proportion of credit comes from the informal money markets and that curb loans are good substitutes of bank deposit, the total supply of credit in the economy would not increase. The total supply of credit may fall as resources switch to the formal banking system that is regulated. Banks are usually subject to minimum reserve requirements while the informal money markets are not. In practice, information on credit from curb markets is hard to find. This makes it difficult to assess the size of curb loans in relation to loans from the formal money markets.

The interest rate liberalization theory has also come under criticism for suggesting that credit rationing may be eliminated in a liberalized market. Jaffee and Russel, (1976), Stiglitz and Weiss, (1981), (1986), Stiglitz (1993), consider the importance of imperfect information,

information asymmetry and the problem of adverse selection in credit markets and conclude that credit rationing is a rational behavior on the part of the bank and thus may exist even in liberalized markets. These studies show that credit rationing is an efficient outcome of rational behavior between borrowers and lenders. They show that even after interest rate liberalization, credit rationing may continue contrary to the predictions of the financial liberalization theory. They argue that with higher interest rates, the quality of loans is likely to suffer, higher interest rates attract risky projects and thus a rational profit maximizing bank will practice credit rationing<sup>58</sup> to reduce risk. Another important aspect of the credit market is that it is segmented. Some groups of borrowers may actually be excluded from credit markets although their investments could have higher returns than those that get credit. For example, banks may be reluctant to lend to small scale entrepreneurs due to lack of adequate collateral and or high costs that may involve managing small loans.

#### **4.2.0: The Nature of Credit Markets Vs Interest rate Liberalization theory**

The interest rate liberalization theory implicitly assumes that credit markets are perfectly competitive and banks have perfect information. This is far from how credit markets operate. Credit markets are imperfect. Information asymmetry (lack of adequate information on potential borrowers by banks) and adverse selection problem play an important role.

The creation of credit in the Kenyan banking system, like many other modern banking systems, operates on a fractional reserve system. That is, a system where banks are required to hold a fraction of the amount of deposits in reserves or as balances at the Central Bank. This reserve requirement is an important tool for the Central Bank to control the amount of money and credit in the economy. In Kenya this ratio is commonly referred to as the cash ratio, it is the ratio of bank balances at the Central Bank to their deposit liabilities. For example,

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<sup>58</sup>Credit rationing takes place as; some loan applicants are denied credit while similar applicants get credit, some categories of borrowers may be denied credit and some borrowers may get less funds than they apply for.

commercial banks were required to hold 6 percent of their net deposits at the Central Bank in December, 1986 this cash ratio was raised to 8 percent in April, 1993. The raising of the cash ratio is a means of restricting credit and money creation by banks. In the fractional banking system, any increase in deposits makes it possible for a bank to increase credit subject to the cash ratio, existing demand and willingness of the bank to lend. Thus one would expect that any increase in deposits, *ceteris paribus*, whether as a result of increase in deposit rate or otherwise will result in an increase in credit<sup>59</sup>. In this way, the argument that an increase in deposits will enable banks to increase credit, follows automatically from the operation of the fractional banking system as banks try to maximize their returns.

The interest rate may be useful for mobilization of financial savings as the liberalization theory rightly argues. However, the transmission of deposits to potential borrowers or the willingness on banks to lend depends much on the banks expected return. Bank lending may not increase monotonically as interest rate increases, even if there were investors willing to pay higher interest rates. Banks face adverse selection<sup>60</sup>, imperfect information and information asymmetry, as interest rates increase actual credit supply may decrease, as expected bank returns on lending is expected to fall. The expected bank returns (taking into account the possibility of defaults) may fall because at higher interest rates safer borrowers, that is, those that are less likely to default may be deterred by the high cost of borrowing. According to Stiglitz and Weiss (1981) and Stiglitz (1993), there is an optimal value of interest rate at which, the expected return to the bank will be maximum, beyond this level banks will lend less as the risk of loss increases. Thus the relationship between expected bank return and interest rate is in an inverted U-shaped curve. This is shown below;

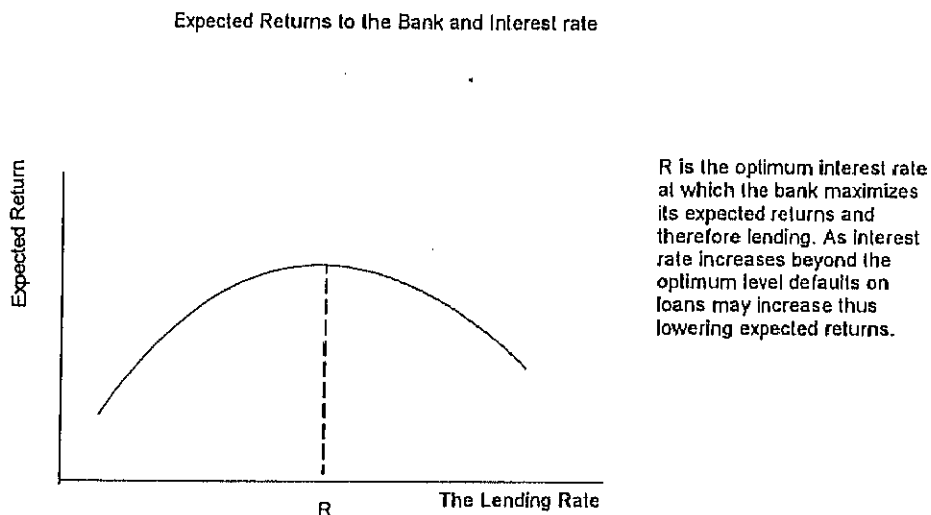
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<sup>59</sup>The exception would be that such increases in deposits are retained in terms of excess reserves or are investment in government securities.

<sup>60</sup>The bank is aware that some borrowers are likely to default, it does not know exactly who is going to default.

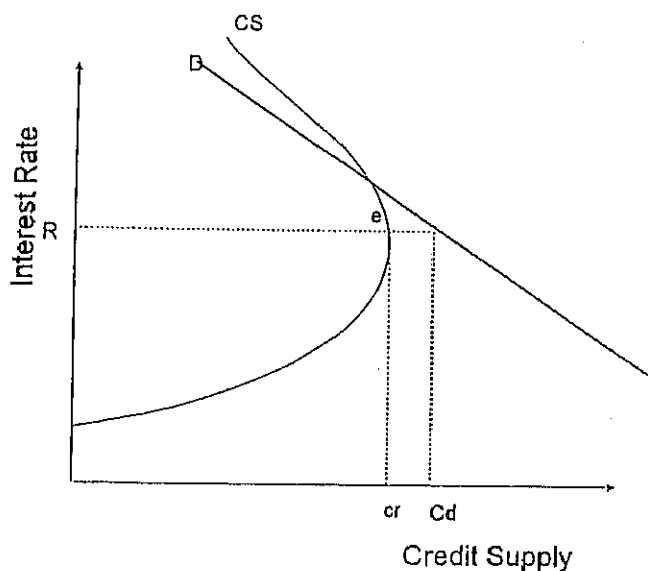
### Figure 4.2. Expected Returns and Lending Rates:

From Figure 4.2, the supply of loans which is related to the expected returns to the lender is backward sloping curve. Higher interest rates triggers the adverse selection effect, safe borrowers opt out the market, leaving only riskier borrowers whose projects can earn higher returns. This may have an adverse effect on lenders expected returns as the negative



effects (risk of default, losses) outweigh the positive effects of interest rate increases. Thus the returns to the bank and the bank supply of credit may not be a monotonic function of the lending rate. The supply of credit by the bank with respect to interest rate is a backward sloping function.

Figure 4.3: The Backward Sloping Supply Curve for Credit



The supply of credit with respect to interest rate is backward sloping. The optimum level of interest rate, at which banks maximize their expected returns is  $R$ , above this level, the supply of credit is likely to fall.  $DD$  represents the demand for credit, it is downward sloping because the lending rate represents the cost to borrowers.

At the optimal rate, the bank is willing to supply  $cr$  but the demand for credit is  $Cd$ , there thus exists credit rationing equivalent to  $Cd-cr$ . Stiglitz and Weiss (1981) have shown that credit rationing is a rational outcome in a competitive market due to imperfect information, adverse selection problem and information asymmetry.

Thus although credit rationing may be high in a controlled financial market, liberalization will not remove credit as the liberalization theory predicts.

When the government provides deposit insurance, it may be argued that moral hazard may induce banks to raise interest rates to attract deposits and at the same time finance risky projects. However, with proper prudential management and supervision of the banking system, moral hazard may not be a serious problem. Consequently profit maximizing banks will not raise interest rates beyond the optimal level because doing so would only reduce the expected returns.

The expected returns (taking in to account the possibility of default or lack of ability to repay) to the bank which determines the supply of credit (would depend on: information and screening ability thus managerial skills, bank supervision by the monetary authorities, level of economic activity, the overall level of macroeconomic stability and past bank performance)

The demand for credit on the other hand is determined by factors such as; cost of borrowing and the level of economic activity<sup>61</sup>..

As deposits rates increase to mobilize deposits, banks also increase lending rates, otherwise it would be of no profit for the bank to lend. An increase in deposits will not simply translate into increased credit, irrespective of the willingness of banks to lend and the demand for loans as the liberalization theory predicts. The willingness of banks to lend may depend on such factors default rates, net worth (this may help cushion losses), bankruptcies in the financial system, interest rates and the characteristic of the potential borrower

Formal banking institutions usually require collateral<sup>62</sup>, 'track record' and or proper referees to provide credit. Ceteris paribus, bank lending depends on the wealth of the borrower. This is due to the problem of adverse selection, information asymmetry and imperfect nature of credit markets<sup>63</sup>. That banks lend on the basis of expected returns is not an aspect that is restricted to domestic credit markets. In the international credit markets the same principle applies. For example, it is noted in the World Development Report, 1985 on *International Capital and Economic Development*, that not all developing countries have access the to all types of foreign capital. "A country's opportunity to borrow commercially tends to grow as its economy progresses" (page 43). Consequently, the poor countries rely on concessional funds from multilateral donors. It is further noted that in the commodity boom of the 1970s, countries such as Niger and Sudan were able to borrow from foreign banks, marginally related to the economic viability of the projects (WDR, 1985).

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<sup>61</sup>In a developing country, other factors such as education may be an important factor that determinant of demand for credit. It may be difficulty for an illiterate individual to borrow from the formal financial system due to the formality of the process.

<sup>62</sup>These are the assets the borrower has to raise when he or she takes a loan. These assets will be forfeited in the event of default. In Kenya land title deed has been the most common collateral.

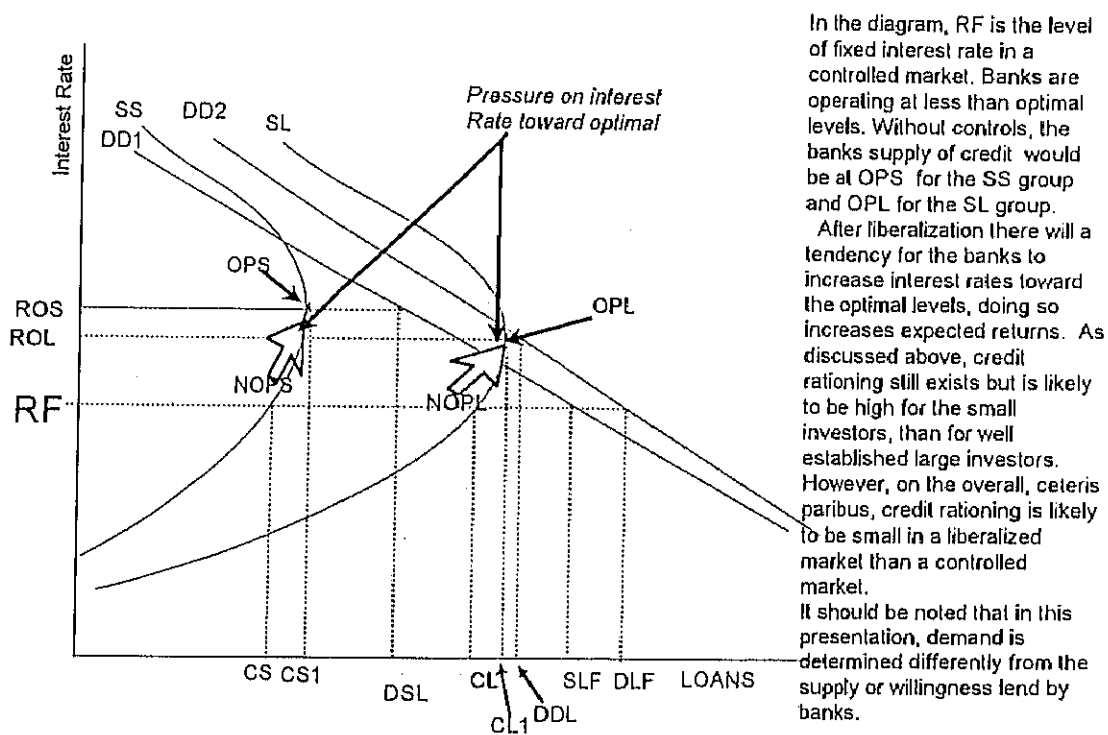
<sup>63</sup>On Kenya, for example, in Sessional Paper No. of 1986 on *Economic Management for Renewed Growth*, (Republic of Kenya, 1986), it is noted that financial institutions extend credit on the basis of formal collateral than the financial viability of the projects. The consequence is that the bulk of potential borrowers are may excluded

The diagram below is an attempt to show how interest rate liberalization is likely to affect the supply of credit. It takes into account the fact that credit markets are segmented, such that different groups of borrowers get different terms. It is also assumed that bank lending depends on the expected returns to the bank. For the purpose of exposition, we assume that there are two groups of borrowers, small scale farmers and large scale farmers. Each group has its own supply schedule for credit. The supply schedule corresponding to small farmers is SS while that facing the large scale farmers is SL. Each group has its own demand curve; DD1 for small scale farmers and DD2 for large scale farmers.

In the diagram below, when interest rates are controlled (at  $R_F$ ) and banks are not allowed to charge additional fees, banks will be operating at a less than optimal level. The optimal level for SS and SL is OPS and OPL respectively. In the case of our small scale farmers, the bank would be willing to lend only CS when the actual demand is SLF, the difference between demand and supply represents the level of credit rationing, that is SLF-CS. The same applies to the case of large farmers whose supply function is SL, the corresponding credit rationing is DLF-CL. When interest rates are liberalized, the rates that banks are willing to charge the different categories of their clients will tend towards the optimal (shown by the arrows). In both cases, banks are willing to supply more credit than before as doing so increases their expected returns. Beyond the optimal level, risk of loss may exceed expected returns and thus supply of credit starts falling backwards.



**Figure: 4.4 Interest Rate Liberalization and the Supply and Demand for Credit in Imperfect Markets**



At the new levels, credit rationing will still exist but it will be much less for the established large scale clients than for the small and new borrowers. After liberalization takes place, if the problem of moral hazard sets in, banks may increase interest rates and accommodate risky or poor investments with very high defaults that may create a crisis in the banking system. Thus in a poorly supervised and managed financial system, the consequences of liberalization may be adverse.

The demand for credit is determined on the downward sloping demand curve. As interest rates continue to increase, some borrowers may not be able to borrow. The fact that there still exists credit rationing implies that some investors may be denied credit, though their

projects would be viable. As banks increase deposits rates to attract deposits, lending rates also go up, thus having an adverse effect on credit demand.

#### 4.2.1: A Critical Review of the evidence on the Interest Rate Liberalization

In the empirical literature, the responsiveness of national savings to interest rate changes is a controversial issue. The decision to save is a choice between consumption today and consumption tomorrow. The impact of interest rate change on savings depends on the relative strength of the income and substitution effect of the price change between current consumption and future consumption. Whereas the substitution effect induces more saving, the income effect works in the opposite direction. Depending on the relative strength of these 'effects' saving may increase, decrease or remain unaffected. This being the case, it is not surprising as Modigliano (1986) pp. 304 notes that "no convincing general evidence either way has been produced, which leads me to the provisional view that  $s$  (saving rate) is largely independent of interest rate". Nevertheless, some studies have found a statistically positive significant effect of interest rate on saving. In a sample of 14 Asian countries, using pooled time series data, Fry (1978) finds that interest rate has a positive and significant effect on saving. However, Giovanni (1983) fails to find a significant effect in the same sample of 14 Asian countries. Gupta (1978) in a pooled time series econometric analysis, estimate of a saving function for Asia and Latin America but does not find support for financial repression. Gupta's analysis suggest that real income is the most important determinant of national saving.

On the other hand, most studies find support for the hypothesis that real deposit rates have a positive and significant effect on financial savings. The theory of determination of financial savings is different from that of national savings. To save in financial assets is portfolio choice among an investors' assets. On Kenya, Mweya, et al. (1990) in an econometric analysis find that real deposit rates have a positive effect on financial savings but

not private savings. Since financial saving is part of the total private saving, this result suggest that increases in real deposit rates induces investors to switch from real assets to financial assets. Seek and Nil (1993), too in a study of 21 African countries, find significant positive effect of real deposit rate on financial saving.

Some studies also claim to find evidence that high interest rates improve/increase the quantity and quality of investment. It is reported in the 1989 World Development Report that "investments in all the countries with positive real rates were more productive than average. Investments were generally less productive than average in the countries with strongly negative real rates" (p. 32). Fry (1988) finds support for the hypothesis that financial liberalization improves efficiency. In Fry's study, incremental capital output ratio is regressed against real interest rate. Although the coefficient of real interest rate is significant, this results need to be interpreted with caution due to the possibility of biases arising from omitted variables. One wonders what proportion of productivity changes would be explained by interest rate changes, if the other factors that determine productivity such as human capital, technological change and capital accumulation are taken into account.

In many empirical studies, credit variable has been included in investment function to capture the effect of financial repression. These studies report a positive and significant impact of credit availability on investment. These studies include: Chibber & Van Wijnbergen (1992) for Turkey, Blejer and Khan (1984) for abroad group of developing countries, Leff and Sato (1988) and Seek and Nil (1993). The studies that explain the positive and statistically significant coefficient as supporting the interest liberalization theory assume that banks are deposit constrained and thus increasing financial savings in the form of bank deposits lead to more credit being allocated.

The assumption of credit is deposit constrained precludes the other scenarios which explain better how credit markets operate. Such issues as collateral, credit worthiness of

borrowers and investment opportunities may be more equally important. If banks can increase credit without increases in deposits, then an increase in financial savings through higher interests may not have any impact on the actual amount of credit distributed by banks.

#### **4.3.0: Some Evidence From Kenya**

One way of assessing the proposition that credit is constrained by lack of deposits in a fractional banking system is to analyze the liquidity position in the banking system in terms of the minimum statutory requirements and the actual liquidity position. For example, consider what happens when the cash ratio requirement is reduced. Immediately each bank that was maintaining the minimum requirement will find that it has free balances or excess reserves of the amount required. In this case, the bank will be in a position to give out more credit. If lack of funds, previously made it impossible to give out loans, that would actually had been given out, it will now be able to make these loans. The new loans will be spend in turn creating new deposits which still make it possible for the banks to give out more loans. This is the so called money multiplier process.

The cash ratio and the ability of the commercial banks to borrow from the Central Bank (lender of last resort) ensures that the banking system remains liquid enough. It ensures that if borrowers want cash they obtain it. When a bank keeps excess reserves it foregoes the earnings that could be made by giving out loans (credit earns interest return, reserves do not). Thus a bank that keeps excess reserves foregoes incomes but will have enough funds should depositors want their money back. When banks hold excess reserves or free reserves in excess of the statutory requirements then the implication is that lack of funds is not the main constraint factor in credit creation process. The main culprit would be the willingness of banks to lend and the demand for credit. In Kenya, apart from the reserve ratio or cash ratio, banks are also required to hold a minimum ratio of liquid assets to total deposit liabilities.

The minimum cash ratio was raised from 6 percent in December 1986 to 8, 10, 12, 14 and 16 per cent in April, July, October, and December 1993 and February 1994 respectively (Central Bank of Kenya, Quarterly Economic Review, March 1994). This cash ratios have been consistently below those financial institutions hold voluntarily. In a situation like this, the monetary policy becomes ineffective, no wonder the government in the past relied on quantitative credit ceilings to control credit expansion.

**Table 4.1: Actual and Statutory Reserve Ratio Requirements (Percentages)**

	1986	1988	1990	1992	1994
Actual Cash Ratio	11.00	9.20	10.60	11.00	19.20
Statutory Requirement	6.00	6.00	6.00	6.00	14.00
Actual Liquid Asset Ratio	30.73	23.83	29.90	30.98	54.26
Minimum Requirement	20.00	20.00	20.00	20.00	20.00

Source: Central Bank of Kenya., Quarterly Economic Review, March 1994

The holding of excess reserves by the financial institutions suggest that it is not lack of funds that constraint banks in credit expansion. Or if we assume that availability of funds at lending institutions is a constraint, the existence of excess liquidity would suggest that there exists a certain level of instability in the banking system or bankers feel insecure to lend. Excess liquidity in the banking system increased rapidly since early 1990's mainly reflecting the preference to invest in treasury bills than give out loans. For example, the holding of government securities by the banking system increased from Ksh. 2.2 billion in 1992 to Ksh. 15.6 billion at the end of 1993 and further to Ksh. 36.7 billion at the end of 1994. This astronomical increases compare unfavorably with an increase of about 3 per cent and 30 percent increase in credit (in nominal terms) to the private sector in 1993 and 1994 respectively. The table below shows bank deposits in relation to credit to the private sector and holdings of government securities. The table also shows movements in interest rates. Interest rates move together such that it can be argued that higher interest rates to attract deposits are passed to borrowers, affecting the cost of borrowing.

**Table 4.2: Deposits, Bank Credit to Private Sector and Holding of Government Securities**

Another interesting characteristic of the banking system which show the importance of

COMMERCIAL BANKS								
(In Millions)	1987	1989	1990	1991	1992	1993	1994	1995
Deposit Liabilities	30204	36499	41957	55264	72844	94166	136264	158199
Total Private Credit	25629.25	35244.7	38751.4	50154.57	62533.4	65214.82	87443.79	129343.29
Holdings of Securities	6314	4687.48	2843.44	3901.32	2201.96	15588.57	36736.1	24490
Credit as % Deposit	84.85	96.56	92.36	90.75	85.85	69.26	64.17	81.76
Hold. % of Deposit	24.64	13.30	7.34	7.78	3.52	23.90	42.01	18.93
<b>Interest Rates</b>								
Lending Rate	14	18	19	20.03	22.34	38.55	30.93	33.14
Tbill rate, 90 days	12.99	14	15.9	16.77	16.96	39.3	17.9	20.9
Savings Rate	11.5	13.5	14.5	13.51	13.63	23.46	15.73	12.09
Inflation annual	7.62	12.94	15.59	19.82	29.54	45.80	29.01	2

the allocation of credit on the basis of the characteristics of the enterprise sector, is the distribution of credit between small scale and large scale farmers in Kenya<sup>64</sup>. Small scale farmers continue to dominate in marketed output of agriculture, accounting for about 60 percent (on average) of total marketed agricultural output (see table below). However, their share of commercial bank credit average about 20 per cent. We believe, that this distribution is dictated by the factors discussed above, namely collateral and 'track record' or long standing relationship between borrowers and banks (information asymmetry) and of course the desire to borrow by individuals or lend by Banks. As one would expect it is easier for large scale farmers to raise collateral than small scale farmers<sup>65</sup>. The limiting factor is that very small firms

<sup>64</sup>While we have data on credit to the agricultural sector by type of borrower, similar data for other sectors is not available thus the analysis here is limited to the agricultural sector.

<sup>65</sup>Although data is not available on other sectors for comparison, it is expected that the same trend will be observed. For example, among the major constraints that face Kenya's Jua Kali Sector and Small Scale Enterprises is credit ( Sessional Paper No.1 of 1994 on *Recovery and Sustainable Development to the Year 2000*, Republic of Kenya, 1994)

may be cut off from credit markets by virtue of their small capital base. Perhaps this is one factor that hampers the growth of capital markets in developing countries.

**Table 4.3: Distribution of Credit and Marketed Output by Type of Farmer**

	1986	1987	1988	1989	1990	1991	1992	1993
Small Scale Farmers	922.90	940.00	1080.90	1072.00	1229.10	1403.30	1525.10	1920.00
Large Scale Farmers	1787.70	1881.70	2677.10	3237.90	3272.80	3513.70	4080.90	5298.00
Cooperative Societies and Agric. boards	1865.60	2154.70	2420.60	2459.70	2353.00	2861.40	4007.60	1143.70
<b>Total Outstanding Credit</b>	<b>4576.20</b>	<b>4976.40</b>	<b>6178.60</b>	<b>6769.60</b>	<b>6854.90</b>	<b>7778.40</b>	<b>9613.60</b>	<b>8361.70</b>

**Shares in total Credit to Agriculture**

Small Scale Farmers	20.17	18.89	17.49	15.84	17.93	18.04	15.86	22.96
Large Scale Farmers	39.07	37.81	43.33	47.83	47.74	45.17	42.45	63.36
Cooperative Societies and Agric. boards	40.77	43.30	39.18	36.33	34.33	36.79	41.69	13.68

**Total Marketed Output**

	1986	1987	1988	1989	1990	1991	1992	1993
Small Scale Farmers	422.79	385.63	445.33	494.88	617.30	541.90	821.63	1386.57
Large Scale Farmers	515.53	432.07	500.41	508.32	497.56	669.70	496.21	774.54
<b>Total</b>	<b>938.32</b>	<b>817.70</b>	<b>945.74</b>	<b>1003.20</b>	<b>1114.86</b>	<b>1211.60</b>	<b>1317.84</b>	<b>2161.11</b>

**Shares in total Marketed Output**

Small Scale Farmers	45.06	47.16	47.09	49.33	55.37	44.73	62.35	64.16
Large Scale Farmers	54.94	52.84	52.91	50.67	44.63	55.27	37.65	35.84

Data Source: Statistical Abstract, Various Issues, Republic of Kenya

Note: Although small scale producers continue to dominate agricultural production, their share of credit is disproportionately smaller



An increase in deposit rates is also associated with an increase in lending rates. This may reduce the demand for credit because the cost of borrowing has gone up or banks may decide to invest in government securities than lend out. Consequently, the net impact on credit allocated will depend on the magnitude of the positive impact through financial savings and the negative effect on lending of arise in interest rates. Thus the net effect on investment of an increase in interest rate is an empirical question. On Kenya, our empirical analysis shows that interest rate impacts positively on financial savings but negatively on demand for credit. The two equations used in econometric analysis can be formally expressed as;

$$FSAV = F(R, PREAL) \text{ and}$$

$$CREDIT = F(FSAV, Lr, Y)$$

Where PREAL is nonwage incomes (property incomes), R is deposit rate, FSAV is real financial savings, CREDIT is real credit, Lr is bank lending rate and Y total output. The model simply states that financial saving is a function of savings deposit rate and nonwage incomes. Whereas real credit is function of FSAV (capacity of the banking system to give credit), lending rates (cost of credit) and total output (an activity variable).

**Table 4.4: Regression Results: Determination of Financial savings and Credit**

**Dependent Variable: Financial Savings (FSAV)**

Sample	Saving Rate	PREAL	FSAV <sub>t-1</sub>	
1977-1994	2220.47 (3.6)**	50.34 (3.5)***	.53 (3.4)***	$R^2 = .89; \bar{R}^2 = .86; Q(4-0) = 6.4; F = 3$

**Dependent Variable: Real Credit (CREDIT)**

Equation. Sample	lending Rate	FSAV	Y	D8182	
1. 1977-94	-1795.3 (5.4)***	0.55 (4.7)***	23.4 (6.7)***	20660.1 (4.9)***	$R^2 = .95; \bar{R}^2 = .941; DW = 2.3$
2. 1975-94	-978.6 (-2.2)**		33.8 (8.3)***	21729.3 (3.4)***	$R^2 = .88; \bar{R}^2 = .86; DW = 1.9$
3. 1975-94	-1385.2 (-2.2)**	1.05 (6.0)***		15864.2 (1.9)*	$R^2 = .81; \bar{R}^2 = .77; DW = 0.9$
4. 1976-94	-2316.3 (-4.4)***	.4 (2.0)**		20188.1 (3.0)***	$R^2 = .86; \bar{R}^2 = .83; RHO = 0.09 * * *$

\*\*\* Statistically significant at 1 per cent level of significance

\*\*\* Statistically significant at 1 per cent level of significance. T -statistics in parentheses.

In the regression results above, the savings rate has a positive impact on real financial saving. This finding supports the interest rate liberalization theory that higher deposit rates may help mobilize financial savings. PREAL is nonwage incomes, this variable produced better results than the overall income variable (Y). Probably, this suggests that it is mainly nonwage income earners (property owners) who contribute much to financial savings. The lag of financial savings is included in the regression because financial savings this year may depend on past financial savings institutional factors. Certain financial assets may be held on term basis also due to imperfect information it may take sometime before investors convert their financial assets into real assets. In the determination of credit, the results suggest that lending rates have a negative effect on real credit. In the equation for credit, real financial savings are included as an explanatory

variable together with an activity variable: output ( $Y$ ) and interest rate. The dummy ( $D8182$ ), has a positive sign and statistically significant. This may reflect expansionary policy stance pursued by the government in 1980/1981 (Chakrabarti, 1994). The justification for incorporating financial saving is that, this variable determines the capacity of the banking system to expand credit.

It was thought that by including both financial savings and output in the same regression would create serious multicollinearity problems. However, as the results suggest, it is possible that these variables have independent effects on credit. When both  $Y$  and  $FSAV$  are included, the regression can explain 95 percent of variation in credit. When each variable enters alone, they explain 88 and 86 percent variation in credit respectively. These results are consistent even when they are looked at from the point of view of adjusted  $R^2$  (adjusted for degrees of freedom). In equation 1, which combines both variables the standard errors remain consistent which is reflected in the fact that their respective T statistics remain statistically significant.

Equation 3 and 4 in the above table are the same but the estimation technique. Due to the low DW statistic in equation 3, it is (equation 3) is re-estimated by Cochrane-Occut technique and is reported as equation 4. The estimated equation has better statistics suggesting that we have tackled the problem of first order serial correlation.

The regression results suggest that deposit rates have a positive and significant effect on financial savings. However, there is also evidence that high lending rates affect demand for credit negatively. The characteristics of the entrepreneurs and the willingness of banks to lend also seem to determine the flow of credit and small entrepreneurs may be rationed out the credit markets. Government lending programs for the small scale entrepreneurs have run into serious problems.

The Joint Loan Board Scheme (JLBS) is one of the oldest government schemes in Kenya. However loan arrears have jeopardized the running of JLBS. The 1989-1993 development plan noted in 1987, out of total loans outstanding of Ksh. 87.5 million a total of 45 million was in default. Other problems noted were false accounting and the issue of fictitious loans. From the point of view of figure A chapter 1, unfortunately the main focus for JLBS has been wholesale and retail trade, restaurants and transport. These are activities that are not directly productive in the sense of directly expanding output and its complexity; they are more of merchant capital activities.