

UNIVERSITY OF CAPE TOWN

SCHOOL OF ECONOMICS

AN ANALYSIS OF THE CAPITAL ACCOUNT OF SOUTH
AFRICA'S BALANCE OF PAYMENTS, 1960 - 1977

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A thesis submitted in fulfilment of the
requirements of the degree of Master of Arts.

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"It is well known to the learned, that the ancient laws of Athens rendered the exportation of figs criminal; that being supposed a species of fruit so excellent in Attica, that the Athenians deemed it too delicious for the palate of any foreigner. And in this ridiculous prohibition they were so much in earnest, that informers were thence called sycophants among them, from two Greek words, which signify figs and discoverer. There are proofs in many old acts of parliament of the same ignorance in the nature of commerce, particularly in the reign of Edward III. And to this day, in France, the exportation of corn is almost always prohibited; in order, as they say, to prevent famines; though it is evident, that nothing contributes more to the frequent famines, which so much distress that fertile country.

The same jealous fear, with regard to money, has also prevailed among several nations; and it required both reason and experience to convince any people, that these prohibitions serve to no other purpose than to raise the exchange against them, and produce a still greater exportation."

(David Hume, 1752)

From: D. Hume: "Of the balance of trade" (1752), IN
"Essays, Moral, Political and Literary" Vol. 1,
Longmans Green, London (1898), p.330.

CHAPTER 1

INTRODUCTION : MONETARY POLICY IN SOUTH AFRICA AND THE BALANCE OF PAYMENTS

1.1 INTRODUCTION

Recent developments in the capital account of South Africa's balance of payments have given cause for concern about the capital account and the appropriate policies that should be implemented to protect the level of South Africa's foreign exchange reserves. These developments have contributed to the appointment of a Commission of Inquiry into the Monetary System and monetary policy in South Africa, and an interim report on exchange rate policies is expected in November, 1978.

This study, which was inspired by the lively debate on this issue, is an attempt to analyse the general trends in the capital account particularly those related to the supply of foreign capital, the exchange control policies of the authorities to protect the capital account from sudden adverse fluctuations, and the determinants of flows of foreign capital.

Chapter 1, by way of introduction, will analyse the interdependence of monetary policy and the overall balance of payments. This chapter draws heavily from the work done in this area by Mr. Brian Kantor and Dr. Arnon Hurwitz at the University of Cape Town. This chapter will provide a background to the rest of the chapters which deal specifically

with the capital account.

Section 1 deals with the constraints on the supply of foreign capital. Chapter 2 describes the general trends that have been evident in the capital account since 1960. Firstly, the importance of foreign capital and the dependence of South Africa on foreign capital will be discussed. It is argued that because no general tendency for Gross Domestic Expenditure to exceed Gross Domestic Output or Product, has been displayed, South Africa cannot be seen to be dependent on foreign capital for balance of payments purposes. A second feature that becomes evident is the declining importance of the Sterling Area as a source of foreign capital. The decrease in the willingness and ability of the UK to invest in South Africa resulted in the need to find alternative sources of capital. Fortunately for South Africa, this need coincided with the expansion of world currency markets in the form of the Eurocurrency Markets. Greater recourse to this source of foreign capital, however, had important implications for the ratio of direct investment to indirect investment which in turn affected South Africa's debt servicing obligations.

Because of the apparent importance of the Eurocurrency markets, the origin of these markets and South Africa's involvement therein will be analysed in Chapter 3. As very little has been written about South Africa's participation in these markets, South Africa's credit rating in these markets will also be discussed. This will provide a background to the

increasing difficulty experienced by South Africa in raising foreign capital since 1977. The changing political face of the Southern African region resulted in greater risk attached to loans to South Africa. This initially implied increased interest rates to discount the increased political risk. It will be argued that the eventual closing of the Euromarket doors to South Africa was not purely due to political factors but to economic factors as well which affected both the demand and supply of foreign loans. The Eurobond and the "traditional" Bond Markets display similar trends.

The sudden decline of foreign capital flowing into South Africa had uncomfortable deflationary consequences. South Africa's exchange control regulations have been designed to minimise the need for these traumatic adjustments by preventing such "shocks" to the capital account. Chapter 4 analyses these policies and particular emphasis is placed on analysing the Securities Rand market. The reason for this is because the adoption of a dual exchange rate system has been mooted as one of the alternatives to the present system. A dual system of exchange rates could be easily established by expanding the current Securities Rand market. In this chapter it is argued that exchange control has not been and cannot be effective in the long run. However, a dual exchange rate system does not appear to be a useful alternative. Although it may be more desirable than the present system, a flexible exchange rate regime would appear to be a superior method of providing the economy with a large degree of insulation from external disturbances.

Section II consists of two chapters. Chapter 5 provides a brief survey of recent developments in the balance of payments theory. In particular it looks at those models that have synthesised the essential features of the monetary approach to the balance of payments and the portfolio adjustment mechanism. Chapter 6 is an empirical test of one of the models as applied to South Africa. The results of this test show that total capital flows are a function of changes in income, changes in net domestic assets, changes in the world interest rate and the current account balance. The reduced form equation used is essentially that used by Kouri and Porter (1974) in their analysis of the capital accounts of Germany, Italy, Australia and the Netherlands.

1.2 MONETARY POLICY AND THE BALANCE OF PAYMENTS

South Africa's balance of payments between 1960 - 1977 has displayed a tendency for current account deficits to be more or less financed by capital account surpluses (or what Kouri and Porter (1974) regard as offsetting capital flows). Similarly in the years when there was a surplus on the current account, this has been accompanied by a deficit on the capital account.

This tendency can be observed in Table 1.1 which provides a summary of the total current account balance and the total capital account balance since 1961. In general it can be seen that increases in the current account deficit are accompanied by decreases in the capital account surplus, although

the totals are not usually completely offsetting. There are therefore fluctuations in net foreign reserves for reasons that will be expanded upon below.

TABLE 1.1 : Summary of the current account and capital account of South Africa's balance of payments 1960 - 1977 (Rm)

Years	Total current account balance	Total capital account balance *
1960	44	- 200
1961	209	- 104
1962	313	- 81
1963	172	- 86
1964	- 60	- 28
1965	- 316	248
1966	- 26	167
1967	- 195	184
1968	47	488
1969	- 283	240
1970	- 868	556
1971	-1057	715
1972	- 90	514
1973	- 52	- 7
1974	-1008	825
1975	-1832	1527
1976	-1515	459
1977	751	- 875

* Capital movements not related to reserves. Includes errors and unrecorded transactions.

The pattern of opposite movements in the two balance of payments accounts can be explained in terms of domestic economic conditions, i.e. the state of the business cycle.

During the upswing phase of the cycle, increased incomes result in increased demands for imports. At this stage the exports will start declining as some of the potential exports are now consumed locally. The current account therefore deteriorates. The increased domestic economic activity results in increased demands for bank credit. This leads to tight credit market conditions implying higher interest rates. Because interest rates have risen relative to world interest rates, local investors find it cheaper to borrow abroad. There are therefore increased net inflows of capital and small net outflows.

In the downswing phase of the cycle, imports decline and the current account improves. The decrease in the rate of domestic expenditure results in a decreased demand for bank credit, lower interest rates and consequently greater outflows of capital (as trade credits are repaid) and smaller inflows of capital.

The above is nothing more than the automatic balance of payments adjustment mechanism at work. Under a system of fixed exchange rates, when there is an overall balance of payments surplus, the central bank has to buy foreign currency with domestic currency to prevent the latter's appreciation. This implies an increase in the domestic money supply, easier credit conditions (lower interest rates), increased spending leading to increased imports (and less exports) and increased

$y \uparrow$
 $M_0 \uparrow$
 $x \downarrow$
 Current A/c $\downarrow$
 Eco Activity $\uparrow$
 $r \uparrow$
 Capital outflows
 (borrow abroad)

If surplus
 $M_s \uparrow$
 $r \downarrow$
 $M_0 \uparrow$

capital exports (or decreased capital imports). These factors help to correct the balance of payments and bring about equilibrium between the demand for and supply of domestic money consistent with fixed exchange rates. The opposite responses take place when the balance of payments is in deficit. In this way the money supply becomes a function of the balance of payments.

Under conditions of rigid fixity of exchange rates, countries are compelled to keep their levels of aggregate demand in line with their productive capacities and competitive price levels vis-a-vis the rest of the world. In other words, the mechanism implies deflation in deficit countries and inflation in surplus countries with consequent implications for interest rates and prices. However, as Johnson (1972) points out, the post-war system has become a "mechanism of reluctant adjustment" due to the aversion of governments to inflate and deflate at appropriate times. A plethora of controls has been devised in order to avoid the short run consequences of the balance of payments for the money supply. These controls, which include import and capital controls, can only provide short term insulation to the economy, as such policies ignore the monetary implications of balance of payments disequilibrium.

The economic system of the 1970's is characterised by a high degree of capital mobility and therefore quick responses to any interest rate differentials in the case of fixed exchange rates and capital mobility with developed financial markets.

The existence of interest sensitive capital flows militates against the authorities sterilising exogenous increases in the money supply and in the long run local interest rates conform to world interest rates. Under a system of fixed exchange rates, the Central Bank's commitment to buy and sell foreign exchange at specified rates implies that a net inflow of capital causes an increase in bank deposits (as does a trade surplus). This is the case unless the Central Bank attempts to neutralise the monetary effects by open market sales, thus offsetting the increase in the money supply. But the ability to neutralise the effects of increases in the money supply is limited by the presence of interest sensitive capital flows. As long as local interest rates diverge from world interest rates, capital inflows or outflows will restore rates to the world level. Thus under conditions of tight credit, interest rates will tend to increase, resulting in an inflow of capital which tends to depress interest rates. Similarly, if an expansionary monetary policy is followed, local interest rates will fall relative to the world rate. An outflow of capital would result. Sterilisation policies are limited by the fact that any continuous attempt to neutralise the outflow of foreign exchange will result in exchange reserves being depleted.

In South Africa, the authorities have implemented policies (exchange and import controls) in order to help conduct monetary policy independent of the balance of payments constraint. In particular, the authorities have attempted to maintain a preferred structure of interest rates. In order

to maintain a given structure of interest rates the supply of money has to adjust to changes in demand. By expanding the money supply to meet extra demands, the effect is to increase demand for goods or to enable extra potential demands to be realised.

In the long term, monetary independence is thwarted despite the short-term insulation capital and import controls might provide. Thus characteristically in a situation of tight monetary policy, economic units have overcome this ill-liquidity by borrowing abroad on the capital account or by importing more or exporting less on the current account. As noted above, during an upswing in economic activity, the current account deficit increases and is usually associated with tight credit conditions. Consistent with balance of payments stability, economic units will tend to borrow abroad. But if the target of domestic monetary policy is an independent rate of interest, such rates may be low by comparison with world interest rates. This will result in a tendency to borrow less, implying that the current account deficit will increase faster than the capital account is improving.

Hurwitz & Kantor (1976) note that, "if the independent objectives of monetary policy, be they for the level of interest rates or perhaps the rate of growth of the money supply, conflicted with balance of payments stability at any given exchange rate then the exchange rate would have to be untied or some system of non-price rationing of foreign exchange established." (Hurwitz & Kantor, 1976, p.3).

tight M
borrow abroad
 $M_D \uparrow$ or $X_D \uparrow$
upswing
current AC $\uparrow$
tight credit $\uparrow$
borrow abroad

As will be seen in Chapter 4, controls on capital movements of residents were imposed in South Africa in 1956 and extended to non-residents in 1961. These controls at best provided more time for the preferred structure of interest rates to be maintained. However, because the current account can be used as a vehicle for camouflaging capital movements in the form of increased imports, dividends or profit repatriation, an outflow of foreign exchange could result. Sooner or later, out of concern for the declining level of reserves the authorities would have to increase the rate of interest. The opposite chain of events occurs when favourable balance of payments conditions persist. It is this process whereby under fixed exchange rates monetary policy is inevitably subordinated and the money supply becomes a function of the balance of payments.

Because the rate of inflation is dependent on the money supply and given South Africa's commitment to fixed exchange rates in the sixties and early seventies, South Africa's inflation rate has been dependent through the balance of payments on the world money supply. Heller (1976) has shown that the world inflation in the early seventies was caused by a large increase in the supply of dollars. The collapse of the fixed exchange rate system resulted in an end to the discipline imposed by the balance of payments on money supply growth. Rather than adopt a system of flexible exchange rates, however, the authorities continued with a policy of attempting to maintain a preferred structure of interest rates with the resultant consequences for inflation and the foreign exchange reserves.

Kantor and Hurwitz¹, in their analysis of the money supply process in South Africa, have analysed the interrelationship between the balance of payments, the net domestic asset position, the money base and the relationships between local interest rates. The Money Base (MB)² is made up of two components, the Net Domestic Asset (NDA) position of the Reserve Bank and the Foreign Asset (FA) position of the Reserve Bank. The components of FA are in fact the net capital flows in the capital account and the current account balance. Their study does not disaggregate FA into these components but in Chapter 6 of this present study this will be done in order to test empirically the determinants of net capital flows. The work of Hurwitz and Kantor, however, does provide a useful framework within which the analysis in Chapter 6 can be viewed. Their analysis is an extension of the adjustment process described above.

Hurwitz and Kantor have found that changes in domestic assets generally move in opposite directions. The reason for this is, to quote extensively from Kantor, that "(b)oth FA and NDA are alternative sources of cash for the banks and the public. If the banks acquire more cash as a result of the foreign transactions of their depositors clearly, other things equal, less will be acquired via the components of NDA. With the extra cash generated by the favourable balance of

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1. See Hurwitz & Kantor (1976), Kantor (1977) and Hurwitz (1977).
 2. The money base consists of the sum of coin, notes and other non-government deposit liabilities of the South African Reserve Bank.

payments the banks and the discount houses will repay borrowings from the Reserve Bank and hold additional interest earning government securities. As a result B (discounts and advances) decreases and GD (government deposits) increases so decreasing NDA. The opposite effects will occur when the balance of payments is in deficit." (Kantor, 1977, p.14).

The interrelationship between the balance of payments, NDA, MB and interest rates is described in terms of a business-money supply cycle. An initial favourable balance of payments results if the relationship between local and foreign interest rates is such that large quantities of capital have been attracted. As explained above, the increase in reserves are offset by opposite reductions in net domestic assets. If the increase in reserves is associated with an economic upswing, the decline in NDA will be less than the increase in reserves and the money base expands. Whether this increase in the money base, with accompanying increases in the money supply, continues, will depend on the balance of payments position. Here the relationship between foreign and local interest rates is important. "With the expansion of the money supply and unless the demand for funds ^s continued to increase proportionately or more than proportionately local interest rates will tend to fall. Depending then further on the trend in credit markets abroad any relative decline in local interest rates will influence the capital account of the balance of payments. If conditions unattractive to foreign borrowing persist, the balance of payments will sooner or later turn around." (Hurwitz & Kantor, 1976, p.9).

When the balance of payments becomes unfavourable, foreign exchange reserves decline and net domestic assets increase. Whether the money base and therefore the money supply expands further or contracts will depend on the state of demand for funds and the interest rate structure. If there is an excess demand for credit and the authorities maintain a preferred structure of interest rates, NDA will expand faster than the decline in foreign reserves. Thus the net effect will be for the money base to increase and the necessary adjustment of a reduction of the money supply in response to the balance of payments position will not be forthcoming. Eventually, however, declining reserves and the need to maintain the exchange rate will force the authorities to adjust the interest rate. An increase of local interest rates relative to foreign interest rates will take the pressure off the net domestic asset position, the money supply and therefore the balance of payments.

It is clear that under fixed exchange rates the automatic adjustment mechanism will result in balance of payments stability unless the authorities try to prevent the necessary changes in the money supply by interest rate or capital controls or by trying to maintain an overvalued (undervalued) exchange rate. In the absence of official intervention, current account deficits will be financed by capital account surpluses. If the authorities wish to pursue an independent money policy (which is only possible in the short-term), they will have to accept the resultant fluctuations in reserves. These fluctuations have in fact been a feature of South Africa's monetary developments.

Under a floating exchange rate system the balance of payments "looks after itself" and monetary policy is free of the constraint of the balance of payments on the money supply. The authorities can therefore use their monetary and fiscal policies for purely domestic considerations. Under such a system, if there is a net inflow of capital, the price of foreign exchange will decline to the point to which local residents absorb all the extra supply through decreased exports and increased imports. The domestic price level is adjusted to give the existing stock of money the real value that the public requires given its real income, i.e. the price level adjusts in relation to nominal money balances to secure the desired level of real balances. The exchange rate varies in proportion to the nominal quantity of domestic money and appreciates or depreciates as the money supply is decreased or increased, given a constant world money supply.

The core of the argument for a floating exchange rate system is that the domestic money base can be insulated to a greater extent from both monetary and non-monetary shocks that originate abroad, so that the money base is not affected by payment flows. The central bank would not be constrained from following an expansive (restrictive) monetary policy by the impacts of such measures on its balance of payments as the exchange rate would adjust to the incipient excess supply (demand) in the foreign exchange market. (This is not to say that flexible exchange rates themselves result in no inflation. It merely provides the means whereby the money supply can be controlled independently of the balance of payments and thereby the economy is able to choose its

own rate of inflation). It will be seen below that the choice of exchange rate system is important in considering the type of policy necessary to insulate the capital account from external shocks.

1.3 CONCLUSION

The above discussion was intended to provide an outline of the interrelationship between monetary policy and the balance of payments in general. It is clear that the type of exchange rate system is crucial in determining whether or not the authorities can conduct monetary policy independently of the balance of payments constraint. The relationship between the capital account in particular and monetary policy will be subjected to empirical testing in Chapter 6. In the next section the supply constraint and policies used to protect the capital account from sudden changes in supplies of foreign capital will be analysed in detail.

SECTION 1 : DEMAND AND SUPPLY OF FOREIGN CAPITAL.
AND EXCHANGE CONTROL POLICIES

GENERAL TRENDS IN THE CAPITAL ACCOUNT
OF THE BALANCE OF PAYMENTS

2.1 INTRODUCTION

Before analysing the determinants of capital flows in South Africa's balance of payments, general trends in foreign investment and foreign loans to South Africa will be discussed. There are several important features that emerge in analysing the trends in capital flows since 1960. Firstly, there is the increasing importance of foreign capital in South Africa's gross domestic product. This in turn relates to the question of whether or not South Africa does in fact need foreign capital. Secondly, the Sterling Area as a source of foreign capital and the concomitant increased importance of the burgeoning eurocurrency markets. This has resulted in the central government and public corporations playing an increasingly important part in raising foreign capital. As a consequence of this, there has been a change in the composition of South Africa's foreign liabilities with the emphasis moving from direct investment to indirect investment. This has had an effect on the debt servicing burden of the economy in that interest payments have increased considerably since loans have been raised from the euromarkets.

2.2 THE IMPORTANCE OF FOREIGN CAPITAL IN THE SOUTH AFRICAN ECONOMY

South Africa, like most developing countries, has been on average a net importer of foreign capital. South Africa

has fitted in to the economic development pattern as described by Chenery and Syrquin (1975) and Avramovic and Associates (1964)¹. According to this pattern, countries in the early stage of development have a small dependence on foreign capital. As the development process proceeds, the external resource need increases, eventually reaching a peak. At this stage of development the "resource gap" will begin to decline because the economy needs to absorb less external resources and also because it is then in a position to export resources, i.e., it has sufficient domestic resources to finance its own investments and investments abroad. De Vries notes that "as the gap starts to decline, the debt contracted to finance it will continue to rise as long as new debts are needed to cover the resource gap. In fact, the debt continues to rise even after the gap turns into a surplus and as long as the surplus is less than the interest needed to pay debts outstanding. Once the surplus is large enough to cover interest on outstanding debt the country will be able to start reducing its debts" (De Vries, 1971, p.68). Highly developed countries that have achieved high levels of income and domestic savings are therefore net exporters of capital, their gross national product (GNP) being greater than their gross domestic product (GDP).

The difference between GNP and GDP is the net factor payments/receipts, which are the payments/receipts for factor services provided by/to foreigners. These payments take the form of

1. See also de Vries (1971).

1. See also de Vries (1971).

interest, dividends, profits and wages. According to the pattern described above, as the economy develops, factor payments begin to decline whilst factor receipts will increase. Figure 1 depicts this process for South Africa since 1946. It can be seen that there has been a secular tendency for factor payments as a percentage of GDP to decline whilst factor receipts as a percentage of GDP have been rising. Although the increase in the latter has been far less marked than the decrease in the former, this can be ascribed to a large extent to South Africa's exchange control regulations. These controls have prevented South African companies and residents from investing abroad, except under certain circumstances since 1956.² The upturn in factor payments evident after 1971 can be ascribed to the increase in interest payable on foreign loans raised by the government and public corporations from the eurocurrency markets, to finance infrastructural expenditure.

Table 2.1 shows South Africa's total liabilities and assets, their annual percentage change and their respective proportions of GDP. The average growth rate of liabilities during the period 1960 to 1972 was approximately 9%. Because of the discontinuity in the statistical series between 1972 and 1973,³ the percentage change between these two years should be ignored. The average annual percentage change between 1974

-
2. A detailed discussion of South African exchange control regulations will be provided in Chapter 4 below.
 3. See Appendix A for a discussion of data sources and problems of data interpretation.

FIGURE 2.1

FACTOR PAYMENTS AND RECEIPTS AS A % OF GDP 1946-1977.

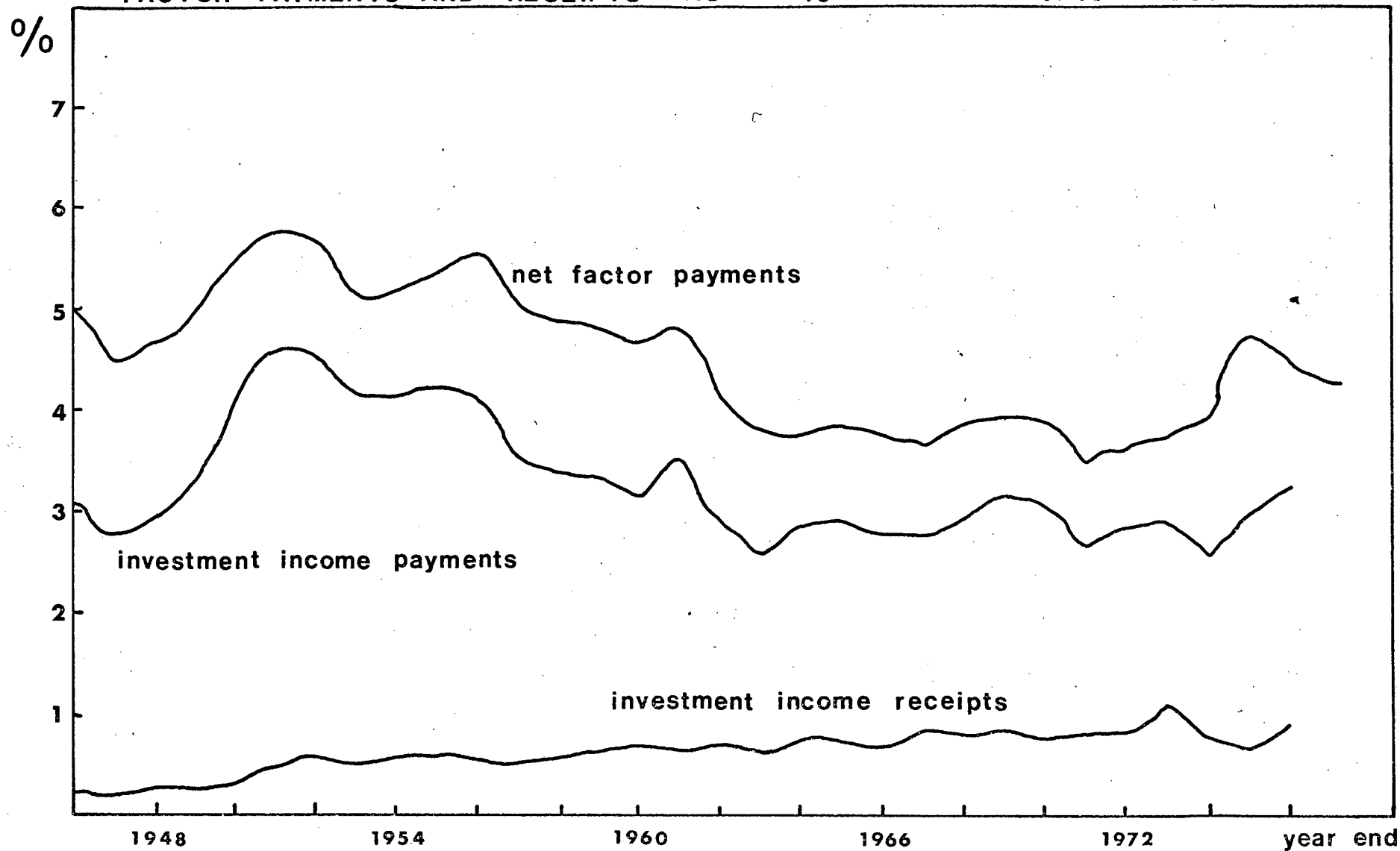


**TABLE 2.1 : Foreign Liabilities and Assets of South Africa
1961 - 1976 (R millions)**

	Foreign Liabilities	Change in Liabilities GDP (%)	Foreign Assets	Change in Assets GDP (%)
1961	3 038		1 076	
1962	3 023	- 0,25	1 320	4,10
1963	3 053	0,45	1 448	1,93
1964	3 135	1,13	1 390	- 0,79
1965	3 398	3,32	1 462	0,90
1966	3 765	4,27	1 773	3,62
1967	3 905	1,47	1 801	0,29
1968	4 562	6,40	2 422	6,05
1969	4 990	3,71	2 449	0,23
1970	5 818	6,58	2 400	- 0,38
1971	7 033	8,70	2 486	0,61
1972	7 786	4,82	3 072	3,75
1973	10 426	13,88	3 425	1,85
1974	12 775	9,94	3 891	2,06
1975	16 463	14,24	4 881	3,82
1976	19 830	11,60	5 022	0,48

Source: South African Reserve Bank Quarterly Bulletins.

and 1976 was approximately 24%. As a percentage of GDP, changes in liabilities increased steadily from -0,25 in 1962 eventually reaching levels of 14,24% of GDP in 1975 and 11,6% in 1976. This steady increase was facilitated in part by the easier access of non-bank borrowers to the eurocurrency

markets by the late sixties. At the same time the economy was becoming more capital intensive as can be seen from the steady increase of the capital/output ratio in Table 2.2.

TABLE 2.2 : Capital-Output Ratio of the South African Economy, 1966 - 1976.

1966 - 1970 ¹	2,18
1971	2,37
1972	2,44
1973	2,53
1974	2,53
1975	2,59
1976	2,70

1. Average of five calender years

Source: Nedbank, South Africa: An Appraisal.
p.222.

As noted above, South Africans wanting to invest abroad are hampered from doing so by exchange control regulations. Table 2.1 shows that in 1961 foreign assets were one third of the size of foreign liabilities. By 1976 foreign assets were only one quarter the size of foreign liabilities. Over this period the average annual percentage change of assets was 11%. Given South Africa's level of development, foreign assets would have increased more markedly in the absence of controls.

Because of the significant levels of capital flows to the

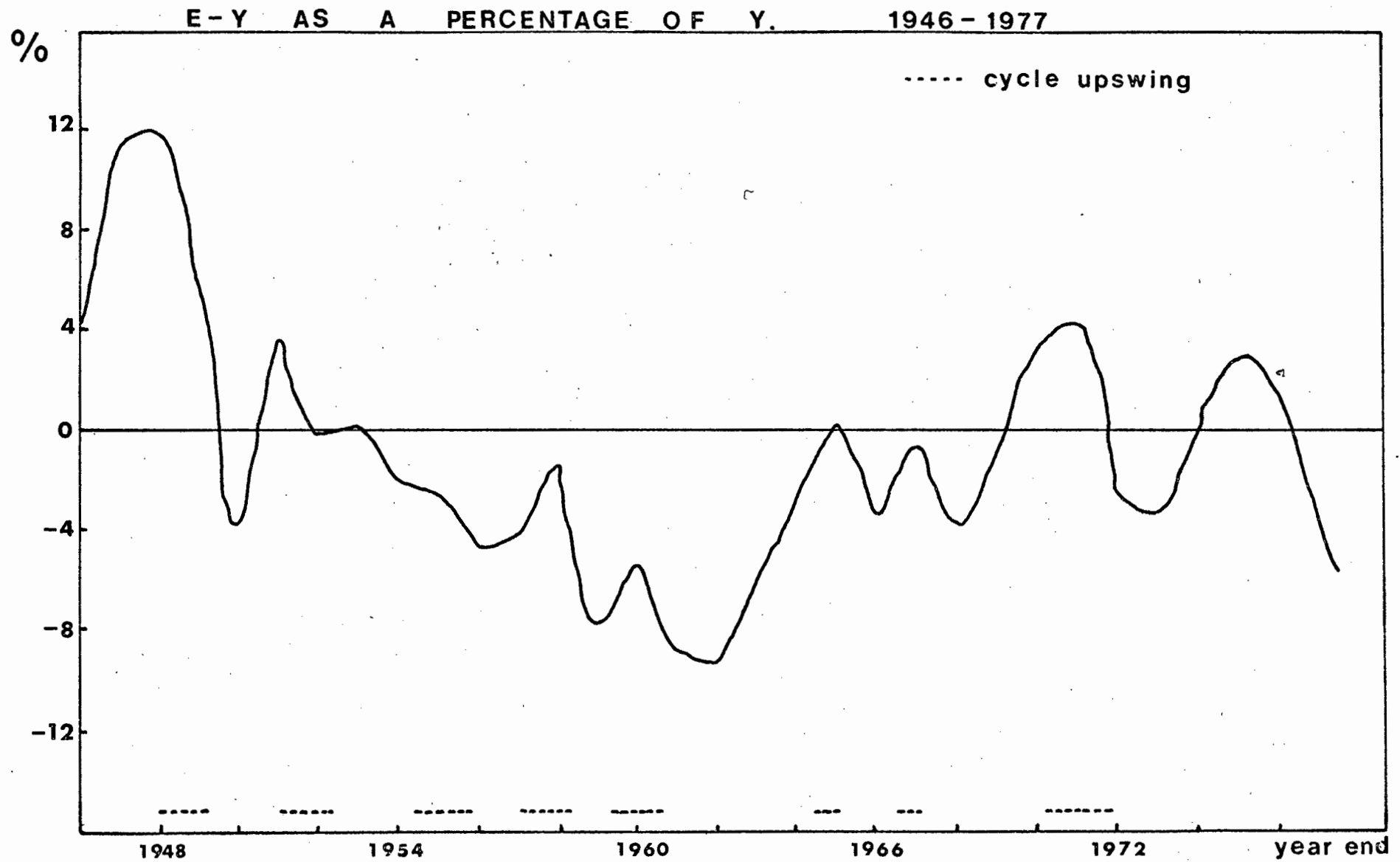
economy and especially in view of the fact that capital inflows have been necessary to finance more or less continuous current account deficits, it is often assumed that foreign capital has enabled South Africa to absorb resources from the rest of the world or to "live beyond her means". However, the balance of payments accounts do not reveal the extent to which South Africa extends its command over resources for investment or consumption purposes by means of capital transfers. The extent to which real resources are absorbed in any given period is measured by the difference between gross domestic expenditure (E) and gross domestic product (Y) or (GDP).

The difference between Y and E represents, by definition, the real capital inflows or outflows (B), which by definition equals the difference between total imports (M) and exports (X) of goods and services. That is $Y - E = X - \overset{M}{N} = B$.

When aggregate expenditure exceeds output then imports exceed exports and B has a negative value. In this case the economy is dissaving as the deficit on the current account must then be matched by an inflow of funds or a reduction in gold or foreign exchange reserves. These reserves represent part of the form in which real domestic savings are accumulated. On the other hand a current account surplus implies an increase in real saving, and the domestic economy will be repaying capital (or lending abroad) or accumulating foreign exchange reserves.

The relationship between Y and E measured as a percentage of Y is illustrated in Figure 2.2. From this figure it is

FIGURE 2.2



clear that besides the immediate post-war period and between 1970 and 1972 and again between 1974 and 1976, South Africa has consistently spent less than the value of its production. In other words, there has been no general tendency for South Africa to absorb resources from the rest of the world, and real savings have generally been positive. It is also interesting to note that the real savings rate tends to decline during the upswing phases of the business cycle, when imports usually exceed exports, resulting in short term capital inflows in the form of trade credits and/or in decreases in foreign exchange reserves. The fluctuations can also be explained in part by increases in the fiscal deficit resulting in excess demand. The fiscal deficit was R365m in the calendar year 1969 and R399m in 1970. In 1971 the deficit increased by 111% to R845m and fell slightly the following year to R748. By 1973 the deficit had decreased sharply to R246m. Again over the 1974/76 period the deficit increased from R574m in 1974 to R1 803m (a 214% increase) in 1975 and it remained at about this level in 1976.⁴

It is clear that South Africa has been repaying on balance foreign owned capital and accumulating assets since 1946. However, this does not mean that South Africa could do without foreign capital. This is because of the imperfect substitutability of foreign and domestic sources of savings. In addition, foreign capital is often accompanied by foreign

4. As a percentage of gross domestic product the fiscal deficit doubled from 3% in 1970 to 6% in 1971. Between 1974 and 1975 the fiscal deficit increased from 2½% to 7% of gross domestic product.

skills and technology for which local capital may not be a good substitute.⁵ Foreign capital is important for South Africa's growth prospects, as access to foreign markets allows South Africa to benefit from the advantages of specialisation. The availability of foreign capital has also been important in prolonging the growth phases of South Africa's business cycles. If the current account deficits which usually accompany such phases are not financed by inflows of foreign capital, these deficits would have to be financed by the country's foreign exchange reserves. Under a system of fixed exchange rates, a decline in reserves would necessitate either a devaluation or restrictive monetary and fiscal policies which would have a dampening effect on economic growth.

2.3 CHANGING SOURCES OF FOREIGN CAPITAL

The availability of supplies of foreign capital is an important factor in discussing the trends in capital flows to South Africa. A sudden fall in the supply of capital available as a result of factors independent of the immediate state of the economy could result in uncomfortable adjustments in the economy. Such changes in supply, which usually result from changes in perception on the part of foreigners of the risk attached to investing or lending to South Africa, either

5. Suckling (1975) has estimated that "foreign investment has carried with it about two thirds of the increase in GDP ascribed to technological change (that is 3,2% out of 4,8% per annum)".

necessitate recourse to alternative sources of foreign capital or else an increase in domestic savings and domestic deflation. During the period under review South Africa has faced three "crises" relating to changing supplies of foreign capital. The political disturbances following the Sharpeville and Soweto incidents in 1960 and 1976 respectively resulted in large outflows of capital as a result of changing perceptions of risk attached to investments. In these two cases domestic deflation was inevitable as recourse to alternative sources of capital was impossible.⁶ The third "crisis" was not so much a sudden capital account "shock" as a gradual decrease in the amount of foreign capital obtained from Britain, South Africa's traditional source of capital. "At about the same time as the South African economy came to require more capital - and also more foreign capital - per unit of output, Britain, earlier the major provider of risk and loan capital, became less able and then also less willing to provide funds. South Africa, of course, was not the only country to be affected by the changing status of the world's once mature creditor economy" (Nedbank, 1977, p.222). This decline in investment from Britain resulted in South Africa seeking alternative sources of funds. Fortunately for South Africa, this coincided with the expansion of international money and capital markets in the form of the eurocurrency and eurobond markets.

Table 2.3 illustrates the decreasing importance of the Sterling

6. The way in which South Africa attempted to overcome these crises by means of exchange control regulations will be discussed in greater detail in Chapter 4 below.

TABLE 2.3 : Total Foreign Liabilities of South Africa by Area of Origin, 1961 - 1972 (R millions)

	Sterling Area	%	Dollar Area ¹	%	Western Europe	%	Other	%
1961	1 919	64	589	20	456	15	18	1
1962	1 970	66	543	18	457	15	19	1
1963	1 999	66	530	18	462	15	20	1
1964	2 074	67	546	18	469	15	20	1
1965	2 211	65	603	18	556	16	28	1
1966	2 388	64	733	19	615	16	29	1
1967	2 495	64	709	18	663	17	38	1
1968	2 854	63	803	18	866	19	39	1
1969	3 074	62	800	16	1 065	21	51	1
1970	3 371	58	978	17	1 406	24	63	1
1971	3 891	55	1 302	19	1 751	25	89	1
1972	4 343	55	1 450	19	1 905	25	88	1

1. Includes international organisations.

Source: South African Reserve Bank Quarterly Bulletins.

area as a source of foreign capital until 1972.⁷ By 1964 the Sterling Area provided 67% of South Africa's total foreign liabilities. 18% was provided by the dollar area and 15% by Western Europe. After this date there was a

7. After 1972, the regional categories in the official statistics were changed and Britain was incorporated into the EEC category, making it impossible to analyse this trend after 1972.

steady decline in the proportion of liabilities from the Sterling Area and by 1972, 55% of foreign liabilities originated from this source, whilst 19% came from the dollar area and 25% from Western Europe. The availability of capital from alternative sources spared the economy of the necessity of scaling down expenditure programmes and relying on the local capital market.

2.4 THE DEMAND FOR FOREIGN CAPITAL BY CATEGORY OF BORROWERS

An interesting feature that emerges in looking at the sources of demand for foreign capital is the increasingly important role of the public corporations in raising capital from abroad. Table 2.4 shows that until the end of the decade of the sixties, total net capital movements of the public corporations and local authorities were relatively small.

By the 1970s

TABLE 2.4 : Total Net Capital Movements of Public Corporations and Local Authorities, 1961 - 1977 (R millions).

1961	1	1970	148
1962	-17	1971	185
1963	- 8	1972	179
1964	1	1973	257
1965	4	1974	462
1966	20	1975	891
1967	27	1976	612
1968	66	1977	160

Source: South African Reserve Bank
Quarterly Bulletins

By the beginning of the seventies, which corresponded to the expansion of the eurocurrency market as a source of capital for non-bank lenders, total net capital movements of the public corporations and local authorities rose substantially from R30m in 1969 to a peak of R891m in 1975. After 1975 capital flows declined to R612m in 1976 and then to R160m in 1977. This decline can be attributed to the increasing unwillingness of Eurobanks to grant loans to South African enterprises.

The large increase of loans raised by the public corporations was due to the expansion programmes embarked upon, particularly by SASOL, ISCOR and ESCOM. Table 2.5 shows that from 1973 to 1976 total foreign liabilities of this sector increased from R1 015m to R3 233m. The table also shows the relative shares of the different sectors of the economy in South Africa's total foreign liabilities. Until 1973 the public corporations were aggregated with the private sector in the official statistics, which makes comparisons before this date impossible. However, from 1973 it can be seen that the public corporations' share in foreign liabilities increased from 10% to 16% of total foreign liabilities in 1976. At the same time the share of the private sector declined from 78% to 63% of total foreign liabilities, whilst the share of the central government and banking sector increased from 12% to 21%.

The increase of the central government share is a result of two factors. Firstly, this sector's foreign liabilities includes compensatory finance (i.e. "liabilities related to

TABLE 2.5 : The Shares of Sectors in Foreign Liabilities,
1973 - 1976 (R millions)

	Central Government banking sector	%	Public Corporations & local authorities	%	Private Sector	%
1973	1 263	12	1 015	10	8 148	78
1974	1 654	13	1 532	12	9 589	75
1975	2 945	18	2 442	15	11 076	67
1976	4 087	21	3 233	16	12 510	63

Source: South African Reserve Bank Quarterly Bulletins.

reserves") which are short-term loans raised to help protect the level of foreign exchange reserves. In 1973 there was a net repayment of compensatory finance of R39m but in 1974 the inflow of such finance was R84m. In 1975 and 1976 these flows increased to R418m and R536m respectively. Secondly, the government also took advantage of the easier access to international capital markets. Table 2.6 shows that the total foreign debt of the central government increased rapidly since 1970 (except for 1973), increasing from R106m in 1970 to R317m in 1976. A large part of this increase has been due to the increase in non-marketable debt which includes long term loans syndicated from the eurocurrency market. As a proportion of total government debt fell steadily from 8% in 1961 to 2% in 1967 and remained at this level until 1970 when it began to rise, eventually reaching a level of 11% in 1976.

2.5 CHANGING PROPORTIONS OF DIRECT AND INDIRECT INVESTMENT⁸

As a result of the increased government and public sector loans raised from the eurocurrency markets, there has been a tendency for the proportion of indirect investment to increase relative to direct investment. This is because

8. Direct investment is defined by the SARB as "(a) the total investment of foreigners who had a controlling in organisations in South Africa and the investment, in these organisations of their affiliates or allied organisations or persons in foreign countries ... Non-direct investment refers to all foreign liabilities and assets not covered by the term direct investment" (Supplement to SARB Quarterly Bulletin March 1976: The Second Census of Foreign Transactions, Liabilities and Assets, 31 December, 1973, p.4).

**TABLE 2.6 : Foreign Debt of the South African Government
1961 - 1976 (R millions)**

	Marketable foreign debt	Non-marketable foreign debt	Total for- eign debt	Foreign propor- tion of total government debt
1961	91	115	206	8
1962	82	91	173	6
1963	71	70	141	5
1964	64	53	117	4
1965	57	97	154	5
1966	54	67	121	3
1967	37	55	92	2
1968	46	58	104	2
1969	63	43	106	2
1970	92	136	228	4
1971	170	246	416	7
1972	237	265	502	7
1973	222	138	361	5
1974	242	267	509	6
1975	273	613	886	9
1976	295	1 022	1 317	11

Source: South African Reserve Bank Quarterly Bulletins.

foreign investment in these sectors rarely takes the form of direct investment.⁹ Table 2.7 shows that in 1961, 61%

9. Eurocurrency loans have been syndicated by large private companies as well but not on the same scale as the public corporations (see Chapter 3 below).

**TABLE 2.7 : Patterns of Direct and Indirect Foreign Investment
in South Africa, 1961 - 1976 (R. million).**

	Indirect Investment		Direct Investment	
	Total	As Percentage of Total Foreign Investment	Total	As Percentage of Total Foreign Investment
1961	1 177	39	1 861	61
1962	1 106	37	1 917	63
1963	1 083	35	1 968	65
1964	1 084	35	2 051	65
1965	1 176	35	2 222	65
1966	1 279	34	2 486	66
1967	1 272	33	2 633	67
1968	1 476	32	3 086	68
1969	1 488	30	3 502	70
1970	1 875	32	3 943	68
1971	2 508	36	4 525	64
1972	2 891	37	4 895	63
1973	4 813	46	5 613	54
1974	6 072	48	6 703	52
1975	9 020	55	7 443	45
1976	11 649	59	8 181	41

Source: Adapted from South African Reserve Bank Quarterly Bulletins

of foreign investment in South Africa was in the form of direct investment. This percentage increased to 70% at the end of 1969. This increase in direct investment took place at a time of exceptionally high rates of economic growth in the economy. After this period the trend was reversed as greater recourse was made to the foreign money markets. In the period 1973 - 1976, indirect investment increased from 46% to 59% of South Africa's total foreign liabilities. This trend, which represents an increase in the proportion of credit as opposed to ownership in the economy, have been interpreted in some quarters as being a reflection of investors' perceptions that, in the long term, South Africa is a less secure investment than it used to be.¹⁰ While it may be true that investment in South Africa is more risky, such conclusions need to be treated with caution. Implicit in the conclusion is the assumption that before 1970 private international bank credits were readily available. As noted above, however, the euromarkets only became a major source of supply of foreign funds to non-bank borrowers in the late sixties. The greater availability of foreign savings allowed the government and public corporations to embark on infrastructural expansion programmes, especially after the rise in gold price. Because of the strategic nature of these projects, direct foreign investment was precluded.

The increased risk perceived by foreign investors cannot be

10. See for example "U.S. Corporate Interests in Africa", Report to the Committee of Foreign Relations, United States Senate. Jan. 1978 (p.45).

ascertained by looking at ratios of direct to indirect investment. What is needed is a set of indicators for each category of investor. An adequate assessment of how risk perceptions have changed can be attained by looking at such factors as the interest rates charged to South African borrowers by international banks as compared to other borrowers; South African eurobond prices; the rate of profit repatriation; and the Securities Rand discount.¹¹

2.6 THE IMPLICATIONS OF INCREASED BANK LOANS FOR DEBT SERVICING

Although the trend towards indirect investment does not necessarily imply decreasing confidence in South Africa's future, this change does have implications for the debt servicing burden of the economy. From Table 2.8 it can be seen that interest payments on non-direct investment were a small proportion of total investment income payments until the period of greater recourse to international capital markets. This percentage dropped from about 10% in 1960 to 6% in 1964/65 and eventually reached 11% in 1969. After this time the percentage increased and in 1976 just over 50% of all investment income payments was interest paid on non-direct investment.

It can also be seen that during the period 1960 - 1969, non-direct investment interest payments never exceeded 4%

11. These factors are discussed in greater detail in Chapters 3 and 4.

**TABLE 2.8 : Service Payments on Foreign Investment in South Africa
1961 - 1976 (R millions).**

	Payments for non-direct investment		Payments for direct investment			Non-direct invest. Int. Payment	
	Interest	Dividends	Interest	Dividends	Branch Prof.	As percentage of all investment income payments	As a percentage total service payments
1961	18	67	6	90	14	9	4
1962	17	68	5	70	12	10	4
1963	13	63	5	75	12	8	2
1964	13	76	5	94	17	6	2
1965	13	84	6	109	16	6	2
1966	18	87	10	113	11	8	2
1967	23	76	11	138	14	9	3
1968	24	85	13	163	12	8	3
1969	41	97	16	176	37	11	4
1970	60	99	17	173	39	15	5
1971	70	106	21	155	20	19	5
1972	95	109	29	177	31	22	7
1973	135	137	27	215	39	24	8
1974	221	148	27	174	12	38	10
1975	346	181	47	169	34	45	12
1976	506	158	42	237	47	51	17

Source: Adapted from South African Reserve Bank Quarterly Bulletins.

of total service payments. However, by 1976 this percentage had increased to 17%.

The ability of South Africa to service this debt and repay loans will depend on the future savings or the productivity of the investment. In the former case, this will require that output must increase relative to expenditure. On the other hand, if there is a net resource transfer, i.e. if the return on the investment is greater than the cost of borrowing, then no uncomfortable adjustments will be needed.

The closing of the euromarkets to South African borrowers, however, has resulted in a premature need for increased savings as many of the capital projects which were financed by foreign capital have not yet come on stream.

2.7 CONCLUSION

It is clear from the above that the changing patterns relating to capital inflows to the South African economy can be attributed to a large extent to the changing structure of international capital markets. Because of the importance of this new source of foreign capital, a detailed analysis of this market and South Africa's involvement therein will be provided in the following chapter.

SOUTH AFRICA AND THE EUROMARKETS3.1 AN ANALYSIS OF THE EUROCURRENCY MARKETS3.1.1 Introduction

In Chapter 2 above it was evident that the expansion of international money and capital markets had a significant effect on the ability of South Africa to raise loans overseas.

These markets had become South Africa's major source of medium term and long term finance by the 1970's. Because of the importance of the international markets, the development of these markets will be discussed as well as South Africa's participation therein.

Lack of information is the biggest problem to overcome in undertaking a study of the euromarkets and at best, only sketchy conclusions can be drawn. Nevertheless, the available statistics do provide some idea of how international developments have affected South Africa's account.

Broadly, eurocurrency markets are markets in which commercial banks accept interest bearing deposits denominated in currencies other than the currency of the country in which the bank operates. These funds are then re-lent either in the country in which the bank operates or in third countries. Because of the international character of the market, banks have been able to operate outside many of the existing exchange

control regulations and rigidities in national banking practices. This has allowed participants in the market to take advantage of international interest rate differentials which are caused by the restrictions to the free international movement of capital.

The term "Eurocurrency market" is preferred to the term "Eurodollar market", for although the dollar is the dominant currency in the market, there are also Euromarks, Eurofrancs, Eurosterling, etc., which have been growing in number in recent years.

3.1.2 The Origins of the Eurocurrency Markets

The origins of the Eurocurrency markets have been described in detail elsewhere.¹ In general, the origins have been ascribed to such factors as the rapid and sustained expansion of international trade and investment in the late 1950's and the continuous balance of payments deficit of the United States. Another factor of great importance was the controls on capital movements imposed by the United Kingdom and United States authorities. The Eurocurrency markets grew out of the attempts to circumvent these controls. This is hardly surprising as economic actors will always try to find means of bypassing legislation that restricts them from moving their capital freely. In this case, controls were circumvented by the creation of new money markets outside the jurisdiction of the American and British authorities.

1. For detailed accounts of the origins of the markets, see Clendenning (1970), Bell (1973) and Einzig (1973b).

American controls in the sixties in particular helped to spur the growth of the market. Firstly, Regulation Q, which set a ceiling on the rate of interest that US banks were able to pay on time deposits with maturities greater than 30 days gave the Euromarket, in its competitive environment, an attractive advantage.² But the two main controls that caused a large boom in the market were the Interest Equalisation Tax (IET) and the Voluntary Foreign Restraint Programme (VFCRP)³. which, for balance of payments reasons, attempted to stop the outflow of funds from the United States. In order to get round these controls, US banks and corporations did not repatriate earnings on foreign investment and instead deposited them in foreign Eurobanks. In this way they could carry on their lending and investment operations, bypassing the New York market, thus leading to the relative decline of New York as an international money centre and the rise of new unfettered international market. But the all important feature was that the Euromarket itself was not subject to any control as is the case with other commercial banks. Interest rates were set competitively as there were very few of the

2. In 1958-9 Eurodollar deposit rates were close to 4% whilst the Regulation Q limit was 2½% on 90-180 day deposits. No interest could be offered on banker's deposits of less than 30 days. The reverse was true in the Eurodollar market. Bell notes that "the inability of US banks to pay interest on deposits with a maturity of less than one month has given Eurobanks an open door to attract deposits by paying interest on deposits with maturities of between one and thirty days" (Bell, 1973, op.cit., p.9). See also J. Hewson and E. Sakakibara, "The effect of U.S. controls on U.S. commercial bank borrowing in the Euro-dollar market", Journal of Finance 30(4), Sept. 1975.

3. For a fuller discussion of these controls, see Lees (1974).

usual cartel-like agreements, and Eurobanks were free of prescribed reserve requirements. They were therefore able to offer more attractive rates than banks based in America.

A further thrust for the growth of the Euromarkets was that Eastern European State Banks began to place dollar balances in commercial banks in Europe rather than face the possibility of them being blocked in New York. With the growth of these balances, attempts were made to lend them out but obviously the rates would have to be competitive with those on the New York market. With the 1957 sterling crisis, these dollars came into great demand as the British authorities stopped the use of sterling for third country trade.

3.1.3 The Institutional Structure of the Eurocurrency Markets

The Euromarket is primarily an interbank market for short-term money. The main suppliers of funds to the market in the 1960's were European central banks, but in the 1970's their relative importance decreased. Commercial banks also constitute a major group of depositors by receiving dollar deposits from countries without organised money markets and making use of the Euromarket as an outlet for short-term funds, or by accepting domestic currency liabilities and converting the corresponding excess reserves into dollars. Large corporations also make extensive use of the Euromarket which besides interest rate considerations, provides them with increased convenience. Capital controls in the US made it convenient for US firms to make use of the Euromarkets rather than repatriate funds to the US which would then be

subject to controls. More recently, the Euromarkets have played the important role of recycling excess petro-dollars of the oil-exporting countries and thus enabling European economies to overcome the oil-crisis without too great a structural change.

On the demand side, borrowers include commercial banks, importers and exporters, local authorities, international corporations, international corporations and central governments. The market is often relied upon by commercial banks to extend trade credits to importers and exporters.

The growth of the Eurocurrency markets has accelerated markedly since the early sixties. Most notable has been the increase of nonbank assets of the Eurobanks. From Table 3.1 it can be seen that the liabilities of reporting banks in eight European countries grew from \$12,22 billion in 1964 to \$383,3 billion in 1974, whilst assets increased from \$12,0 billion in 1964 to \$373,7 billion in 1977. Total non-bank assets rose from \$2,7 billion in 1966 to \$78,5 billion in 1967, after having been only \$8,2 billion at the end of 1969. This is because of the increase in syndicated loans to non-bank end-users during the 1970's.

Although dollars are the predominant currency in the markets, other currencies have become increasingly important in recent years. In 1966, the proportion of currencies other than the dollar was 18%, but by 1974 this proportion had increased to 29%.

TABLE 3.1 : External Position of European Banks in Dollars and Other Foreign Currencies, 1964 - 1977 (US \$ billion).

	Total Liabilities	Total Assets	Total Assets vis-a-vis Nonbanks
1964	12,2	12,0	
1965	14,1	15,1	
1966	18,3	19,9	2,7
1967	22,2	24,3	4,2
1968	33,6	37,7	6,3
1969	56,7	58,1	8,2
1970	75,3	78,3	16,3
1971	97,7	100,1	21,2
1972	131,9	131,8	26,3
1973	191,4	188,6	35,9
1974	219,6	214,1	52,4
1975	258,6	258,1	61,4
1976	310,6	305,2	73,5
1977	383,3	373,7	78,5

Source: BIS annual reports.

The availability of these other currencies is nevertheless important as it broadens the range of investment and borrowing opportunities available.

3.1.4 The Effects of the Eurocurrency Markets

The development of the Eurocurrency markets is important to any analysis of the capital raising ability of any country. The main subject of contention here is whether in fact the development of the markets has led to a substantial increase in the world money supply (with its concomitant inflationary implications), or whether the market merely provides a substitute rather than an addition to world liquidity. Lutz (1974), for example, criticises the tendency in the literature to regard the whole "pyramid" of Eurocurrency credit outstanding at any time as necessarily forming a net addition to the world volume of credit, "... as though the world banking system would have granted just the same and no larger an amount of non-Eurodollar credit, had the Eurodollar market not existed." (Lutz, 1974, p.193).

The debate usually centres around the existence and size of the Eurodollar credit multiplier. Because of the absence of reserve requirements, it is argued by Friedman (1969), Bell (1973) and Machlup (1971), amongst others, that the multiplier should be large, whilst Klopstock (1968 and 1970) argues that the large amount of leakages from the system would tend to cause the size of the multiplier to be small. Empirical analyses have been just as divergent in their conclusions with Makin (1972) finding the average to be 18,45 for the period 1964 - 1970, Lee (1973) estimating the multiplier as being 1,51 for the period 1963 - 1969 and Klopstock (1968) estimating it to be as low as 0,5 - 0,9.

It has since been argued that the application of the simple multiplier to the Eurocurrency markets is erroneous, and a better formulation has been made in terms of a portfolio model which takes cognisance of the fact that leakage ratios are not fixed but are the result of portfolio choice on the part of participants. Therefore, the values of the ratios are likely to be sensitive to changes in interest rates. Portfolio approaches have been developed by Hewson and Sakakibara (1974a and 1975b), Niehans and Hewson (1976) and Freedman (1977) on the lines of Tobin's approach to bank portfolio selection. As Hewson and Sakakibara (1974a) note: "To expand on Tobin's statement, it is the existence of (1) a difference between the marginal yield on banks' loans and investments and the marginal cost of deposits, (2) an excess demand for loans at the prevailing loan rate, and (3) a demand for deposits at the the deposit rate ceiling (because of the monetary nature of bank liabilities) that give the money multiplier model some plausibility in a domestic banking system. However, in an unregulated competitive situation such as in the Eurodollar market, where Eurobanks are merely intermediaries in the process of international payments, none of the above conditions is necessarily met." (Hewson and Sakakibara, 1974a, p.314). Thus according to Tobin, the fixed coefficient approach assumes a bank which can change its balance sheet without affecting interest rates, because of credit market imperfections. Niehans and Hewson (1976) argue that because the Euromarket is highly perfect in the sense that interest rates on all assets and liabilities are determined from day to day in a highly com-

petitive process without significant elements of credit rationing, it is incorrect to apply the fixed co-efficient model.

"The question is still about the creation of Eurodeposits due to a spontaneous shift in asset preferences but now the interest rate mechanism moves to the centre of the stage" (Niehans and Hewson, 1976, p.5).

In their empirical estimation, Hewson & Sakakibara (1974a and 1975b) found that in the period 1968 - 1972 the Euro-dollar multiplier was slightly greater than unity (1.41) - i.e. total deposits would have increased by slightly more than the magnitude of the primary deposit inflow during that period. However, they do not state that this is an absolute maximum (because the figure for central bank redepositing in the market is very high) and on average, the multiplier is likely to be less than unity, making it in fact a divisor. Thus in the absence of central bank redepositing the multiplier would fall between zero and one. The initial shift of deposits would be offset by what they term "net interest rate leakages" which occur as wealth owners adjust their portfolios in response to changes in relative interest rates that follow the initial deposit inflow. The exact size of the multiplier depends on the interest elasticities of the functions in their model. When central banks hold part of their reserves on deposit in the market, the multiplier's value would fall between zero and $1/1-cd$ where cd is the ratio of central banks' holdings of Eurodollar deposits to their total foreign reserves.

Niehans and Hewson (1976) take the analysis one step further by asking the fundamental question as to whether the multiplier can be interpreted as a measure of the "liquidity impact" of the Eurobanking system. A distinction is drawn between "gross liquidity" - which is the total liquidity measured by adding to currency the relevant liabilities of the banking system - and "net liquidity" which takes the assets of the banking system (and therefore the liabilities of nonbanks) into consideration. Thus while it may be true that in the banking sector net and gross liquidity coincide, this is not the case in the Eurocurrency markets. As Niehans and Hewson put it: "Suppose ... a bank accepts time deposits to make short term loans in such a way that the maturities and other contractual conditions are exactly matched. In this case the liquidity coefficients of assets and liabilities would be equal. The creation of gross liquidity would not be accompanied by the creation of net liquidity, and the gross liquidity measure would be a misleading indicator of macro-economic effects. It is submitted that this case is closer to the realities of the Eurodollar market than the first. If this is so, the whole debate about money creation in the Euromarket is largely beside the point" (Niehans and Hewson, 1976, p.9).⁴

For there to be net liquidity creation for the non-bank sector, what is necessary is a situation where liabilities

4. They also note that there are examples in the Euromarkets of banks making loans with a higher liquidity than the deposits it accepts, resulting in a reduction of net liquidity accompanying the actual expansion of gross liquidity.

are mismatched, i.e. banks borrow "short" and lend "long" (Positive maturity transformation). Perfect matching of the balance sheet is achieved when funds are matched for each maturity, resulting in no net liquidity creation, while if banks borrow "long" in order to lend "short", net liquidity of nonbanks is reduced (negative maturity transformation).

An analysis of the maturity structure of London based Eurobanks show at most an overall degree of positive transformation on a very small scale. Thus from a point of view of increased inflation, the Eurobanks cannot be seen to have increased the world money supply.⁵ Niehans & Hewson contend that the Eurocurrency market is "in the main, a network for the efficient distribution of liquid dollar funds" (Niehans and Hewson, 1976, p.15). Thus although the absolute amount of credit available may not have been increased as a result of the development of the Euromarkets, these markets have facilitated easier and cheaper access to foreign credit.

The above can be explained by recourse to a transactions-cost interpretation. Transactions costs in this case would include cost of market information collection, communications

5. It is argued by Niehans and Hewson that it is in fact the central banks' actions in the Euromarkets that have been inflationary. The fact that the markets were used by central banks does not imply that the absence of the market would have precluded central banks from increasing the money supply by means of open market operations.

costs, taxes, costs of gaining information about borrowers or lenders, and costs of administering accounts. The general functions of banking systems are liquidity creation and distribution. Therefore one of its functions is to channel funds from lenders to borrowers in such a way that transactions costs for a given loan are minimized. This way of looking at the market helps us to understand the relationship between say the Eurodollar market and the US dollar market. We assume there are banks and nonbanks in the US and Europe and nonbanks use banks as intermediaries as transactions costs are lower than if they dealt directly with each other. If transactions costs of European banks on dollar transactions are higher than the costs in US banks then all dollar transactions would go through US banks making the Eurodollar market redundant. If US banks are faced with increasing costs, then dollar transactions will be channeled through US banks only as long as the marginal cost of US banks are lower than the marginal costs of Eurobanks.⁶ The reverse is true if transactions costs are higher in the US market. Logically, therefore, the upper limit to the size of the Euromarkets is reached when costs in the US markets are so high as to make it profitable for all holders of dollars (including in the US) to operate through European banks. It is clear from this that the Euromarkets have not caused a net addition to world credit but rather a more efficient substitute for the US banking system.

6. An interpretation along these lines is given by A. Swoboda (1968).

Even if transaction costs are in general higher in the US, there will still be holders of dollars in the US and Europe who still find it profitable to hold dollars in the US money markets. The actual size of the Euromarkets will depend on "the different transactions costs of US banks and Eurobanks as expressed in the deviations of their borrowing and lending rates for different customers" (Niehans and Hewson, p.21). These differences can be explained by three main factors. Firstly there are the differences in location. Secondly, there are differences in legislation. For example, when the VFCRP (see section 3.2 above) was still in force, it imposed limits on United States foreign lending which encouraged American firms to retain their foreign balances with their branches or banks in Europe. Finally there are differences in efficiency.

The Euromarkets should be seen therefore as a substitution for rather than an addition to other world money markets. In fact, as McClam (1976) points out, Eurocurrencies may be seen as substitutes for four alternative types of accommodation - foreign money markets, forward exchange markets, domestic credits to non-banks and domestic "monetary base" expansion.

3.1.5 The Interest Rate Structure of the Eurocurrency Markets

A factor of importance, already alluded to above, is the interest rate structure of the Eurocurrency markets. Marston (1975) has shown that interest rates between different Eurocurrencies move closely together. He demonstrates how each

non-dollar Eurocurrency rate is linked to the rate in the dominant Eurodollar market through arbitrage undertaken by Eurobanks. His evidence from regressions of non-dollar Eurocurrency rates on Eurodollar rates and the corresponding forward premium confirmed that each non-dollar rate adheres closely to interest parity.

Of greater importance is the relationship between Eurodollar rates and domestic US dollar rates, particularly loan rates. Theoretically, one would expect that the loan rate would be lower on the Euromarkets in order to encourage borrowers to turn to the Euromarkets. "The Eurodollar rate is unlikely to be pushed up to full equality with the American rate. This is because even among those firms which are large enough and well known enough to be eligible for Eurodollar loans, there are doubtless many of which the managements are either not well enough acquainted with the Eurodollar market, or else see an advantage which they regard as offsetting that of the interest rate differential." (Lutz, 1974, p.195).

However, in practice this has not been the case and Euro-dollar 3-month loan rates have generally been higher than the domestic US loan rates.⁷ This can, of course, be explained with reference to the transactions costs discussion above. For example, when there were restrictions of movement of capital out of the US, US monetary policy did not fully

7. See for example OECD International Financial Statistics and Bank for International Settlements Annual reports.

determine Eurodollar rates besides setting limits on Eurodollar deposit rates and Eurodollar loan rates.

3.1.6 Medium and Long Term Syndicated Credits

An interesting and increasingly important feature of the Eurocurrency markets is the market for medium term syndicated credits or roll-over credits which has developed at a rapid pace since the early 1970's and once again demonstrated the degree of adaptability and versatility of the international capital markets. According to Einzig, "the increase in the new device was stimulated by the availability of Eurodollars owing to the decline of their use by American, Japanese, German and other borrowers. Ever since the emergence of the Eurodollar system it found new uses again and again whenever its previous use declined. Its latest use is for the purpose of financing roll-over credits or of serving as offsetting deposits to lenders." (Einzig, 1973a, p.70). Another reason for the boom in roll-over credits resulted from fierce competition between Eurobanks most of which were established after the mid-sixties.⁸ According to Niehans and Hewson (1976, p.13) in recent years about 90% of all loans to nonbanks have been of the medium term floating rate type.

The World bank defines such Eurocurrency credits as "... credits granted by banks out of funds borrowed in the Eurocurrency

8. See S.I. Davis, 1976.

market rather than financed from domestic currency deposit resources or borrowed in the internal money market. The term "Euro" is also used to refer to "offshore" markets outside Europe. The term "credit" is used to refer to loans, lines of credit, and other forms of medium- and long-term credit.⁹

These credits are often called syndicated credits as they are usually financed by a syndicate of banks. "Roll-over" credits is another term used to describe such credits as they are credits drawn down as short term advances which are renewable at the end of each fixed interest period.

Roll over credits have replaced alternative borrowing facilities - in particular short term credits, capital issues and medium term credits at fixed interest rates. Einzig (1973) argues that economic expansion had been handicapped by the inadequacy of medium-term credit facilities. "In the absence of such facilities, firms had to choose between raising unduly large share and debenture capital, or depending on being able to obtain repeated renewals of short-term bank credits. As a result of the increase of prosperity during the fifties and sixties, and of the increase in demand for capital goods, the requirements of medium-term credits increased considerably. The market for capital issues might have been unable to meet those requirements in full if it had not been supplanted by the development of medium term bank credits." (Einzig, 1973a, p.75).

9. Term is the expected period between commitment and final repayment. More than one year is defined by the IMF as long term, but shorter terms, e.g. three to five years are often referred to as medium term.

Of great interest is that these medium term credits were expanded considerably since the late sixties at a time when interest rates were increasing rapidly and uncertainty existed as to future movements of interest rates which would have tended to make such medium term lending either too risky for banks or too expensive for borrowers. The way that this problem was circumvented was the implementation of variable or floating interest rates. This device works as follows: the basic interest rate of the loan is related to the London Inter-bank Offer Rate (Libor) or some other Eurocurrency interbank rate, as stipulated. The contract also stipulates which rate is the relevant one, i.e. the 3 month, 6 month or 12 month rate. (The six month rate is most commonly used). Over and above the basic rate there is the margin called the "rate" or "spread", which is fixed throughout the duration of the credit unless otherwise stipulated. Every six months the basic rate is changed according to the change in the relevant interbank rate, but the spread remains the same. It is also possible for provision to be made for different basic rates and spreads to apply from certain dates, which provides incentive for early repayment.¹⁰

The spread above the interbank rate is nothing more than division between the wholesale and retail money markets. But an added advantage that borrowers have, is that they are

10. In fact, a forerunner to the floating rate was a system whereby interest rates were fixed for a certain duration of the loan and thereafter changed to a predetermined rate. The obvious drawback of this was that there was still considerable risk involved to both borrowers and lenders as such stipulated rates did not necessarily follow actual market rates especially during times of interest rate volatility.

in fact obtaining medium-term funds at the cost of short-term funds because of the fact that such financing is related to the short-term interbank rate. In all, the device of floating rates can be said to have allowed easier and cheaper access to funds as it enables borrowers to abstain from committing themselves for long periods to interest rates which might be too high. On the lending side, the banks are able to hedge against losses that might result from an increase in interest rates by reborrowing the amounts lent for the period in question. Thus banks can use short-term deposits to fund the credits.

From the bank's point of view, such loan development also came about because "... the easy availability of loan participations through the syndication process and the historically almost unique phenomenon of starting a new business with a large capital base but no loans, created strong pressures to build up a large loan portfolio in a short period of time ... (T)he typical Euro-banker on opening for business often finds himself with a paid-in capital of at least several million pounds, a substantial overhead to amortise and the implicit or spoken requirement to meet certain earnings targets which in reality can only be met in the short-term by putting loans on the books" (Davis, 1976, p.41).

The actual negotiation of a Eurocurrency credit is extremely involved and may take as long as a bond placement negotiation. The funds are usually provided by a syndicate of banks which allows for a greater distribution of risk especially in cases where large sums are involved. Syndicates

involve an average of about 40 banks. Although there are various methods of syndication two methods are the most common¹¹ - the "broadcast system" and the "straight syndication". In the former case, the selected managing bank tries to obtain participation by telex from different banks, and in the latter case the loan is committed from the start by a group of banks selected by the managing bank. The managing bank undertakes a risk evaluation of the country or project to be financed and sends this on to potential participants. Mohammed and Saccomanni point out that in this type of lending, banking principles are increasingly supplemented by the insurance principle in that the focus is primarily on risk distribution and secondly on creditworthiness.

An important aspect to be looked at more carefully, therefore, is the problem of risk. Although being a lead bank does not necessarily involve greater risk than others if it does not supply a large part of the loan, the reputation of the bank is at stake. The rapid expansion of the Euromarkets and keep[Ⓢ] competition among the banks with the corresponding lengthening of maturities and declining spreads lead to fears of vulnerability of the market in view of the large amount borrowed by developing countries and the threat of default especially by Zaire. As Einzig notes: "Although they (the developing countries) received various forms of foreign

11. For a discussion of the various types of syndication see Einzig (1973a) and Mohammed and Saccomanni (1973).

aid, their credit rating was too low for attracting private investors; they had to depend on loans from the World Bank and credits guaranteed by the governments of the lending countries. Strangely enough, banks which would not have lent their names to public issues of such countries - issues which were to be taken up by private investors - were prepared to lend them their own money, and that of their depositors in the form of roll-over credits" (Einzig, 1973a, p.76).

Different Euro-banks use different techniques of credit rating and risk diversification. "The nature of, Eurocurrency lending has shifted markedly during the 1970's towards longer maturities, a greater involvement in finance for large projects with a significant commodity, technological or competitive risk; and a much larger component of country risk, in particular countries which do not have a long or positive record of borrowing from the private banking sector." (Davis, 1976, p.42). Davis distinguishes various techniques of risk evaluation: (i) "name" credits; (ii) relying on the judgment of the parent bank; (iii) using their own credit expertise. Most banks have a maximum limit on exposure to one borrower or related group of borrowers which generally ranges between 10 - 20% of stockholders funds. For banks which recognise a maximum exposure limit, there is often a distinction made by maturity (i.e. a higher percentage of net worth for short term loans) and by country (i.e. a highly favoured government merits a higher percentage exposure). Such approaches may be applied to a country or a particular borrower within a country or even different sectors or industries within a country.

An important indicator in the Eurocredit market is that of the "rate" or "spread" above LIBOR that borrowers are charged. While it is useful for an analysis of the profitability of loans made by banks, it is of greater interest to look at it from the borrowers' side. The spreads are often regarded as indicator of a country's or borrower's riskiness. However, this is not the only determinant of the spread. Einzig (1973, p.43) lists the following factors liable to affect the spread:

1. The supply of credit available in general or for medium-term credits in particular;
2. The demand for medium term credits;
3. The level of interest rates;
4. Expectations of changes in interest rates for subsequent interest periods;
5. Term on which lenders can hedge;
6. Keenness of competition among lenders;
7. Assessment of the credit risk by lenders;
8. Credit rating of individual borrowers;
9. Extent of their outstanding indebtedness;
10. Exchange control risk;
11. Exchange rate risk or cost of covering it;
12. Options and other terms of the contract.

Although the spread is determined by the above factors, it is still possible to draw certain tentative conclusions when analysing the spreads granted to certain countries. Thus although we might find that over a period of years the spread granted to a certain borrower has increased, we can more or

less determine to what extent this is due to increased indebtedness and higher risk rating rather than to a decrease in supply by comparing the spreads to the average spreads over that period of similar types of borrowers. The maturity of a loan is a further variable which can be used to analyse the credit rating of a particular borrower.

One of the biggest problems associated with analysing the extent to which a country obtains roll-over credits is that of the lack of information. It is impossible to ascertain how much of Eurobank lending is in this form as banks are not legally required to ^{make} public such information. As noted above, such credits have only become a major factor in the international markets since the early 1970's and before then extremely few credits were publicised. Since 1971 banks have been far more forthcoming and a large number of credits are publicised in the financial press. Also, since 1973 the World Bank and the OECD have published statistics of roll-over credits, but here again the completeness of these data depends on the willingness of banks to divulge details of their lending.

The way Eurocredits are publicised are by means of "tombstones". These are advertisements which contain the bare outline of the transaction, viz. the borrower, the amount of the loan, maturity, the names of the managing banks and members of the syndicate. They do not contain information as to how much each bank has contributed. They are publicised for the record only and not as an invitation for subscription. The entire amount has been publicly placed by the time the notice

is published. "In house" loans are those granted by single banks and are not usually publicised. Banks usually publicise their lending as competition between the banks had resulted in a need for them to advertise their placement power. In some cases borrowers want publicity because their prestige and creditworthiness is enhanced when their names are associated with prominent banks. This advertises their acceptability to the international community. However, not all loans are publicised. Loans with a commitment period of less than 3 years and loans for less than \$3 m are not publicised as this does not necessarily advertise the strength of the lending institution. Also, in many cases banks do not want to publicise the fact that they are associated with certain borrowers. In other cases, borrowers do not want to show that the extent of their foreign indebtedness is increasing. Borrowers might also be averse to advertising loans related to strategic projects (e.g. defense purposes). For the above reasons it is apparent that it is difficult to estimate the exact amount lent out. Mohammed and Saccomanni (1973) estimate that "tombstones" understate by 50% or more the actual volume of credit extended by Eurobanks to developing countries. While it would be expected that this figure would be lower for industrialised countries (which have fewer untested borrowers), this does not imply that it would apply to South Africa. In fact, in the case of South Africa, no tombstones have been published since the end of 1972. The reason would seem to be that banks do not wish to publicise the fact that they are dealing extensively with South Africa. However, despite the fact that "tombstones"

are not published for South Africa, statistics can still be obtained from those banks that do report to the World Bank and the OECD. Such statistics are not exhaustive, however, as banks might not report details of all their lending and some banks might not report any at all.

3.2 SOUTH AFRICAN BORROWING IN THE EUROCURRENCY MARKETS

Since 1975 the Bank for International Settlements has published data of the external positions of Eurobanks in the Group of Ten Countries, Switzerland, and foreign branches of US banks in the Caribbean area and the far east. According to the reported statistics, the Eurobanks' assets vis-a-vis South Africa were \$4,76 billion at the end of 1975. By December, 1976, this figure had increased to \$6,96 billion and by December, 1977, had risen to \$7,16 billion.¹² These figures exclude unidentified borrowings from Canadian and United States banks. However, these figures do not distinguish between short term and long term loans to South Africa.

3.2.1 Short Term Loans From the Eurocurrency Markets

Because borrowing from the short term market is never publicised, it is difficult to give precise details of South Africa's borrowing from this source. There are three main categories of short-term borrowers:

12. Reports, 1976-1978.

1. Importers who would need to obtain trade finance. According to bankers, trade finance is usually obtained from non-Euromarket sources, e.g. dollars from the US and sterling for trade with England,¹³ and Deutsche marks from Germany. The Eurocurrency markets are used to a much smaller extent for trade credits and then usually when existing lines of credit are fully used up. It is usually non-prime borrowers that receive Eurodollar trade credits as the cost of such credits are higher than, say, raising short term trade credits in the domestic US money markets. Greater recourse to the short-term Eurocurrency markets will have to be made if trade finance becomes more difficult to come by. Sterling finance can only be obtained for trade with Britain whilst the United States Export-Import Bank (EXIM) has placed a ceiling on South African trade finance. According to the US Federal Reserve Bulletin of Statistics, short-term claims on South Africa at the end of March 1977 were \$802m (R679m). German export credit guarantees increased from R225m in mid 1976 to R1 050m by the end of 1977.¹⁴ The German authorities have now placed restrictions limiting such credits to DM50m (about R18m) for each deal. However, the ceiling will be lifted for cases where the existence of the ceiling would result in unemployment in either Germany

13. Since the mid-sixties sterling trade finance from Britain has only been granted for trade with the United Kingdom and not for third country trade.

14. The Argus 9.11.1977 (Cape Town).

or South Africa. If these ceilings are effective, South Africans will have to seek increasing amounts of trade credits from Eurobanks.

2. Banks are potential borrowers from the short-term Eurocurrency banks, especially in view of the fact that the market is primarily an inter-bank market.
3. The Central Government has also used the Eurocurrency markets as a source of short-term finance. This was particularly the case in 1975 and 1976 when a total of R954m was raised in order to protect the level of foreign exchange reserves. However, the Euromarkets are not the only source of compensatory finance as such finance has also been raised in the past from foreign government authorities. Nevertheless, because of the magnitude of compensatory finance needed, it is probably true to say that the ability of the authorities to protect the level of reserves was to a large extent facilitated by the availability of short-term funds in the Euromarkets.

3.2.2 Medium and Long Term Loans from the Eurocurrency Markets

Although no statistics are available for short-term borrowing, a clearer picture can be obtained from data relating to medium and long term borrowing. South Africa's borrowing from the medium term market was negligible before 1970.

"Because no separate records regarding Eurodollars are available, it is difficult to determine to what extent the Republic has been participating in the Eurodollar money and

capital markets. It is known, however, that a few loans were obtained by South African firms in this market. In total it is estimated that these loans did not exceed R50m. As far as can be determined no single loan was obtained by any South African organisation in excess of \$20m." (ISCOR, 1969). As noted above, the data that is available since 1970 is not exhaustive and represent only those loans reported or publicised. The amounts therefore should be regarded as a minimum. Table 3.2 shows the extent of South Africa's borrowing from the Euromarkets. It can be seen that South Africa's borrowing increased substantially since 1973. In 1976 \$1 088m was raised but in 1977 no loans were forthcoming. The cumulative total since 1970 is \$3 422,4m.

TABLE 3.2 : Reported South African Syndicated Medium Term Loans from the Eurocurrency Market. 1970 - 1977 (\$m).

	Total
1970	60
1971	226
1972	149
1973	498,2
1974	791,3
1975	562,5
1976	1 088,4
1977	0

Source: For details of sources see notes to Appendix B.

Until 1977 South Africa was a substantial borrower in the Eurocurrency markets, especially since 1973 from when comparisons can be made. From Table 3.3 it can be seen that South Africa's borrowing increased from 4,2% of industrialised countries' borrowing in 1973 to 11,12% in 1976. Borrowing increased from 2,49% of the world total to 3,39% in 1976. In 1973 South Africa was the fifth largest industrialised country borrower (eleventh largest overall). In 1974 South Africa was still the fifth largest industrialised country borrower (ninth largest overall), but by 1975 and 1976 South Africa was the second largest industrialised country borrower (sixth overall).

From the list of known borrowers as shown in Appendix B, it can be seen that the main users of the Euromarkets are the public corporations. If we consider only the 69 loans known according to borrower since 1971 (making a total of \$3 166,4m) we see that the Central Government¹⁵ has raised 6 loans (\$585m), the public corporations 36 loans (\$1 853,7m) and the private sector 26 loans (\$726,5m). Of the public corporations, the largest borrowers have been ISCOR with 15 loans (\$963m), ESCOM with 4 loans (\$355m) and SAR & H with 6 loans (\$279,3m). In the private sector the majority of loans have been raised by different mining companies and S.A. Breweries. Of the loans known by borrower, public corporations accounted for 58,5% of the total, the central

15. For convenience, SAR & H and the Department of Posts and Telegraphs have been classed as public corporations.

**TABLE 3.3 : South African Borrowing in the Eurocurrency Markets
Compared with Other Borrowers (US \$m).**

	South Africa	Developed Countries (A)	Developing Countries (B)	% of A	% of B	% of Total
1973	498,2	11,671	8 269	4,26	6,02	2,49
1974	770,1	17,243	9 741	4,46	7,9	2,85
1975	562,5	5,090	12 429	11,05	4,5	3,21
1976	856,4	7,700	17 500	11,12	4,89	3,39
1977	-	-	-	-	-	-

Source: Adapted from IBRD Borrowing in International Capital Markets.

government accounted for 18,4% while the private sector accounted for 22,9%.

In looking at the growth of Eurocurrency credits we can see that the increase in lending corresponds to a large degree to the large capital expansion programmes undertaken by the public corporations in particular and the economy in general following the increase in the gold price in the 1970's. A significant feature, however, is the fact that in 1977 hardly any loans were known to be raised. It is apparent that the "taps have been closed" to South African borrowers. Most reports put this down to the increased political uncertainty that South Africa has been experiencing since the Angolan War at the end of 1975 and the Soweto riots in June 1976. Thus although it can be seen that South Africa managed to raise a record total in 1976 (especially in the last two quarters of that year), it should be borne in mind that there is a lag between the manifestation of a change in the evaluation of political risk and change in the amounts lent. This is because of the time it takes to complete the negotiations of such loans. Although \$50,4m was known to have been raised after the Soweto unrest, negotiations for these loans had certainly begun before these events, or before it became clear that this unrest was not just a transitory phenomenon. However, it would be misleading to ascribe the inability of South Africa to raise loans from this source entirely to political events, as political risk is not the only determinant of credit-worthiness. There is also the fact that there were fears on the part of Euro-banks that South Africa had "over-borrowed" (as seen in

Table 3.3, South Africa has borrowed extensively). But possibly more important is the fact that at this time South Africa was beginning to experience chronic balance of payments difficulties.¹⁶ This could have led bankers to fear about South Africa's ability to repay her debts.

The reasons for the decrease in loans should also be looked for on the demand side of the equation. The drop in loans could be attributed in part to the decrease in demand for medium to long term capital because of the recessionary phase of the economy. Another factor that should be taken into consideration, especially concerning the private sector, is the fear of devaluation. The 4,8% and 17,9% devaluations of September 1975 resulted in an increased burden of interest payments and loan repayments on the part of these companies and continuing devaluation expectations during 1976/77 could have contributed to a lack of demand for foreign loans. Forward cover is only granted for loans used in the import of capital equipment.¹⁷

A lot has been said about pressures put on various banks by different pressure groups to get them to stop lending to South Africa. Due to the competitive nature of the market, it is difficult to see how such moves could affect South Africa's ability to raise capital from the Euromarkets. South Africa has not been dependent on any single bank or

16. In the 1975 and 1976 calendar years, changes in net gold and other foreign reserves owing to balance of payments transactions were -R305m and -R1 056m respectively.

17. See Gidlow (1977).

group of banks for its loans and if one bank or more had to restrict credit to South Africa, competitive forces would ensure that other banks would step in to provide loans. Whether or not South Africa receives loans from the Euro-markets, therefore, will depend almost entirely on the banks' own perspective of political and economic conditions. As noted above, banks do not have to publicise their lending and this anonymity could protect them from pressure groups. Appendix C shows the different lead banks that have provided loans to South African borrowers. They include British, American, French, German, Belgian and Italian banks.

3.2.3 South Africa's Credit Rating in the Eurocurrency Markets

To see how banks do regard South African borrowers it is useful to analyse the spreads and maturities allowed for South African loans, bearing in mind the problems involved in using these indicators too uncritically. Details of spreads only became increasingly available after 1973. Appendix B provides details of spreads and maturities.

Spreads granted to the Government and public corporations (whose loans are usually guaranteed by the government), tend to be lower than those of private companies. In 1972, the spread for Impala Platinum's loan (which was guaranteed by Union Corporation) was $1\frac{1}{4}$ whilst that for ESCOM (guaranteed by the Government) was only $\frac{3}{4}$. Although Impala Platinum's loan was of a longer maturity (8 years as opposed to ESCOM's 5 years), the amount borrowed by them was only \$12m compared to ESCOM's \$50m. In 1974, Central Government loans

had a slightly lower spread than the public corporations. Government spreads for 10 year maturities were $\frac{5}{8}$ for the first 3 years and $\frac{3}{4}$ for the next 7 years, whereas the public corporations paid $\frac{3}{4}$. Rustenburg Platinum, on the other hand, paid a spread of 1 for a 4,5 year loan of \$28m. From October a feature was a general increase in spreads. Thus from October 1974 to December, 1975 we find the central government with a spread of $1\frac{1}{2}$ (for 3 years), the public corporations with spreads of $1\frac{1}{4}$ - $1\frac{3}{4}$ (Gen Min; AECI) to 2 (Triomf) and Sentrachem and Tiger Oats with spreads of $2\frac{1}{4}$. Anglo American's $1\frac{1}{2}$ can be attributed to this corporation's high standing overseas. Table 3.4 illustrates these trends.

An interesting feature, however, is not merely the fact that the private companies tend to pay more for loans than the public corporations, but that spreads have tended to increase over the years for all categories of borrowers. What is important, therefore, is to analyse whether this is as a result of general market conditions resulting in wider spreads throughout the market or whether South African borrowers are tending to pay higher spreads in the face of generally declining or static spreads. This would indicate something about the banks' views of South Africa's political and economic conditions. In order to do this, a comparative analysis is necessary.

A notable feature of the general trends in the spreads is that although intense competition forced a decline in spreads in the early 70's, there was a marked general tendency for

TABLE 3.4 : Reported Spreads of South African Borrowers

	Central Govt.	State Corps.	Private Sector
1972		$\frac{3}{4}$ (Aug)	$1\frac{1}{4}$
1973		$\frac{3}{4}$ (Mar) 7/8 - 1 (Sep) $\frac{3}{4}$ (Dec)	
1974	5/8 (Apr) 5/8 - $\frac{3}{4}$ (Apr & May)	$\frac{3}{4}$ (Mar) x 2 $\frac{3}{4}$ (May) $\frac{3}{4}$ (Jul) $1\frac{1}{4}$ (Oct) x 2	1 (Aug) $1\frac{3}{4}$ (Dec)
1975	$1\frac{1}{2}$ (Oct)	$1\frac{1}{2}$ (Feb) $1\frac{3}{4}$ (Mar) x 2 $1\frac{1}{2}$ (Apr) $1\frac{3}{4}$ (Jul) $1\frac{3}{4}$ (Nov)	$1\frac{1}{2}$ (Jan) 2 (Mar) $2\frac{1}{4}$ (Jun) $1\frac{3}{4}$ (Sep) $1\frac{1}{2}$ (Nov) $1\frac{3}{4}$ (Dec)
1976	1 7/8 (Nov)	$1\frac{3}{4}$ (Jan) $1\frac{3}{4}$ (Feb) $1\frac{3}{4}$ (May) $1\frac{3}{4}$ (Sep)	1 7/8 (Aug)

Source: OECD International Financial Statistics
and IBRD Borrowing in World Capital Markets.

them to increase from the fourth quarter of 1974.

Several borrowers have been chosen for comparison. All the borrowers are government guaranteed state corporations in various countries. The United Kingdom and Republic of France have been used to show how South Africa's spreads have compared since 1973 with those of "prime" borrowers on the market. Mexico and Spain tend to be regarded as countries at a comparable stage of development with South Africa. Brazil and Phillipines are regarded as being at a lower stage of development whilst Gabon is used to illustrate the position of countries at the end of the development spectrum. SA Central Government borrowing and ISCOR borrowing (which is guaranteed by the government) have both been included to allow for a larger South African sample. Table 3.5 shows selected spreads for the abovementioned borrowers.

From the table it can be seen that South Africa's spreads have generally been wider than those of the prime borrowers, England and France. In April 1974, when South African spreads were $5/8 - 3/4$, the United Kingdom obtained an enormous \$2 500m loan at a spread of $3/8$, whilst France obtained a \$1 500m loan at a spread of $3/8$. By 1976 these differentials had widened. South Africa's spreads were $1\frac{3}{4}$ and $1\frac{7}{8}$ whilst those of the United Kingdom were $1\frac{1}{4}$ and $1\frac{1}{2}$. France's spread at the end of 1976 was a low $1\frac{1}{8}$.

In comparison with Spain, it can be seen that in 1975 the spreads were equal. In 1976 South Africa's spreads increased relative to those of Spain which had spreads of $1\frac{3}{8}$ (for

TABLE 3.5 : Comparative Spreads on the Eurocurrency Markets

	SA	BR	ME	SP	UK	FR	GA	PH
<u>1973</u>								
I	-	1	-	-	-	-	1 7/8	2
II	-	1	-	-	3/8	-	-	1½
III	7/8	7/8	½	-	-	-	1¾	-
IV	-	1½	-	-	7/16	-	-	-
<u>1974</u>								
I	¾	5/8	1	-	½	-	1½	1 3/8
II	5/8	¾	¾	-	3/8	½ 3/8 7/16	1¾	1 3/8
III	-	-	1	-	-	-	-	-
IV	1¼	7/8 1½	1¼	-	-	15/16	-	-
<u>1975</u>								
I	1½ 1¾	1¾	1½	1½	-	-	1 7/8	-
II	1½	1¾	-	-	-	1¼	-	1 7/8
III	1¾	1½ 1¾	1½	1½ 1¾	-	-	-	-
IV	1½	1¾	1¼	1¾	-	-	-	-
<u>1976</u>								
I	-	1 7/8 1¾	1½	-	-	-	2 1 7/8	1¾
II	1¾	1 7/8	-	-	1¼	1 1/8	-	1¾
III	-	2 1 7/8 2 1/8	-	1 3/8	-	-	1 7/8	1¾
IV	1 7/8	1 7/8 2 2 1/8	1½	1¼	1½	-	-	-

Key: SA = South Africa; BR = Brazil; ME = Mexico; SP = Spain
 UK = United Kingdom; FR = France; GA = Gabon;
 PH = Phillipines.

Source: Spreads were obtained from IBRD Borrowing in World Capital Markets.

a \$1 000m loan) and $1\frac{1}{4}$ compared to South Africa's $1\frac{3}{4}$ and $1\frac{7}{8}$. Although the Mexican spreads were lower in 1973, they were slightly higher than South Africa's in 1974. But the second half of 1975 and 1976 saw Mexico's spreads becoming narrower than those of South Africa. The spreads that South Africa followed most closely were those of Brazil although in 1976 Brazil's spreads were higher than those of South Africa, reading $2\frac{1}{8}$ in the fourth quarter of 1976. This could also be due to the extremely large amounts that Brazil has borrowed from the markets over the years. South Africa's spreads were consistently higher than those of the Phillipines, but the latter's spreads declined in 1976, making them narrower than South Africa's. Finally, the spreads of Gabon show that high spreads are consistent with the "higher risk" un developed countries. At times the spreads were a full percentage point higher than those of South Africa. An interesting feature to note, however, is that the gap was almost completely closed by 1976.

Although it is difficult to draw hard and fast conclusions from the above because of the different variables that do affect the spreads, a tentative conclusion is that it is clear that South Africa was never regarded as a "prime borrower". By 1976 banks began to regard South Africa as a greater risk and in 1977 loans to South Africa had ceased. However, as noted previously, this is not only due to political factors but to economic factors and demand factors as well. It is clear that banks were willing to lend to South Africa until the end of 1976, but these funds were becoming more expensive.

It was noted above that another way in which Eurobanks diversify their risk is through the length of the maturities on loans. This can be used as a further indicator of how banks view the credit-worthiness of their prospective customers. Like the spreads, maturities in general lengthened in the early seventies, but tended to shorten at the same time that spreads tended to widen during and after 1974. Again, it would be misleading to see South Africa's shortening maturities in isolation. From Appendix B it can be seen that in 1971 maturities of five years were recorded. These lengthened in 1972, reaching a peak in 1973 when of the six loans publicised all were over five years and 4 were 10 years or more. 1974 saw 6 loans of 10 years maturity but shorter maturities became more evident. In 1975 and 1976 there was only one loan of 10 year maturity whilst the rest were from 3 to 5 years. Table 3.6 shows how average maturities rose from 5 years in 1971 to 9 years in 1973. Thereafter the average fell to 4,75 years in 1976.

TABLE 3.6 : Average Maturities of South African Euro-currency Credits.

Year	Average Maturity (years)
1971	5
1972	5,8
1973	9
1974	7,2
1975	5,08
1976	4,75

Table 3.7 (a) and (b) compares this trend to the general Euromarket trend. Maturities are broken down for (i) industrial countries; (ii) developing countries; and (iii) all borrowers (which includes (i) and (ii) plus socialist countries, international organisations and borrowers unallocated by country).

TABLE 3.7(a) : Comparative Eurocredit Maturities for 1973 only.

Industrial Countries		All Borrowers
Over 1-6 years	19,3%	14,4%
Over 6-10 years	64,8%	58,2%
Over 10 years	10,8%	21,1%
Developing Countries		South Africa
Over 1-6 years	8,1%	10,5%
Over 6-10 years	47,7%	59,4%
Over 10 years	36,2%	30,0%

Table 3.7(a) shows that in 1973 South Africa's loan maturity structure was similar to the maturity structure of the market in general. Table 3.7(b), however, shows that although there has been a general tendency for maturities to shorten, South Africa's maturities have decreased far more significantly than the rest.

TABLE 3.7(b) : Comparative Eurocredit Maturities
(1974 - 1976).

	1974	1975	1976
<u>Industrial Countries</u>			
1 - 3 years	3,2	8,0	4,2
3,01 - 5	9,5	36,7	27,7
5,01 - 7	31,3	39,0	53,2
7,01 - 10	42,4	8,1	4,4
10,01 - 15	9,3	-	-
15,01 - 20	0,2	-	-
<u>Developing Countries</u>			
1 - 3 years	1,9	5,7	1,1
3,01 - 5	13,6	62,9	52,0
5,01 - 7	18,5	24,0	33,2
7,01 - 10	48,4	3,3	4,4
10,01 - 15	14,0	1,7	-
<u>All Countries</u>			
1 - 3 years	2,7	5,5	1,8
3,01 - 5	11,3	58,2	48,2
5,01 - 7	26,6	27,2	37,2
7,01 - 10	44,1	4,2	3,9
10,01 - 15	10,9	1,0	-
<u>South Africa</u>			
1 - 3 years	3,1	21,5	4,08
3,01 - 5	41,6	67,8	95,9
5,01 - 7	7,2	-	-
7,01 - 10	48,0	8,8	-
10,01 - 15	-	-	-

It seems therefore that there has been a definite tendency for South Africa's credit rating to decline on the Euro-markets. This tendency was already observable in 1975 before the major political upheavals such as the Angolan War and the Soweto riots. However, the Portuguese coup in 1974 could have played a role in changing the long term political outlook in the region. This, together with South Africa's deteriorating balance of payments, resulted in widening spreads, narrowing maturities and finally, in an almost complete cutting off of loans.

The widening spreads do not have an effect on the capital account except to the extent that more expensive loans result in companies and corporations attempting to raise loans locally. This will depend on the tightness of credit in South Africa at the time, as any excess demand for loans will spill over into the interantional markets if tight conditions prevail locally. The higher spreads will, however, affect the balance of payments as the higher burden of debt will cause a deterioration in the current account.

Shortening maturities in themselves are not necessarily problematic as long as the loan can be renewed continually, or as long as new loans can be raised to help repay the other loans. However, renewal negotiations are expensive and the shorter the maturities, the more frequent will such negotiations be. The problem of course arises if these loans are not renewed. Previous loans of longer maturity will be due for repayment at about the same time as later

loans of shorter maturity.

This bunching of debt repayment could put severe pressure on the capital account. To overcome this, real adjustments in the form of increased real national savings will have to be made if the exchange rate is to be maintained. Real domestic output will have to increase relative to real domestic expenditure. In other words, exports would have to increase and/or imports would have to decrease.¹⁸ This uncomfortable adjustment was evident in South Africa in 1977 when gross domestic output exceeded gross domestic expenditure by R2 185m. In 1976 gross domestic expenditure exceeded gross domestic output by R341m.

3.3 THE EUROBOND MARKET¹⁹

3.3.1 The Structure of the Eurobond Market

The internationalization of world money markets has also spilt over into world capital markets, resulting in the burgeoning of the so-called Eurobond market. This market was beginning to take shape by 1963 and today it has become an important and permanent integral part of the international financial system. Einzig notes that originally its activities consisted almost entirely in the issue of conventional

18. This process of adjustment will be discussed more fully in Chapter 4 below.

19. For an account of the evolution of the Eurobond Market see P. Einzig (1969).

bonds, "mostly for foreign governments or other official borrowers. Today the majority of its issues consist of convertible debentures of business corporations". (Einzig, 1969, p.7). A further feature of the market is that the percentage of non-dollar bonds is increasing rapidly, especially those of Euro-D. marks as a result of West Germany's increasing importance as a lender.

It should be noted that Eurocurrencies and Eurobonds are completely different devices. Eurocurrencies are, say, dollar deposits, re-lent by holders resident outside the US. They differ fundamentally from dollar bonds issued in Europe in that in the Eurocurrency Market loans are raised by means of obtaining some form of bank credit whereas Eurobonds are long-term securities issued in Europe.

The existence of the Eurocurrency markets did in fact help facilitate the expansion of the Eurobond market as the former allowed for short-term credit facilities at reasonably low interest rates. This enabled issuing houses and underwriters to carry temporarily those issues not taken up by the public.

Like the Eurocurrency market, the Eurobond market is based predominantly in London, the recognised financial centre of Europe. However, the composition of the consortiums for Eurobond issues is usually international in character, especially the underwriting syndicate. It often includes banks in most Western European countries and also some banks outside Europe, e.g. New York banks. Some loans are placed in

advance of their formal issue, while others are unloaded by the issuing houses or underwriters gradually. Sub-underwriting is usually undertaken by many insurance companies, investment trusts and stock exchange firms.

Although many different kinds of debt instruments are referred to as Eurobonds, they generally incorporate the following features:

- (a) they are sold outside the country of the borrower;
- (b) they are free of withholding taxes;
- (c) they are issued in bearer form;
- (d) they are traded on a secondary market.

The primary market arranges the initial distribution of Eurobond offerings and involves three groups:

- (i) Managers: these usually comprise one to six banks that sponsor the deal. One bank is designated the "lead" manager and handles the bulk of the work connected with the issue.
- (ii) Underwriters, which normally comprise 100 or more institutions selected by managers for their placing power. These underwriters are only called upon to handle part of the issue at a later stage and then only if the loan is not covered initially. If it is not covered they take over their percentage of the amount left uncovered and then become responsible for placing it with investors.

- (iii) The selling group members or sub-underwriters who relieve part of the risk that the underwriters had assumed. Members of this group are usually large investors who are prepared to keep the securities as part of their portfolios.

The secondary market is an important institution which allowed for the expansion of the market because in the absence of a good secondary market, only those investors who intended keeping securities to maturity would take them up. According to Einzig (1969), it was not until the late sixties that an increasingly active secondary market came to develop, which facilitated a considerable increase in the volume of new securities. Despite the existence of the secondary market, most transactions in Eurobonds are concluded outside stock exchanges. This is because the spreads between buying and selling quotations for such bonds are often too narrow to allow for the cost of transactions through stock exchanges.

In all, an issue of a Eurobond can involve up to 300 banks, brokers and financial institutions in different countries. This ensures a far wider and firmer placement of bonds than in traditional bond markets where bonds are only placed in the country of issue and where only the currency of the country in which the bonds are issued may be used. The market can therefore be seen as a mechanism for the efficient distribution of long term capital, making it easier for borrowers to have easier access to world capital markets.

3.3.2 South Africa's Involvement in the Eurobond Market

South African borrowers have made use of the Eurobond market but to a lesser extent than the medium term Eurocurrency market. Table 3.8 shows South Africa's bond issues in the Eurobond market. Unlike Eurocurrency credits there is no problem with unpublicised borrowing. It can be seen that the extent of South Africa's borrowing from this source increased with the expansion of the market, with the first Eurobond issue being in 1966. The market expanded rapidly from 1969 onwards and the number of South African issues increased markedly from 1970. The main borrowers have been Escom (13 issues), the Central Government (9 issues) and Iscor (6 issues). The majority of issues have been publicly issued but private placements increase significantly in 1975, making up 40,1% of the amount borrowed in that year. Since 1966 South Africa has raised a total of \$1 245m of which \$1 077m has been raised since 1970.

It could be argued that the relative increase in private placements is a sign of lack of confidence that South Africa's issues would be taken up in the secondary market by private investors. Until 1971 all South African issues were publicly issued. In 1971 \$13,3m (6,09%) was privately placed. In 1973 and 1974 all issues were public issues and in 1975 \$122,4m (40,1%) were privately placed. Issues are privately placed if they are entirely taken up by institutional investors or have no stock exchange quotation. In this case the issue does not have to be publicised and issuing houses can be spared the "embarrassment" of placing bonds of

TABLE 3.8 : International Issues of Bonds (Public Issues and Private Placements) in US \$m.

	I	II	III	IV	Total
1965					
1966					25
1967					62,5
1968					55,0
1969					25,0
1970		39,3		47,3	86,6
1971	82,3	48,2	37,4	50,2	218,1
1972	121,4		62,0	71,4	254,8
1973	34,5	69,0		34,5	138,0
1974	15,0		35,0		50,0
1975	30,0	117,4	91,0	66,8	305,2
1976	25,0				25,0
1977					

Source: OECD international financial statistics. Figures are aggregate totals and do not represent the number of issues.

Countries of doubtful political and economic stability. It is also significant that in 1976 only one issue of \$25m was placed in the first quarter and thereafter no more issues were offered in 1976 or 1977. The 1976 issue at 9,75% was regarded as a failure when it was floated at a price of 98 and later went down to nearly 90.²⁰

20. The Argus, 23.4.1977 (Cape Town).

As in the Eurocurrency markets, the maturity structure of South Africa's bonds is revealing as it gives an idea of how long investors are willing to take up such issues. From 1966 till mid-1970 all South African issues were of 10 years maturity. From mid 1971 till the end of 1973 all issues were of 15 year maturities with the exception of one of 12 years and four of 7 years (all 4 being issued in Netherlands Guilders). In 1974, one issue was of 15 years and the second of 8 years which marked the decline of maturities. 1975 issues were all for 5 years except for an Escom issue for 8 years and a privately placed Iscor issue for 15 years. This latter issue, however, had an option for borrowers to redeem their holdings after 3 years. The 1976 issue was also for 5 years. Table 3.9 shows the maturity structure since 1974 as well as the maturity structure of industrialised and developing countries over the same period.²¹

From the table a picture similar to that in the Eurocurrency markets emerges. The world trend seems to be towards slightly shorter maturities whilst South African maturities have fallen far faster than the world average since 1975.

21. Comparative data are available only since 1974.

TABLE 3.9 : Maturity Structure of Bonds in the Eurobond Market (1974 - 1976).

	1973	1974	1975	1976
<u>South Africa</u>				
1 - 3 years	-	-	-	-
3,01 - 5	-	-	63,95%	100%
5,01 - 7	-	-	-	-
7,01 - 10	-	70%	19,65	-
10,01 - 15	100%	30	16,38	-
15 and over	-	-	-	-
<u>Industrial Countries</u>				
1 - 3 years		3,7	0,3	-
3,01 - 4		28,6	30,4	23,1
5,01 - 7		26,6	35,4	35,9
7,01 - 10		21,2	22,5	25,4
10,01 - 15		14,5	8,6	14,4
15 and over		4,3	0,9	0,5
<u>Developing Countries</u>				
1 - 3 years		-	-	2,0
3,01 - 5		15,2	5,2	34,7
5,01 - 7		-	29,1	28,4
7,01 - 10		22,0	60,2	25,1
10,01 - 15		62,8	5,5	5,0
15,01 and over		-	-	-
<u>All Countries</u>				
1 - 3 years		12,8	7,0	5,0
3,01 - 5		16,5	26,4	23,9
5,01 - 7		15,4	33,2	36,4
7,01 - 10		38,5	23,8	22,4
10,01 - 15		13,0	7,1	11,0
15 and over		2,2	0,7	0,3

Source: IBRD Borrowing in International Capital Markets.

3.4 THE TRADITIONAL FOREIGN BOND MARKET

3.4.1 The Traditional Foreign Bond Market as a Source of Finance to South Africa

A pattern similar to the Eurobond market emerges when analysing the traditional market. This market was in existence before the development of the Eurobond market. Foreign bonds are defined as those bonds which are issued in a single national market. The issues are underwritten and sold by a group of investment banks of the market country and are denominated in that country's currency. Total issues in this market have been of the same order of magnitude as those in the Eurobond market, as can be seen from Table 3.10.

TABLE 3.10 : (US \$ billion)

	Foreign Bonds			Eurobonds		
	Public Issues	Private Placements	Total	Public Issues	Private Placements	Total
1973	3,0	2,3	5,3	3,3	1,4	4,7
1974	2,5	5,2	7,7	1,6	3,0	4,6
1975	7,4	4,9	12,3	6,7	3,8	10,5
1976	9,0	10,0	19,0	11,7	3,4	15,1

Source: IBRD Borrowing in International Capital Markets.

South Africa's involvement in the market has been far more limited than in the Eurobond market despite the fact that

the foreign bond market appears to be the larger market.

Table 3.11 shows the extent of South African borrowing from this source.

TABLE 3.11(a) : South African Traditional Bond Issues (of maturity greater than 5 years) (US \$m).

	I	II	III	IV	Total
1962					11,6
1965					12,5
1969					13,8
1970				12,0	12,0
1971	-	-	-	-	-
1972	-	-	-	26,4	26,4
1973	-	-	16,5	16,1(priv)	32,6
1974	-	-	-	-	-
1975	-	12 (priv)	18,5(priv)	-	30,4
1976	-	-	-	-	-
1977	-	-	-	-	-

TABLE 3.11 (b) : South African Traditional Bond Issues (of maturity less than 5 years) (US \$m)

	I	II	III	IV	Total
1975	-	20 (priv)	18,2(priv)	19,1(priv)	57,3
1976	19,5(priv)	19,9(priv)	20,2(priv)	-	59,6
1977	-	-	15,0(priv)	-	15,0

Source: OECD International Financial Statistics.

Priv = private placements.

Since 1972 these issues have been placed in the Swiss domestic market except for the 1977 SAR & H issue which was placed in Germany. Since 1962 South Africa has obtained \$271,2m of which \$131,9m (or 48,6%) was raised in 1975-77 at maturities of less than 5 years. It can be seen that private placements are predominant. Maturities shortened to such an extent that in 1975 the two issues in Table 3.11(a) were for 5 years whilst the three issues in Table 3.11(b) were for 4 years. In 1976, all issues were for less than 5 years, two being for 4 years, one for 3 years and another for 2 years. The 1977 issue was for 3 years and although it was increased to DM 35m from the originally planned DM 20m, this was due to the high coupon rate of 8½%, the short maturity, and the D Mark's foreign exchange market strength.

The shortening of maturities has been occurring despite the fact that in 1975 only 29,2% of all world issues were in the 1 - 5 year range and in 1976 14,3% were in that range. The majority of issues were in the 10 - 20 year range.²² In fact, in 1976 South Africa's issues of 3 years and 2 years were the only issues of such short maturity.

It would appear that the increased difficulty in raising capital on the Eurobond and Eurocurrency markets has resulted in a relative shift towards the traditional bond market, albeit on a much smaller scale.

22. See IBRD Borrowing in International Capital Markets, (various issues).

3.5 CONCLUSION

South Africa's ability to raise capital on the international markets has been seriously affected by the changing political climate and South Africa's balance of payments problem. However, once the economic problems are rectified there is no reason to believe that capital will not be forthcoming although at higher rates of interest as the international markets discount the political situation. The improving balance of payments situation has led to a change of sentiment towards South Africa. It was reported in the Sunday Times that "Current talk in the market ... is that a South African Government guaranteed borrower is negotiating a three-year Eurodollar loan at 1,875% above the London Interbank offered rate of 7 to 7,25%. With commissions and front-end costs, the market is talking of an effective rate of 2,5% above LIBOR (London Interbank Borrowing Rate). This is expensive financing to say the least, and is higher than the recent loans to Malawi and other developing countries. There have also been short-term Interbank loans on a six-month basis, quietly carried out by some American banks".²³

It is important for South Africa's growth prospects that long-term capital from the Euromarkets be forthcoming, especially in view of the fact that expansion programmes undertaken by the public corporations were planned on the assumption of continued access to foreign money and capital markets.

23. Sunday Times Business Times, 23.10.1977.

EXCHANGE CONTROL IN SOUTH AFRICA4.1 THE SYSTEM OF EXCHANGE CONTROL IN SOUTH AFRICA4.1.1 Introduction

In discussing the capital account, it is essential to look at the type of policies the authorities use to prevent capital outflows. Foreign investors are extremely sensitive to changes in the political situation. Any perception of increased political uncertainty will increase the risk attached to any investment and in order to compensate for this, investors will desire a higher rate of return on their investment. During political crises the capital account is subject to real shocks, i.e. sudden changes in the direction of capital flows as a result of changes in the risk attached to assets in South Africa. The primary object of the exchange control authorities has been to protect exchange reserves from these shocks. In trying to control changes in reserves the authorities can either resort to direct controls with a fixed exchange rate system or they can allow the exchange rate to move with market forces, i.e. the flexible exchange rate solution. Under the latter system the demand for foreign exchange is reduced as a result of it becoming a function of the price. Alternatively, the authorities could opt for a hybrid of these two solutions in the form of a dual exchange rate system or some variant thereof. As will be seen, official opinion in South Africa

has always been averse to allowing market forces to assume the primary role of adjustment. Consequently the known "devil" of direct controls have always been preferred.

In this chapter the present system of exchange control will be analysed. A lot of discussion is devoted to the securities Rand market as one of the alternatives facing the authorities is the adoption of a dual exchange rate system, of which the Securities Rand system is a variant. It will be argued that because exchange control is designed to limit the demand for foreign exchange, such goals can be achieved more efficiently and more equitably under a system of freely floating exchange rates.

4.1.2 The Official Attitude Towards Exchange Control.

Although exchange control was only officially introduced at the start of World War II, the experience during the 1931/1932 gold standard crisis had a profound effect in influencing official attitudes towards exchange control. In 1931, the decision was taken to float the South African pound against sterling and stay linked to gold. This resulted in sharp outflow of funds, with a month-end average of Bankers' Deposits in 1932 reaching their lowest level of £4,1m. This was as a result of the actions of London based South African commercial banks which felt that "the differences between the South African and English pound could not be sustained. Moreover these banks commanded in the form of their liquid assets and borrowing powers in

London a large proportion of what were effectively South Africa's foreign exchange reserves" (Kantor, 1978a, p.2). The ensuing politically unpopular deflation resulted in a return to the Sterling Standard in December 1932 when, as Kantor notes, "the disagreeable job of deflation" had in all probability been done and the net outflow of capital exhausted ..." (Kantor, 1978a, p.2). This experience was important in shaping official attitudes towards exchange control, as is evidenced by the statement of Mr. J.T. Jurgens (1947), deputy Governor of the Reserve Bank in 1947: "It was a costly experiment, doomed to failure in the absence of adequate exchange control legislation, an experiment which demonstrated that in money matters, national sentiment plays a secondary role to the interests of the individual's pocket. It is comforting to know that, as a result of the introduction of Exchange Control, the machinery now exists to prevent any attempts at dabbling in the Country's currency by the movement of huge capital transfers. For those who have the interests of South Africa at heart, it is to be hoped that no matter what other relaxations in exchange control are permitted, the powers will always be retained to control capital transfers." (Jurgens, 1947).

This attitude towards exchange control has persisted till the present time¹ as can be seen in the recommendation of the

1. Any official change of heart will be reflected in the recommendations of the De Kock Commission of Enquiry.

Franzsen Commission². According to the Commission, control has a dual nature, namely import control (which will not concern us directly here) and exchange control in respect of (i) proceeds of visible exports, (ii) all invisible items, (iii) capital transactions. The Commission states that "exchange control attempts to ensure that (1) the country has enough foreign exchange for the payment of imports and services from abroad (and for meeting other foreign commitments) which are necessary for sound internal development and growth and (2) harmful fluctuations in the reserves that may prejudice internal stability are prevented or neutralised as far as possible ... Although the basic purpose of the Regulations is the protection of foreign exchange reserves by controlling the outflow of those reserves, the regulations can be employed and on occasion are employed to control the inflow of foreign exchange." (paras.974 and 975, p.251). The report goes on to state that as South Africa will still depend upon net inflows of foreign exchange in the future for development and growth, "the emphasis of exchange control policy, if short-term internal tendencies are taken into consideration still is on (1) maintaining the right climate for attracting foreign exchange in the form of permanent investments, and (2) maintaining a system by which the outflow of foreign exchange is limited and controlled in so far as the foreign exchange reserves can tolerate such outflow" (para. 976, p.251).

2. See Franzsen Commission (RP/87 1970) paragraphs 959-976, pp.248-251.

In no place is the principle of exchange control questioned and the Commission only concerned itself with the techniques of control. Even in this respect the Commission "could find no reason for the introduction of an alternative system of control, viz. a system by which all transactions are controlled by the Central Bank and/or the Treasury, and therefore recommends that the present system should be retained" (their emphasis) (para. 971, p.252.).

4.1.3 A Brief Chronology of Exchange Control in South Africa

Exchange controls and restrictions were initially introduced in South Africa on September 9, 1939. In terms of the Emergency Finance Regulations, all payments to residents of countries outside the Sterling Area required exchange licences, and all exchange receipts in currencies other than Sterling Area currencies had to be offered for surrender.

Non-resident accounts were divided into two categories - those of nonresidents living in the Sterling Area and those of non-residents living outside the Sterling Area. Credits to the latter were subject to control, with each deposit requiring approval. Withdrawal could only be used to pay for exports to the country of the account holder, local payments, transfers to the country of the account holder or to other Sterling Area territories, and payments to a nonresident account of the same country or monetary area. Balances held in Sterling Area accounts could be used for local payments or transferred to any other Sterling Area territory.

All non-sterling exchange receipts had to be surrendered, with transfers of capital to countries outside the Sterling area requiring approval. With the exception of emigrants, South African residents were not normally allowed to export capital outside the Sterling Area. Only capital transferred directly to South Africa from outside the Sterling Area could be transferred back to the country of origin and in the currency in which the original transfer was received.

In February, 1956, further restrictions were placed on residents with respect to Sterling Area transactions. Under these new measures, all Sterling received had to be surrendered, and any transfer of Sterling over £10 000 had to have prior exchange control approval. Transfers by members of the Johannesburg Stock Exchange to cover commitments in respect of purchases in London of South African shares could be made freely, but transfers of capital to the United Kingdom for the purchase of other securities were subject to the £10 000 limit.

Although these restrictions were withdrawn in February 1957 they were reintroduced in September 1958.

From this time South Africans have been restricted from investing abroad. This restriction is still in force but exceptions are made when the level of reserves justifies such exceptions and when investments abroad will result in exports, the proceeds of which will allow the investment to be recovered in a relatively short period of time. However, as the Franzsen Commission notes, "Although the

return on the investment is important, it is not decisive and investments purely for the sake of profits are not allowed" (Para. 994, p.255). They further state that "Evidence has been submitted to the Commission to the effect that the strict control of investment abroad by South African enterprises has meant that these enterprises have had to forgo many favourable opportunities to establish contact points abroad. In this way the endeavour to promote the export, not only of South African goods but also of South African services, is prejudiced." (Para. 996, p.255).

In 1960 the political disturbances following the Sharpeville incident resulted in a sharp outflow of foreign capital. This led to the imposition of further controls on gold and foreign exchange transactions which are contained in the Exchange Control Regulation, Orders and Rules, as set out in Government Notice No. R111 of December 1, 1961 and subsequent amendments. Because the IMF Charter allows restrictions on capital flows but forbids restrictions to be exercised in such a manner as to restrict payments for current transactions or which delay transfers of funds in terms of trade commitments, these regulations are applied only to capital account transactions. Thus commercial banks as authorised dealers, may without reference to the Reserve Bank, finalise most current transactions regardless of the amount involved. Besides current transactions, no transactions involving foreign exchange may be concluded without prior approval of the Reserve Bank or the Treasury.

An important feature of these controls was the fact that regulation was extended to non-residents. In terms of the 1961 regulations, the proceeds of the sale of any non-resident asset was blocked instead of being transferable abroad as was previously the case. The blocked proceeds or blocked Rand could be used for reinvestment in securities on the Johannesburg stock exchange. The dividends were freely transferable. Regarding South African subsidiaries of foreign companies, only dividends earned after 1959 could be repatriated. Blocked Rand balances were not transferable between non-residents, although there were legal round-about methods whereby such balances could be transferred.³ In 1976 the Exchange Control authorities allowed transferability of Blocked Rand balances between non-residents. This became known as the Securities Rand mechanism.⁴ Securities Rands may only be held by non-residents. Thus today Blocked Rands refer to emigrant-owned balances that are blocked in South Africa and Securities Rands refer to non-resident owned balances in South Africa.

The above has summarised the main changes in the exchange control regulations. The controls imposed on direct and portfolio investment since 1960 will be discussed in greater detail in the following sections.

3. This will be discussed in greater detail below.

4. See Section 4.1.5 below.

4.1.4 Controls on Direct Long-Term Investment Since 1960

According to the Franzsen Commission, the policy has traditionally been to allow new direct foreign investment in South Africa or the expansion of existing investments by means of a permanent addition of share capital. However, if this expansion is undertaken on a loan basis, permission from the authorities is required as it involves a future liability for South Africa's foreign exchange reserves. Decisions are based on the local loan position of the company and internal credit and money conditions prevailing at the time. There are no restrictions on the remittance of profits or dividends unless these have been financed by excessive local credit facilities. Foreign owned companies may only borrow up to 25% of their investment from the local credit markets. Exchange Control sometimes allows the remittance of the local sale proceeds from direct long-term investment in South Africa. "The considerations will be (1) the state and expected trend of the reserves, (2) the liquidity of the country, and (3) the importance or otherwise, from a national point of view, of acquiring South African ownership of the specific investment." (Para. 993, p.255).

However, as will be seen, such exceptions do not apply to most investments, particularly portfolio investments.

4.1.5 Controls on Portfolio Investment Since 1960.

The Franzsen Commission report states that "it has not yet been considered necessary to encourage or discourage portfolio

investment ..." (Para. 978, p.252). This observation would appear to be unfounded and is in fact totally contradicted in a later paragraph. "Owing to the dangerous low level to which South Africa's foreign exchange reserves had dropped in June 1961, it was decided that the previously unrestricted facilities for capital repatriation would be suspended by the introduction of total control of securities on 16th June, 1961. Consequently the local sale proceeds of all foreign investments in South African companies were made subject to the so-called blocking procedure". Because repatriation of capital is an important determinant of investment decisions, these controls undoubtedly do have an effect on portfolio investment.

In any discussion of the Blocked Rand mechanism that was introduced in 1961, it is important to distinguish between the different categories of Blocked Rand holders as there were in fact two types of Blocked Rand accounts - permanent non-resident and emigrant non-resident. Residents of South Africa are not permitted to hold Blocked Rands.

Emigrant non-resident blocked accounts are accounts of residents who emigrated from South Africa after 1958. After taking into account the prescribed settling in allowance, any bank accounts remaining to the emigrant are accordingly "blocked" and can be dealt with only in accordance with the exchange control regulations. If any other assets of the emigrant are at any stage sold, the proceeds of such sales form Blocked Rands.

The Blocked Rands can be used within limits for the holder's living expenses when visiting South Africa. They can also be utilized to purchase shares and official stocks quoted on the J.S.E. These securities may not be exported or sold abroad. Any local sales will result in the proceeds being blocked. Interest and dividends are, however, freely transferable at the official rate. Blocked Rand balances may also be used to subscribe to Blocked Rand bonds, which are special issues made available by the government to non-residents. They are issued at a discount, bear no interest and are of 5 year maturity. The limit for subscription is R30 000 (R10 000 for single persons) and subscription is offered by tender. The redemption proceeds are transferable in foreign currency of the monetary area in which the holder is resident.

The rules as applying to permanent non-residents are slightly modified, the main reason being the desire to attract foreign investment in South African shares. When the Blocked Rand mechanism (as opposed to Securities Rand mechanism) was still applicable to permanent non-residents there were ways in which blocked funds could be repatriated:

- (i) They could be used to take up special non-resident bonds issued by the government which mature after 5 years when redemption proceeds could be withdrawn at the official rate;
- (ii) They could be used to purchase government, municipal and public utility bonds and national savings certificates

If these were held for at least 5 years to redemption, the proceeds could be withdrawn at the official rate;

- (iii) They could be used to buy South African shares on the JSE and provided they had been restrictively endorsed, they could then be sold outside South Africa at a price which may have involved a premium or discount on the South African quotation. As will be seen, Blocked Rand holders repatriating funds in this way almost always have to be prepared to accept a capital loss.
- (iv) Prior to the introduction of the Securities Rand, Blocked Rand accounts were not transferable officially. Unofficially, however, it was possible to transfer funds by means of the so-called "gilt-wash". In this case local gilts⁵ were bought with Blocked Rands and subsequently resold in South Africa, resulting in the Blocked Rand account being held in a different account.
- (v) In 1976 the Securities Rand was introduced which differed from the Blocked Rand to the extent that Securities Rand balances are freely transferable between non-residents. One obvious effect thereof was to make transactions in South African shares cheaper for foreigners who would not have to pay the brokerage charges required for the "gilt wash".

5. Gilts were used as brokerage charges were lower than those on ordinary shares.

Securities Rands could be repatriated either by means of transfer to another non-resident or by utilising the options described in (i), (ii) and (iii) above. However, in March 1978 these options were reduced. Securities Rand can still be used for transfer abroad in terms of the options described above except for (iii) whereby government, municipal and public utility stocks could be held for five years to redemption and the proceeds could be repatriated at the official rate. Securities Rands may still be used for purchasing such stocks but the proceeds on maturity are not eligible for transfer abroad. Instead the authorities introduced 6% Securities Rand bonds. Provided these bonds are continuously registered in the name of a non-resident subscriber for the full period of seven years, the redemption proceeds are transferable in the currency applicable to the monetary area in which he is resident.

4.1.6 The Blocked Rand the Securities Rand Discount

The immediate effect of the blocking of assets was the appearance of lower share price levels overseas compared with local share price levels. In a world free of barriers to capital movements one would expect that because of arbitrage the market price of one security would be equal to the market price of the same security in a different country. The existence of barriers to the free movement of capital results in differences in prices of the same asset in different markets.

The average price differential of South African shares quoted in Johannesburg and overseas is called the Securities Rand discount (formerly Blocked Rand discount). It is in effect the percentage differential between the official Rand rate and the Securities Rand rate.⁶

The Blocked Rand and Securities Rand have persistently stood at a discount, i.e. share prices in Johannesburg have been higher than share prices in London. There have been exceptions when a small premium emerged for very brief periods of time. Because of the nature of the controls, it would be very unusual for a premium to emerge because it would then pay foreign buyers of South African securities to deal through the official exchange markets at the official ruling price.

The discount is determined by supply and demand for Securities Rand in the arbitrage market. The following formula is used for the calculation of the discount:

$$\frac{\text{Official Rate minus Securities Rand Rate}}{\text{Official Rate}}$$

Thus if Securities rands are trading at 68 United States cents, and the official rate is \$1,15 to the Rand, the discount is:

$$\frac{115 - 68}{115} = 40,8\%$$

6. This is not true of London prices which are quoted cum premium. (The UK investment currency premium will be expanded upon below).

A discount means that South African prices in London (ex dollar premium) are cheaper by that percentage to overseas investors.

Therefore if we assume that

Price of De Beers in SA = 415c (R4,77)

Securities Rand Rate = R0,70 to R1

Official Rand Rate = R1,15 to R1

Securities Rand discount = 39,1%

De Beers price for an American investor is $415 \times 0,70 = R3,00$ compared to R4,77 at the official rate, (i.e. a discount of 39,1%). If the price in South Africa remains unchanged at R4,15 but the discount narrows to 30%, US investors would be inclined to sell as the effective price of De Beers would have risen to R3,32.

4.1.7 Factors Affecting the Securities Rand Discount

It was noted above that the separation of the Johannesburg and overseas markets has resulted in a price differential or discount. There are various factors which determine the extent to which the prices differ between Johannesburg and London.

An important factor affecting the discount is the difference in confidence between South African and overseas investors. If overseas investors feel less confident about the future of South African shares, the discount would widen. In other

words, if there is greater non-resident selling than buying of South African stocks in London, the price in London will fall below the equivalent price in Johannesburg.

A further factor that could affect the discount is the repatriation of capital by locally based foreign ^{companies} countries. Thus for example, "(I)f a non-resident company were to realise a capital asset in South Africa, and wished to repatriate the proceeds, it would be forced to do so through the medium of shares (except under exceptional circumstances). A very large company remitting funds in this way would cause an increase in the discount". (Tredinnick, 1975, p.31).

Political factors influencing the risks attached to investment in South Africa are also an important determinant of the discount. Some analysts go as far as to say that the discount is a barometer of overseas sentiment regarding South Africa's political future. As seen in Chapter 3 above, the Portuguese coup in April 1974 was an important landmark in changing overseas perceptions of stability in the Southern African region. This is also revealed by the movement of the discount. After the coup, the discount steadily widened to a peak of 40% in September 1974. The discount narrowed considerably after this time because "detente" negotiations renewed investor confidence. The return to near parity, which was also due to the devaluation of the Rand in September 1975, was short-lived following the Angolan civil war and the Soweto riots. However, it would be facile to ascribe all movements in the discount to political factors. These

factors may be the dominant determinants of long-term trends, but in the short term the discount is affected by other factors.

Because British brokers play a major role in the market, United Kingdom exchange control regulations have to a certain extent affected the Securities Rand discount. Like the Securities Rand, the British investment currency pool's function is the restriction of capital outflows. However whereas the Securities Rand mechanism applies to foreigners investing in South Africa, the UK investment currency applies to British residents investing outside Britain. The investment currency pool represents in dollar terms the total assets (mainly shares) held by UK residents in ^{Companies} countries outside the UK. Because there has been a persistent net demand for investment currency, the investment currency or investment dollar has persistently stood at a premium - known as the dollar premium. The premium fluctuates primarily according to supply and demand trends. Non-residents of the UK are not required to go through the pool, and the price of the shares are then "stripped" of the premium.

Until 1972 South African shares were unaffected by the dollar premium as the pool did not include investments in South Africa. In June 1972 the pool was enlarged by including what were previously Sterling Area countries - South Africa, Australia, Malaysia, Singapore and Hong Kong. This meant that South African shares were now subject to the dollar premium which resulted in a widening of the discount, after

it had been near par for several years. Besides other factors, investors now had to take a view of future movements in the premium.

In March 1974 the 24% surrender rule, by which UK residents are obliged to surrender 25% of the premium on a sale of overseas securities, was applied to South African shares. This tax was designed to act as a disincentive for selling, or switching by short term traders, thus restricting the supply of investment dollars. The 25% rule also resulted in the shrinking of the pool as the surrendered premium is absorbed by the UK Treasury. In 1978 the 25% surrender rule was abolished.

To see how the investment premium and the 25% rule affected investment overseas, we can consider the following case. The loss to a UK investor as a result of the surrender rule is given as:

$$\% \text{ loss} = 25 - \frac{65}{(1 + \$ \text{ premium}/100) \times \text{official } \$/\text{£ rate}}$$

Assuming the dollar premium is 112,75 and the official \$/£ rate is 1,71 then

$$\begin{aligned} \% \text{ loss} &= 25 - \frac{65}{(1 + 112,75/100) \times 1,71} \\ &= 7,133\% \end{aligned}$$

With commission and duty of approximately 4% it means that an investor would need to get a return of at least 11,13% in order

to break even. However, the yield of the investment per se is not the only factor to be taken into consideration. There is also the expectation of future premium levels and exchange rate expectations that the investor considers. Thus when making portfolio investment decisions, even if the yield on the investment itself is less than 11%, a rising premium and favourable exchange rate movements could still make the investment profitable.

4.1.8 Arbitrage in the Securities Rand Market

Securities Rands are used for arbitrage transactions.⁷ The arbitrageurs profit or loss arises from changes in real or anticipated currency differentials between centres and not from increases or decreases in the price of individual stocks. In other words, the arbitrageur deals in currency and uses securities as a vehicle with which to conclude his transaction.

Because Exchange Control regulations prohibit the free transfer of Rands out of South Africa, the arbitrage function has been restricted in South Africa. All transactions concluded in South Africa must be settled in Rand terms. It is also illegal for a South African resident to hold Rand balances

7. International arbitrage keeps prices of South African shares in all overseas centres at approximately the same level, i.e. at a level below the Johannesburg equivalent to the Securities Rand discount.

outside South Africa. This implies that the arbitrage function cannot be performed by a South African broker with his foreign counterpart. The sole function of the South African broker is either to provide stock or take stock from overseas in order to enable the overseas broker to perform the arbitrage function.

The basis of the non-resident arbitrageur's business is to create or "undo" Securities Rand. (He is therefore dealing in a currency through the medium of shares, whereas his local counterpart is dealing in shares). There are various ways in which the arbitrage function may be performed. Non-resident arbitrageurs may attempt "four-way arbitrage" i.e. he buys in London for sale in Johannesburg - creating Securities Rand at, say, 30% and buying in Johannesburg for sale in London - thereby utilising his Securities Rand or undoing it at, say, 28%. His profits or loss is the difference between the rate at which Securities Rand were created and the rate at which they were "undone". Alternatively the arbitrageur may take a view to create Securities Rand in anticipation that the rate will fall in due course.

4.1.9 Securities Rand and Capital Flows

The establishment of an effective investment currency for non-residents has resulted in the creation of a pool of Securities Rand. It is important to note, however, that Securities Rand never leave the country and therefore do not affect South Africa's foreign exchange reserves. The object

of introducing the Blocked Rand (and later the Securities Rand) mechanism was to insulate the foreign exchange reserves from potentially volatile short-term portfolio capital movements. Although the Securities Rand is a form of non-resident currency, transactions in Securities Rand do not affect the foreign exchange reserves. This is because a transfer of Securities Rand between non-residents is internal to South Africa and all that is exported or imported is the scrip.

Thus if a non-resident wishes to create Securities Rand he will buy shares in London (from another non-resident) and sell in Johannesburg. All that has happened is that a share certificate is brought to Johannesburg, which is endorsed non-resident, and then sold. Thus no foreign exchange enters the country. Similarly, if a foreigner sells his shares in London, he receives £ Sterling but from a non-resident of SA, resulting in no foreign currency leaving South Africa, only a share certificate. If a holder of Securities Rand transfers his holdings to another non-resident (or buys from another non-resident), again foreign currency will change hands, but between non-residents outside South Africa, resulting in no loss or gain of foreign exchange. It is clear that exchange control has insulated foreign exchange reserves from volatile capital movements and the Securities Rand mechanism has provided some convenience to the foreign investors originally locked in by the exchange controls.

There are cases, however, when the Securities Rand mechanism does result in a loss of foreign exchange. The details of

these cases are discussed below.

(i) 5 Year Non-Resident Bonds

As explained above, non-residents can subscribe for non-resident (or Blocked Rand) bonds by tender. These are bonds issued by the treasury. With the introduction of the Blocked Rand mechanism, attempts were made after a while to devise methods by which genuine investors could repatriate their capital if they so desired. In 1962 the Blocked Rand loan was introduced which could be subscribed for only by non-residents with Blocked Rand holdings. The coupon rate was 5%, and was repayable and freely transferable in foreign currency in 5 annual instalments. The treasury was prepared to issue R20m of the stock in 1962.

In July 1962 this was replaced with a 3½% 3 year bond. This scheme became very attractive and in 7 months, sales exceeded R25m. It seemed to have attracted not only those investors who were locked in with the imposition of controls in 1961, but also new investors who saw an opportunity of obtaining a high return on a short-term gilt-edged stock. With a discount of approximately 16% between JSE and LSE shares, non-resident investors holding Blocked Rand bonds could earn an effective yield of about 10% per annum.

On March 16, 1964, these bonds were withdrawn and by August of that year a monthly tender was introduced for 5 year non-resident bonds. These bonds are issued at R85 percent, giving a capital appreciation

of approximately 3,3% over 5 years. No interest is payable, but investors gain on the capital appreciation which is greater the wider is the discount. Upon maturity, these bonds can be redeemed in the currency of the monetary area in which the holder is resident. This currency is freely transferable at the official rate.

- (ii) Until March 1978 investors were allowed to buy government, municipal or public utility stock with Securities Rands. If these were held to maturity for a minimum period of five years, the redemption proceeds could be freely transferable in foreign currency at the official rate. Annual interest payments were also freely transferable at the official rate.

This resulted in greater interest in local bond issues by non-residents because of the high effective returns that could be obtained. For example, the Escom stock issue in April 1977 had a gross yield of 12,15% on the 5 year issue. The Securities Rand at that time was at a discount of 41% (68c). Because of the wide discount, the yield to redemption for non South African residents was 27 - 28% while the running yield was just under 20%.⁸

8. For UK residents the effective yield was 23-24% after taking allowance for the dollar premium and the 25% surrender rule.

- (iii) In March 1978 the 6% Securities Rand bond was introduced. If these are held for 7 years to maturity, the redemption proceeds are freely transferable in foreign currency.

It is clear that normal transactions in Securities Rand do not result in a net capital flow. The only time that share transactions will result in an actual inflow of foreign currency is when the Securities Rand is at a premium. As explained above, such a situation will encourage investors to buy shares through the official market. This situation is unlikely to be sustained as the fall in demand for Securities Rand will tend to cause the premium to disappear. A loss in foreign exchange arises when the bonds discussed above are redeemed at maturity and the proceeds repatriated at the official rate. Thus even at times of excess liquidity in the economy which are accompanied by falling long term rates, foreign investors who utilised the Securities Rand market still received high rates of return. Because of this loss of foreign exchange, the authorities decided to introduce the 6% Securities Rand bond which is less attractive than the previous alternatives open to Securities Rand holders. Table 4.1 shows the extent to which stock exchange transactions resulted in increasing outflows of foreign exchange.

The positive inflows during 1965 - 1972 were a result of the fact that the Blocked Rand was at par or at a slight premium during this time. In 1972 the discount widened with the application of the investment currency premium to South African securities.

TABLE 4.1 : Net Capital Flows as a Result of Stock Exchange Transactions (1961 - 1976) (Rm).

1961	- 33	1969	16
1962	- 50	1970	44
1963	- 89	1971	83
1964	- 43	1972	112
1965	8	1973	- 30
1966	10	1974	- 26
1967	33	1975	- 36
1968	113	1976	- 86

Source: SARB Quarterly Bulletins.

4.2 ASSESSMENT OF EXCHANGE CONTROL REGULATIONS IN SOUTH AFRICA

4.2.1 Introduction

It was argued earlier in this chapter that South African official thinking has for a long time uncritically favoured direct controls on foreign exchange transactions. Direct controls were the norm internationally after the Second World War, but with the liberalisation of international trade in the fifties and sixties controls were dismantled in many countries. However, in the late sixties, with the increasing volatility of private capital movements and the resultant loss of monetary independence for monetary authorities that it involved, many countries reinstituted systems of controls in order to lessen the effects of such capital movements.

In most of the industrialised countries the problem was to control what were regarded as disequilibrating capital inflows whereas in South Africa the problem is usually to control capital outflows.

4.2.2 Exchange Controls under Fixed Exchange Rates

The question of exchange control is intricately tied up with the choice of monetary standard or exchange rate regime adopted.

Apart from the period of "managed floating" during 1974/75, the authorities have generally displayed a preference for fixed exchange rates by linking the rand either to the dollar or to sterling.

Under a system of fixed exchange rates the authorities can fix the rate by keeping reserve stocks of foreign exchange. In order to maintain the exchange rate, the demand and supply of foreign exchange must be in balance in the medium term otherwise the authorities will have to resort to a devaluation or stricter controls.

The automatic balance of payments adjustment mechanism requires slower monetary growth when there is a persistent decline in foreign exchange reserves. Unless the authorities finance the fiscal deficit and government expenditure in such a way as to increase the money supply, slower monetary growth will result in increased interest rates, less

domestic expenditure (which implies fewer imports and more exports), larger capital inflows and smaller outflows. The opposite occurs with a favourable balance of payments.

It was noted above that the primary objective of exchange control has been to protect the capital account from "shocks" i.e. a change in the risks attached to assets held in South Africa. "Such a recalculation of risks influences residents and non-residents alike and affects the value of all assets subject to such extra (or diminished) risks. If risks increase then sales of domestic assets exceed purchases as pre-shock prices so forcing down prices. By the same token foreign assets become more valuable." (Kantor, 1978b, p.3). It is unlikely that the authorities would be able to finance out of reserves the resultant outflows of capital. As explained in Chapter 3, real adjustments in the form of increased national savings have to be made, (i.e. decreased domestic expenditure). If the real adjustments that have to be made are considerable, then it does not say much for the effectiveness of exchange control policies which are designed to prevent the initial impact effects of a capital account shock. As Kantor concludes, in assessing recent capital outflows, "... the increase in real savings was of the order of 10% of real output over two years which is remarkable by any standards. It is difficult to accept that exchange control could have been of much help if deflation of this magnitude was in fact required to avoid devaluation" (Kantor, 1978b, p.8).

4.2.3 The Costs and Effects of Exchange Control

As capital controls are an alternative to exchange rate adjustment, the costs of the controls are partly the costs of failure to devalue/revalue the Rand. That is, it is the cost of employing a second best instrument instead of allowing the exchange rate to vary. Exchange rate changes can affect the allocation of resources in the economy (through its effects on the price of tradeable goods), whereas capital controls create and/or sustain resource misallocations. Controls also impose administrative and compliance costs upon the authorities and the business sector. It would seem that there is a substantial waste of resources associated with the administration of controls as well as inequities favouring those who can best negotiate the control administration. Because of the "ad hoc" allocation of exchange control inherent in quantitative restrictions, it is not impossible that foreign exchange is sometimes granted for unprofitable investments and refused for potentially profitable investments.

Capital controls also have an effect on domestic capital markets. Economic growth is associated with foreign financing and the transfer of financial techniques from more to less sophisticated economies, as well as with greater specialization in the finance markets and a rise in the ratio of financial assets to national wealth. Capital controls are therefore costly to the extent that the benefits of specialization in the financial sector and easy access to overseas sources of finance and credit techniques are impeded.

An obvious effect of controls is that it inhibits the development of a foreign exchange market in South Africa. The absence of this market with a market for forward cover is sometimes used as a reason as to why controls should not be lifted. However, with the relative sophistication of the financial sector in South Africa, the establishment of such a market would not be difficult.

Although in South Africa the purpose of controls is mainly to prevent capital outflows, this by no means implies that these controls on balance result in a greater amount of foreign capital coming into the country. Although it is impossible to quantify what the position would have been had there been no controls, it is almost certain that the existence of controls has deterred investment to a certain extent. An important deterrent to direct investment is the fact that any transfer of capital to South Africa for purposes of direct investment has to be done at the official rate. However, if the investor wishes to sell his investment in the future and repatriate his capital, the sale of his assets creates Securities Rand, which he will have to sell to another non-resident at a discount.

The mere existence of capital controls is also a deterrent to investment. Even though repatriation of profits is permitted, investors may feel that an economy with a large battery of controls is likely to tighten such controls during times of balance of payments crises. Investors would therefore demand a higher rate of return in order to compensate

them for the risk of having their capital and profits "locked in". This would inevitably result in less investment in South Africa as investment opportunities in other countries would be relatively more profitable.

4.2.4 The Effectiveness of Controls

There can be no doubt the exchange controls can have an inhibiting effect on foreign exchange transactions. This is especially true in the short run. However, in the long run it would appear that it is impossible to insulate the economy completely; especially an economy as open as that of South Africa. The more sophisticated the monetary and banking system is, the more channels there are for evading controls. Dr de Kock for example has argued that this sophistication "means that direct methods of control can often be circumvented and are accordingly not always effective" (De Kock, 1978, p.22). In such situations, controls inevitably lead to more controls and more resources used in trying to evade and trying to police controls.

Some empirical studies⁹ have shown that in general controls (especially on portfolio capital) have had a positive direct effect in reducing the flows to which they were applied. These studies were inadequate in that they used "off-on" dummy variatiabiles in an ad hoc way with no attempt to blend

9. See for example Bryant and Hendershott (1970) and E. Spittaller (1971).

the underlying theory of capital flows with the exchange restrictions which prevent individuals from carrying out their portfolio decisions. More recent studies¹⁰ have been more sophisticated in that they have tried to assess the net effects of restrictions on the capital account as a whole and not just on those transactions to which they are applied. These studies have taken cognizance of the fact that substitutions of funds through non-controlled channels are important phenomena. Thus in the case of Germany, for example, it was found that the imposition of the minimum reserve requirement on the growth of banks' external liabilities in 1968-9 had a substantial direct impact on bank liabilities - a reduction of DM 4,5b. However, the offsets through non-bank transactions were almost complete, being roughly DM 3,9b.¹¹

The main problem facing an open economy is that it is relatively easy for domestic and foreign wealth owners to disguise changes in their portfolios as current account transactions. As Kantor notes "... the assets that directly or indirectly provide convenient opportunities for capital transfers become more highly valued, other things equal including risks and information costs, than assets that are less convenient for the purpose. While exchange control will affect relative prices in this way it by no means obviously increases the real supply of capital over time. Successfully preventing some economic actors from demanding foreign exchange and by

10. Hewson and Sakakibara (1974b), Hewson and Sakakibara (1975b) and V. Baumgartner (1977).

11. Hewson and Sakakibara (1975), p.15.

so doing, maintaining the rate of exchange, may have the effect of encouraging others to transfer additional capital out at more favourable terms if the general expectation of the real returns to capital in South Africa has changed" (Kantor, 1978b, p.4).

Thus loopholes may be found in regulations so that capital movements may be made through ostensibly current account transactions and speculation may occur via the timing of payments in trade (leads and lags). It is difficult, if not impossible, to know the extent of these offsetting movements. In order to prevent such practices, controls would have to be applied to current account transactions as well. Such controls are prohibited by the IMF Charter. Other methods that can be used to evade controls are the high remission of profits and dividends by South African branches of foreign companies. Also there is the use of the "dividend wash" whereby shares are bought by foreigners or emigrants with blocked accounts. The shares are bought cum dividend before the dividend is declared. The day after the dividend is declared the shares are sold. The price of the shares usually fall by the amount of the dividend but the dividends can be repatriated at the official rate. At the same time prices of mobile forms of wealth (e.g. jewellery) will increase relative to less mobile forms of wealth (e.g. land). Kantor notes that "Inhibiting transfers of physical capital encourages investment in and outflows of human capital in the form of emigrating doctors and their like. If potential emigrants were to regard their physical and financial capital

as mobile they might be inclined to accumulate it in South Africa rather than elsewhere with consequential benefits to South Africa" (Kantor, 1978b, p.7).

There are certain well-known illegal methods whereby exchange control can be circumvented:

- (a) Over- or under-invoicing: in the case of over-invoicing, importers could have an arrangement with parties overseas to over-invoice the goods. As foreign exchange for trade purposes is granted upon presentation of the invoice, and because of the difficulty of assessing the true value of goods by customs or exchange control officials, this type of evasion is relatively easy for holders of import permits. Under-invoicing would apply to exporters. Such evasions would not be reflected in the balance of payments statistics and the extent of such practices is therefore indeterminable.
- (b) Bribery and corruption of exchange control officials.
- (c) The illegal export of Rand notes by tourists or emigrants. These would be sold to tourists or immigrants to South Africa and smuggled into the country.
- (d) Other illegal transactions which encourage a black market in foreign exchange, e.g. foreign exchange brought back to South Africa by tourists and not sold to banks.

It is clear that some of these transactions will bypass the

balance of payments statistics and will be undetected as evasions or even as offsetting flows. However, some illegal transactions would show up under the residual item of the balance of payments known as "errors and unrecorded transactions".

4.2.5 Errors and Unrecorded Transactions

There has been some debate in the literature as to what the item "errors and omissions" or "errors and unrecorded transactions" actually includes. Tests for different countries have shown that the movement of this item correlates with movements in differing items in different countries.¹² In general, however, most writers attribute the item to unrecorded capital transactions. As Diamond (1967) notes: "While the absolute amount of errors and omissions cannot be entirely attributed to capital movements, substantial changes in errors and omissions are likely to reflect to a very large extent changes in unrecorded capital transactions" (Diamond, 1967, p.1).

If it can be shown that the residual item is, in fact, related to short-term capital movements, then there could be two factors at work. Firstly, some of these transactions could be a build up of private balances overseas, with the outflow being unrecorded. This could be due to exchange control evasion or due to inadequate recording of legal capital

12. Bank of England Quarterly Bulletin (1962); Grassman (1967); Smith (1967) and Branson (1968).

transactions. Diamond argues that "so far as capital flight is inspired by political unrest, it is likely to be of a type that cannot be identified, so that it may appear as a negative entry in the "errors and omissions" item ..." (Diamond, 1967, p.5). Secondly, trade credits are also important in the short term capital flow figures. These transactions are particularly prone to leads and lags, which would be reflected in the residual item. However, such credits are constantly being reversed on settlement of the debt.

In South Africa errors and omissions could arise as a result of the way in which information on private capital flows is gathered. According to Brümmerhof, "Inligting t.o.v. private kapitaalvloeie is verkry uit die Reserwebank se opnames wat op 'n steekproefbasis ingesamel word. Die betroubaarheid van hierdie inligting hang in 'n groot mate af van die akkuraatheid by hoe volledig die invulling van die verskillende opgawes en hoe volledig die dekking van die steekproef is. Die Reserwebank gaan alle opgawes na om te verseker dat dit so akkuraat as moontlik is. Die grootte van die steekproef word gedurig vergroot om voorsiening te maak vir nuwe ondernemings en maatskappye wat buitelandse betrekkinge het." (Brummerhof, 1973, p.103).

Because the statistics are collected on a survey basis, it is not surprising that errors and unrecorded transactions do arise. However, if it is true that the sample surveys are becoming more and more comprehensive, one would expect the volume of errors and omissions to decrease over time.

From Table 4.2 it can be seen that in recent periods this has not been the case.

TABLE 4.2 : Errors and Unrecorded Transactions, 1960 - 1977 (Rm).

1960	- 34	1969	64
1961	- 33	1970	66
1962	17	1971	109
1963	- 1	1972	- 54
1964	27	1973	- 86
1965	81	1974	-330
1966	34	1975	- 77
1967	118	1976	-394
1968	83	1977	-585

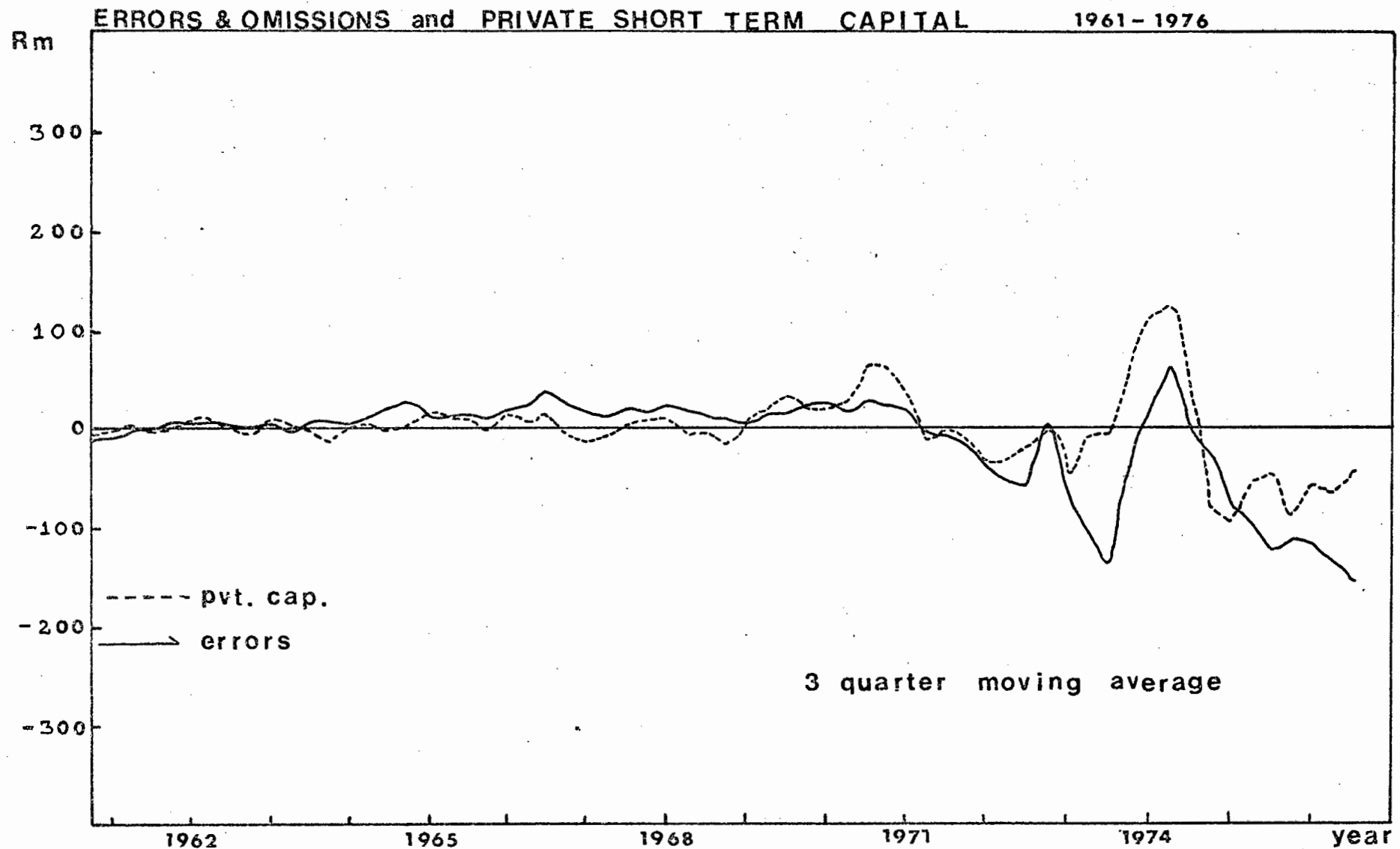
Source: SARB Quarterly Bulletin.

It can be seen that from 1974 outflows in this item increased dramatically. 1974 saw the breakdown of the "detente" moves in Southern Africa and also the Portuguese Coup which increased political uncertainty in the region. The fact that the Securities Rand discount widened over this period is further proof of private individuals' perception of greater political risk. If the 1977 figure of R585m is compared to the Reserve Banks' gross gold and foreign exchange reserves of R837m in September 1977, it is clear that the size of these transactions is significant. It would not be unreasonable, to assume that part of this increase in unrecorded transactions

can be ascribed to exchange control evasion. Exchange control was instituted primarily to protect foreign exchange reserves from politically initiated flight capital. It would appear therefore that in this respect, controls have not been as effective as the authorities might have hoped. It should also not be forgotten that disguised capital transfers, e.g. over- or under-invoicing would not be reflected in the statistics and the extent of evasion is therefore understated.

In 1978 the Reserve Bank discontinued the practice of reflecting short-term private capital movements and errors and unrecorded transactions as separate entries in the balance of payments on the grounds that all unrecorded transactions are private capital movements. There appears to be some justification for this. Figure 4.1 shows strong correlation between the two items. The graphs have been smoothed by means of a three quarter moving average in order to eliminate seasonal fluctuations and leads and lags. However, a feature of the graphs is that after the increased political unrest the volume of errors and omissions increased at a faster rate than the volume of recorded short-term private capital movements. This would seem to confirm the view that there is a large volume of flight capital that the exchange control authorities have been unable to control.

FIGURE 4.1



4.3 ALTERNATIVES TO EXCHANGE CONTROL

4.3.1 Introduction

The South African authorities have preferred to pursue a policy of fixed exchange rates and direct controls on capital movements to protect the foreign exchange reserves and to achieve balance of payments equilibrium. The controls have been implemented at the cost of resources needed for these controls and the distortions and inefficiencies that it causes. It is also doubtful as to whether these controls have achieved their objectives in the long run. The recently appointed De Kock Commission will be investigating the question of exchange rate policy or exchange control, and it is not unlikely that changes will be recommended. Senator Horwood has said that: "the third stage in this investigation will be the consideration of the feasibility and desirability of the creation of a broad and active foreign exchange market in South Africa with a view to allowing the rand to float in this market, either freely or subject to official "intervention" by the Reserve Bank in this market. Particularly in view of the contrasting problems posed by the current and capital accounts of South Africa's balance of payments at this stage, the possibility of eventually introducing a dual exchange system will also be examined by the commission." (Horwood, 1978, p.39). The two main alternatives open to the authorities are the adoption of a dual exchange rate system or a flexible exchange rate system.

4.3.2 The Dual Exchange Rate System.¹³

The existence of the Securities Rand market would make it relatively easy for a dual exchange rate regime to be set up, as the Securities Rand market is to some extent a variant of a dual exchange rate system. At first the authorities did not want to give official recognition to the existence of a separate market. As is stated in the Franzsen Commission, "Blocked Rand may ... not be transferred from the name of one non-resident to the name of another in the books of South African banks and other institutions. The reason for this is that it is not regarded as being to the advantage of South Africa's image abroad to grant official approval to a scheme which would give recognition to a second exchange rate for the Rand which would usually be lower than the official rate." (Franzsen, RP 70, p.254.). Again this is perhaps an indication of the authorities' aversion to markets. The establishment of the Securities Rand market in 1976 gave official recognition to a de facto situation as foreigners had devised means of transferring blocked Rands by means of the gilt wash. The price of Securities Rands, however, should not be seen as South Africa's second exchange rate in the true sense as the market is limited only to securities and South Africans have no access to the market.

Although the Securities Rand mechanism has to a certain

13. See e.g. Argy & Porter (1972), Barattieri & Ragazzi (1971), Decaluwe (1974), Fleming (1971 and 1974), Swoboda (1974), Decaluwe and Steinherr (1976), Lanyi (1977) and Dornbusch (1978).

extent prevented net capital movements, it was seen above that such movements are not completely avoided. During the years when there was no discount or when a slight premium emerged it was cheaper to buy shares through the official exchange market. Because of this it was rare that an effective premium did emerge because there was no effective separation of the official and the free market.

A dual exchange market separates all current from all capital transactions. Current transactions are conducted at a fixed official rate whilst all capital transactions are conducted at a free floating rate.

The difference between fixed rates, floating rates and dual rates can be summarised as follows:

Fixed Exchange Rates

$$(1a) \quad r_o = r_f = r$$

$$(1b) \quad \Delta R = B + K$$

$$(1c) \quad r = \bar{r}$$

Flexible Exchange Rate

$$(2a) \quad r_o = r_f = r$$

$$(2b) \quad \Delta R = B + K$$

$$(2c) \quad \Delta R = 0$$

Dual Exchange Rates

$$(3a) \quad r_o = \bar{r}_o$$

$$(3b) \quad \Delta R = B$$

$$(3c) \quad K = 0$$

where r_o = commercial exchange rate;
 B = current account balance;
 K = capital account balance;
 ΔR = changes in official reserves;
 r_f = financial or free exchange rate.

Under fixed rates there is one exchange market (1a) under which the exchange rate is fixed (1c). The total balance is equal to the change in the exchange reserves of the central bank. (This variation is the external component of the money supply.) Under flexible rates, there is one exchange rate which floats freely according to demand for and supply of foreign currencies, leaving exchange reserves unaffected. Under dual exchange rates, a pegged rate governs all current account transactions. Changes in reserves depend on the current transactions balance. The exchange rate r_f is endogenous and its level is such that the market is cleared.

It would appear at first sight that the dual exchange rate system would provide the ideal solution to South Africa's balance of payments problems because it would satisfy importers and exporters who prefer exchange rate stability and it would take the pressure off reserves by allowing the capital rate to float freely. Also, the Securities Rand market could easily be expanded to accommodate a wider range of capital transactions.

However, there are several problems associated with such a system. A prerequisite for a dual exchange system is that the two exchange markets are in fact kept effectively

separate. As Lanyi (1977) points out, "it is clear that to the extent that links are established between an official and a financial exchange market, the system is undermined in two ways: first, the sustainable spread between the two exchange rates is reduced, thereby diminishing the incentives to capital flows to move in a counter-speculative direction; and, second, capital movements initially passing through the financial exchange market tend to spill over into the official market, thereby making it more difficult for the monetary authorities to insulate the official rate from speculative disturbances." (Lanti, 1977, p.718). Thus a dual exchange rate system requires an extensive battery of direct controls, as separation of the two markets requires controls over both the foreign exchange transactions of residents and the domestic currency transactions of non-residents. Controlling the former requires a system of exchange controls while for the latter, regulation of non-residents' local bank accounts will be required.

Leads and lags are a further problem that has to be contended with. If trade finance is part of the official market, the dual exchange market cannot protect official reserves against speculative forces. On the other hand, a separation of trade financing from the official rate would not only be difficult to administer but would also eliminate an important advantage of separating the exchange markets, i.e. that they shield current account transactions from the exchange rate fluctuations caused by capital movements. Other difficulties arise with tourist expenditures, migrants' remittances,

payments related to capital service or royalties. And finally, there is still the problem of over- and under-invoicing, where the current account can be used as a vehicle for capital transactions.

Thus the effect of evasion is to place additional pressure on official reserves and to narrow the spread between the exchange rates in the two markets, e.g. when the financial rate is relatively depreciated, under-invoicing of exports tends to reduce the inflow of foreign exchange on the official market and to appreciate the financial rate.

The extent to which evasion will occur will depend on the degree of control imposed and on the costs of evading in terms of penalties imposed. The greater the spread between the two markets, the greater the incentive to evade the controls.

It is also important to consider whether a dual exchange market is preferable to quantitative restrictions. Fleming (1974) has argued that there are two major advantages of the dual exchange system. Firstly, over the wide range of transactions which it covers, it is equivalent to a uniform, (though not constant) percentage tax (subsidy) on purchases of securities by domestic residents from non-residents, combined with an equal subsidy (tax) on sales of securities by domestic to foreign residents. As stated above, quantitative restrictions are uneven in their incidence because of their ad hoc nature and because they operate by determining quantities of assets and liabilities traded rather than by

price differences. Thus under dual rates the coordinating mechanism of the market is brought into play.

The second advantage, according to Fleming, is that "with an equal degree of severity in penalizing evasion, it is likely to achieve either a given balance of payments effect with less administrative effort than the direct restrictions on capital flows or a greater balance of payments effect with the same administrative effort." (Fleming, 1974, p.10). Since administrative controls restrict unevenly, some transactions that are barely profitable may get through controls whilst profitable ones may not. A uniform tax would result in less evasion, since the transactions limited by the tax would be of the less profitable sort. At the same time, the profitable investments prevented by administrative type will result in a greater incentive to evade. However, Lanyi has shown that this is not necessarily true. He concludes that capital controls together with controls over current transactions which are necessary for effective implementation of capital controls entail substantial misallocation of resources and administrative costs. However, this is also true of dual exchange markets. "Unless there is a separate balance of payments objective with regard to the long-term capital account, it is by no means clear that either of the alternatives ... is superior to unified floating rates ... The dual exchange market is superior on grounds of allocative efficiency but not necessarily on any others." (Lanyi, 1977, p.736).

It is not clear, therefore, that a dual exchange rate system would be a useful alternative for South Africa. In fact, it could be argued that the present Securities Rand system is more effective with respect to the particular type of capital transactions involved (but not with respect to the capital account as a whole). In this case large discounts are possible to maintain as speculative flows can be discouraged because transactions through this market cannot be easily substituted or disguised. Thus it may well be that a broadening of the system to include all capital transactions will be a step into a greater quagmire of controls.

4.3.3 A Flexible Exchange Rate System

Unitary flexible exchange rates will obviate the necessity for elaborate methods of control. The authorities have been concerned that a lifting of the blocking procedures "could entirely swallow up the country's total foreign reserves in a short period" (Franzsen Commission; p.254). This might well be the case under fixed exchange rates but under a floating exchange rate regime this will be prevented by the adjustment of the exchange rate.

That is not to say that no real adjustments will have to be made under flexible exchange rates following a capital account shock. The difference, however, lies in the fact that the extra demand for foreign exchange will cause the price to rise, resulting in an increase in the price level. The fall in real incomes causes a decrease in expenditure. However,

because the exchange rate has depreciated, the cost of foreign assets has increased and the foreign currency price of South African assets has decreased so reducing the net demand for foreign exchange. The resultant reduced capital outflow means that a smaller increase in real savings is needed.

4.3.4 Conclusion

It is clear from the preceding discussion that South Africa's exchange control regulations have not been as effective as their proponents have led people to believe. Exchange control was unable to prevent large short term private capital outflows after the political disturbances in June, 1976. Nor was it able to prevent the enormous deflation required to adjust to these outflows and the lower inflows. The high level of compensatory finance required to support the level of reserves is further proof of the ineffectiveness of these controls.

It would appear that because of the already well established Securities Rand market, the authorities will consider broadening the scope of the market. This, however, will not decrease the amount of controls needed to prevent the type of capital outflows that exchange control regulations are aimed at. It is difficult to predict what would happen if controls had to be lifted. However, a lifting of controls in itself might obviate the desire of foreigners to disinvest and might even have the effect of attracting further capital as long as

foreign investors can be assured that controls will not be reinstituted in future. A freely floating Rand would seem to be the most useful alternative.

SECTION 2 : THE CAPITAL ACCOUNT AND THE MONETARY
APPROACH TO THE BALANCE OF PAYMENTS:
THEORY AND VERIFICATION

PORTFOLIO BALANCE MODELS AND THE MONETARY
APPROACH TO THE BALANCE OF PAYMENTS

5.1 INTRODUCTION

Section 1 above analysed the sources of supply of South Africa's foreign capital and the role played by the Eurobond and Eurocurrency markets in accommodating increased demands for foreign capital. It was also argued that the South African exchange control policies have proved inadequate to protect the capital account from sudden changes in the willingness of foreigners to accumulate assets in South Africa. Up till now very little has been said about the determinants of capital flows, i.e. the variables that are likely to affect capital flows. In Chapter 1 a description of the interrelationship between domestic monetary policy and the balance of payments as a whole was provided. In this section, an attempt is made to determine those factors which affect the capital account only, rather than the balance of payments as a whole. It will be shown that fluctuations in the capital account can be explained in terms of the monetary approach to the balance of payments.

This chapter provides a brief survey of the recent literature which has synthesised the features of the monetary approach and the portfolio adjustment approach. It is not intended that this be an extensive survey. Rather, the important features of a few of the models will be discussed.

5.2 THE SYNTHESIS OF THE MONETARY APPROACH TO THE BALANCE OF PAYMENTS AND THE PORTFOLIO APPROACH

The monetary approach to the balance of payments¹ has its roots in the contributions of David Hume to the analysis of the price-specie-flow mechanism. His basic premise was that the quantity of money in a country would be automatically adjusted to the demand for it by means of deficits or surpluses in the balance of payments, which were induced by the effects on relative national money price levels on excess supplies of or excess demands for money.

The theory of the balance of payments was developed in Hume's tradition of an automatic mechanism of international adjustment until the disruption of this tradition by what Yeager (1972) has called the "Keynesian Diversion" during the 1930's. The Keynesian elasticity approach to the balance of payments held the fore in economic thinking until the introduction of the "absorption" approach of Alexander.² This approach again took up the theory in the Humean tradition and paved the way for the modern monetary theory as developed primarily by the Chicago School.

The starting point of the monetary approach, as developed by Mundell and Johnson³, is the recognition of the fact that the

1. See Frenkel and Johnson (1976) for a collection of articles in this framework.

2. For a more recent exposition of the absorption approach see Corden (1977).

3. See for example Mundell (1968) and Johnson (1972).

balance of payments is essentially a monetary phenomenon. The balance of payments is defined as the net flow of international reserves into or out of the national economy.

In analysing the rate of change of these reserves the monetary approach focuses on the determinants of the excess domestic flow demand for or supply of money. Any surplus or deficit represents a stock disequilibrium in the local money market. Johnson notes that "in general, the approach emphasises the budget constraint imposed on the country's international spending and views the various accounts of the balance of payments as "windows" to the outside world."

(Frenkel and Johnson, p.21). In the early stages of development of the theory it did not seem crucial to have a clearer insight into the adjustment mechanism in terms of the chains of substitutions between assets within the different accounts. But now that the monetary approach is well established in the literature, it is important to extend it to be as detailed as possible in order to be able to predict the short and long run implications of policy actions. In order to do this, the portfolio approach has proved to be indispensable.

The basic insights of the portfolio approach derive from the works of Markowitz and Tobin⁴. Although this approach was initially applied to balance of payment theory within a Keynesian framework, it has since been incorporated in the monetary approach literature as well. In moving away from

4. See Tobin (1965) and (1969) and Markowitz (1959).

the assumption that money is the only asset and in moving into a world where capital markets do exist, it is essential to apply a portfolio analysis in order to understand the mechanism of adjustment between money and bonds which causes changes in the different accounts of the balance of payments. Just as the distinction between traded and non-traded goods has added more realism to the balance of payments literature, so has the extension of the asset market to a multi-asset sector which includes tradeable and non-tradeable assets made the existing literature far more amenable to solving real world problems.

In his integrative essay, P.D. Jonson notes that "even if one is committed to a multi-asset view of the world, monetary disequilibrium is a good proxy for asset disequilibrium in general if the composition of portfolios adjusts relatively rapidly" (Jonson, 1976, p.16). This implies that the one-asset model is likely to be more relevant to policy makers. This is in sharp contrast to Dornbusch who argues that "Perfect capital mobility was shown (by Mundell) to imply endogeneity of the world distribution of money and the ineffectiveness of monetary policy in a small country. The implications of capital mobility for macro-economic questions were sufficiently forceful at a highly aggregative level for a detailed formulation of the implied portfolio balance relations to seem redundant. Attempts at monetary policy in individual countries reflect, too, the recognition of a high degree of capital mobility, and it is for this reason that policies have primarily taken the form of regulation of the financial industry, taxation of ownership or attempts

at changing the relative yields of relatively non-tradeable securities over which domestic authorities may exert more leverage than over their tradeable counterparts." (Dornbusch, 1977, p.106). This suggests that the aggregation in the theoretical literature may be misleading for short run policy in its description of the transmission mechanism of monetary changes in the open economy. Non-traded assets are without doubt a large factor in any economy and the choice of asset in which the authorities intervene is shown by the portfolio approach to be of consequence. The portfolio approach provides additional insights - in terms of the various balance of payments accounts - through which the adjustment takes place.

The portfolio approach, like the monetary approach, places emphasis on the distinction between stock and flow adjustments. Previously, international capital movements were considered to be flows, i.e. flows of capital determined by levels of interest rates and other variables such as the level of trade flows. As Bryant (1974) points out, "(T)his so-called 'flow theory' had no theoretical justification when carefully examined. It implied that desired equilibrium stocks of assets of liabilities depend on the sum (integral) of the current and all past values of the relevant return variables, and thus that elasticities with respect to these returns are infinite" (Bryant, 1974, p.11-7).

By specifying levels of interest rates rather than changes in interest rate differentials, the flow models could not

explain, for example, why lower-yielding foreign assets were held in portfolios. According to Tobin, this can be explained in terms of the trade-off between risk and returns. The fact that a high rate of return is associated with high risk assets explains why total wealth is not converted into assets with the highest yield, as this would subject total wealth to the highest chance of loss. A rational risk-averse investor would divide his total wealth among assets in such a way that the rate of return is maximised given an over-all acceptable level of risk. Thus, given the rates of returns or levels risk on financial assets, there exists an optimal distribution of wealth. A change in the rate of return on a particular asset relative to others (with risk constant) will result in a redistribution of wealth until a new optimal distribution is attained. If the rate of return on one asset increases there will be a stock-shift adjustment as wealth owners will now hold a greater proportion (but not all) of their wealth in the higher yielding asset. The flow adjustments are related to the growth of total wealth. Thus if total wealth grows, holdings of all assets increase and given constant relative rates of return, the assets are held in the same proportion as before. A second flow effect is identified by Askari et al: "... although interest rate policy now has no long run effect on the inflow of capital in the conventional flow theory sense, it does have a continuing flow effect. This effect is the difference between what would flow as a result of an increase in wealth and the amount of inflow as a result of the growth of wealth under a new set of interest rates" (Askari et al (1977)p.71). Thus if we assume a constant

portfolio size, all capital flows are caused by stock adjustments. These are essentially temporary in nature as they cease as soon as actual portfolio distribution equals the desired portfolio distribution.

The distinction between stocks and flows was recognised by Johnson (1958) although it was not explicitly built into any model until 1966 by McKinnon and Oates (1966) and McKinnon (1969). As Johnson put it, "Two sorts of aggregate decisions leading to a balance of payments deficit may be distinguished in principle, corresponding to the distinction drawn in monetary theory between "stock" decisions and "flow" decision: a (stock) decision to alter the composition of a community's assets by substituting other assets for domestic money and a (flow) decision to spend currently in excess of receipts." (Johnson, 1958, p.243).

Models such as those by Branson (1968) and Willet & Forte (1969) which are developed in a Keynesian framework based on Tobin's theory of portfolio choice, have been used to study short-term capital movements but always within a partial equilibrium framework since the rest of the economy is not dealt with. There have also been models within the monetary framework, e.g. Dornbusch (1977) where the real side of the economy is also taken as given. These models have treated short-term capital movements in isolation and not as a part of an integrated macro-economy. In particular, domestic interest rates have been taken as being entirely exogenous. Following the development of the incorporation of financial

flows into the analysis of the open macro-economic model, the use of a portfolio balance approach was added. In effect this implied an addition to the usual Keynesian open economy model of a behavioural equation defining the equilibrium in the asset market and the inclusion of wealth as an explanatory variable in the expenditure, money and asset demand functions. Whereas previous models treated capital movements as flows, the portfolio approach permitted a treatment of capital movements as a stock adjustment. As noted, under such assumptions the effect of a change in the interest rate is seen as a transitory phenomenon causing a once-and-for-all change in a country's reserves but generating no continuous effect on the balance of payments.

The first explicit general equilibrium portfolio models were developed in the Keynesian IS/LM framework by McKinnon (1969), McKinnon and Oates (1966) and Whitman (1970). The latter two assumed perfect capital mobility by considering that asset holdings by the private sector consist of both domestic and foreign bonds, which are treated as perfect substitutes. In these models, the money supply is exogenously determined which implies that the authorities sterilize the effect of disequilibrium in the balance of payments. Equilibrium in this type of model is achieved when a surplus or deficit in the current account is offset by a deficit or surplus in the asset market. This is so because a disequilibrium in the bond market is generated by the surplus or deficit in the budget and this surplus or deficit must be equal to the surplus or deficit on the current account. These models in

effect were specifying a one security market as domestic and foreign securities are perfect substitutes. It should be noted that capital mobility does not imply that yields on two securities must be equal. It merely implies that the interest rate on a given security is the same everywhere. The later literature has recognised this point (i.e. that a differential yield on two securities depends on the relative supplies of the two securities), and as will be seen below, has implications for the conduct of monetary policy.

Floyd (1972) analyses a small open fully employed economy "embedded in a large trading world" incorporating stock and flow equilibria. He shows that disturbances of equilibrium involve both stock adjustments comprising of an international transfer of ownership of part of the existing stock of assets, and changes in the allocations of the continuous flow of additions to the stock of capital through time. The usual conclusions, that an increase in the nominal money stock results in a proportional rise in the domestic price level and a deficit in the balance of payments (under fixed exchange rates) still hold, but the process differs. Here an increase in the money stock results in a portfolio disequilibrium resulting in the purchasing of assets abroad. The interest rate is unchanged. The price level rises because the sale of foreign exchange reserves for capital assets raises wealth and this raises spending. To the extent that the domestic price level rises, the trade balance deteriorates. To the extent that foreigners now own a smaller equilibrium fraction of the stock of domestically employed capital, they will be

purchasing a smaller fraction of the flow of new additions to that capital stock. For both these reasons, the balance of payments will deteriorate in long run equilibrium. (The deterioration is accentuated in the short run by the one-shot purchase of capital required to maintain portfolio equilibrium). The model, however, appears to be inadequate to analyse long run relationships which is inconsistent with an annual nonzero flow of new domestic investment, a problem that is solved by Dornbusch (1975).

One of the first studies that not only synthesised the monetary approach and portfolio approach but also subjected the model to empirical testing was that by Kouri & Porter (1974). This model will be applied to South Africa and will be discussed in greater detail in the following chapter.

Frenkel and Rodriguez (1975) have constructed a model with a variable supply of goods depending on the real capital stock, and are able to analyze the adjustment path to the long run stationary equilibrium. The purpose of their model is to analyse the adjustment mechanism in a small fully employed economy which trades in commodities, securities and money and to "attempt to shift the analysis from exchange considerations that dominate barter theory to those features that are relevant to inter-temporal trade, the accumulation of real and financial assets and their reflection in the balance of payments." (Frenkel & Rodriguez, 1975, p.674). Their equilibrium specifications are (a) a flow equilibrium where total output is demanded and (b) a stock equilibrium

where actual stocks of assets are held in desired proportions.

Although their model does not distinguish between traded and non-traded bonds, it has the advantage in that the adjustment mechanism can be observed to work through the different accounts of the balance of payments. The capital account is not disaggregated but the current account is disaggregated into a debt service account and a trade account. Whether the debt service account is negative or positive depends on whether the economy is a net debtor or creditor.

Some monetary policy experiments are applied to their model. A once and for all change in the money stock brought about by an unanticipated governmental transfer has an initial impact of raising the value of assets. This induces an excess demand for equities as portfolio holders exchange part of the increased money stock for equities. This results in larger holdings of both cash balances and equities, but still in the same proportion. This portfolio adjustment is affected through the balance of payments in different ways. Since the model assumes that monetary changes do not affect the capital stock, the level of output is fixed and consumption rises. This results in a deterioration of the trade account. Because some of the increased money was exchanged for securities this decreases net indebtedness and the service account improves. After this initial stock adjustment, there is asset decumulation in order to restore "steady-state equilibrium". This decumulation is divided between money

and assets in order to maintain portfolio balance. This results in a surplus in the capital account (as assets are exported), a deterioration in the services account (as indebtedness increases) and a deficit in the net balance of payments. When actual asset holdings are restored to the initial asset position, the process ends. As the authors note, "Changes in the quantity of money which are brought about by a transfer do not affect the long-run equilibrium of the system - a result which is common to the literature on the monetary approach to the balance of payments" (Frenkel and Rodriguez, 1975, p.682).

Next they consider the effects of open market operations. The results here depend upon whether or not the private sector capitalises the flow of transfers when the government is assumed to return the yield on its holdings of securities to the private sector in the form of transfer payments. In the case where the private sector anticipates and capitalises the transfers (and assumes that these claims are marketable as all other equities are), then the equities that are held by the government are seen by the private sector as being their own equities "that are deposited in a governmental safekeeping box." The open market purchase only has an effect of raising the money stock and the effects are the same as in the case above. The situation is different if the flow is not capitalised. Here money stocks have increased relative to assets and individuals restore equilibrium by buying foreign securities, thus reducing the net debtor position of the economy (and improving the services

account). The actions of the authorities are thus cancelled out. In this case such actions amount to an exchange of foreign securities between the monetary authorities and foreign asset holders. To restore the desired portfolio size, however, the economy must import assets in the form of securities and money. This improves the service account and causes the trade account to deteriorate. Longrun equilibrium is attained when the increased value of assets induces higher consumption at a rate equal to the non-capitalized governmental transfer.

Dornbusch (1977) develops a two country model within a partial equilibrium framework and concentrates on the exact detail of the effects of policies and a description of the relevant parameters that determine the magnitude and direction of these effects. An important innovation is that the banking sector is included, but he shows that the effects of a restrictive monetary policy remain unaltered by the existence of financial intermediaries. He also introduces domestic or non-traded debt and shows that monetary policy will have a different effect, depending on what type of asset the authorities intervene in. For a small country the leverage of monetary policy will come from the existence of non-tradeable assets. To the extent that they are close substitutes to tradeable assets in the banks' portfolios, that leverage may be lost because of the Mundellian conclusion that under perfect capital mobility, the open economy "leaks". Under these circumstances more specific policies, e.g. regulation or taxation of the banking system will be needed.

In the model, an open market purchase of domestic debt by the central bank results in an excess supply of money and domestic credit. This in turn implies a lower domestic rate of interest and a decrease in the stock of reserves. The change in reserves depends on the elasticities of excess demand with respect to the interest rate and the domestic loan multiplier. As noted previously, if domestic and foreign assets are highly substitutable we are back in the one asset world where open market operations are matched by a decrease in reserves. With imperfect substitutability, however, there will be less than full offset as the decline on the yield on domestic assets results in wealth holders wanting to hold more of both money and international assets. The reserve loss results from the acquisition of international assets, but only a fraction X of a given open market purchase will be used to acquire international assets whilst $I - X$ will be added to money balances. It is also demonstrated that policies relating to the regulation of commercial banks will be successful only if applied to non-traded debt. From this the usefulness of the portfolio approach for policy purposes is apparent and the conclusions are compatible with the monetary approach.

One of the main objections to the earlier Keynesian formulations was that they were essentially short run and not appropriate for analysis of long run problems (i.e. stock-flow problems) because positive savings and investment mean asset accumulation which is inconsistent with stock equilibrium. A further objection was that income earnings on

government and foreign securities was neglected. This was rectified by Frenkel and Rodriguez (1975), Boyer (1975a & 1975b) and Dornbusch (1975), who explicitly analyse the savings and investment functions. A further objection to the IS/LM framework is the fact that even those models that do take a longer time perspective, e.g. McKinnon (1969) maintain the assumption of perfectly elastic supply of output at current prices. Boyer and Dornbusch, however, assume flexibility of relative prices, full employment and continuous market clearing.

In Boyer's analysis, the trade account is treated as a flow magnitude, as inventory behaviour is excluded. Both the stock and flow aspects of the capital account are included so that both the portfolio balance problem and the saving-investment decision can be analysed. His model has three flow equations and three stock equations - non-traded goods, traded goods and net asset accumulation (flow excess demand for assets) on the flow side and domestic bonds, foreign bonds and money on the stock side.

Dornbusch (1975) develops a very detailed macro-economic model which includes the Savings and Investment decision. Investment is inversely related to the yield on real capital and the stock of real capital. The savings function which is of the stock adjustment variety is proportional to the excess of desired wealth over actual wealth. The budget constraint of wealth holders' asset holding add up to unity.

$$m^d = f(r, i)w$$

$$b^d = g(r, i)w$$

$$k^d = h(r, i)w$$

m^d = demand for real money holdings;

b^d = demand for real debt holdings;

k^d = demand for real capital;

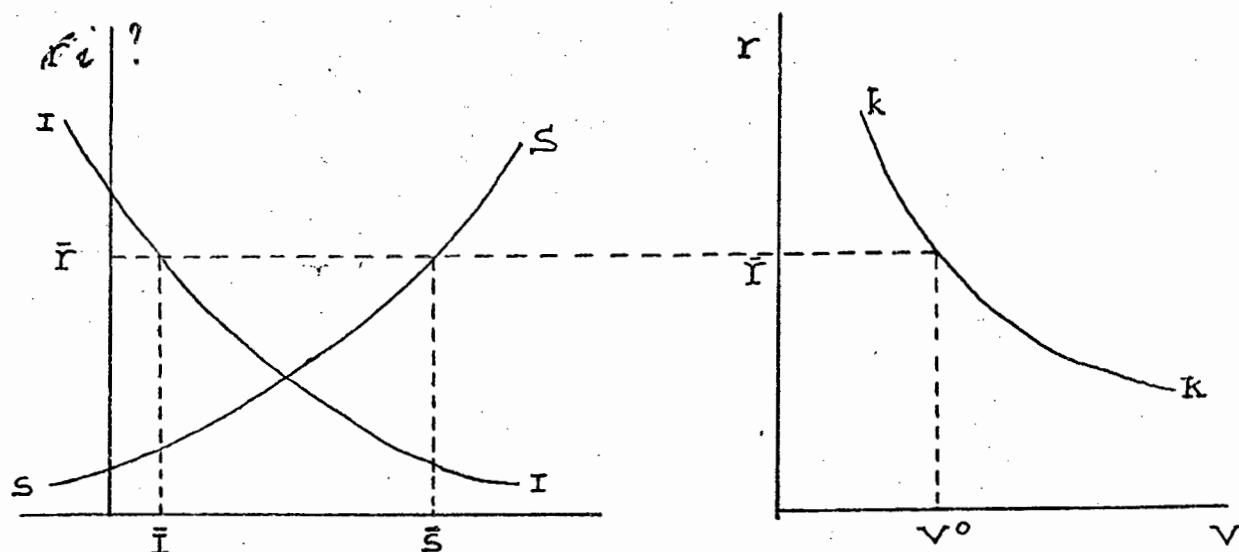
r = yield on real capital;

i = yield on tradeable debt;

$V = m + b$ (financial assets).

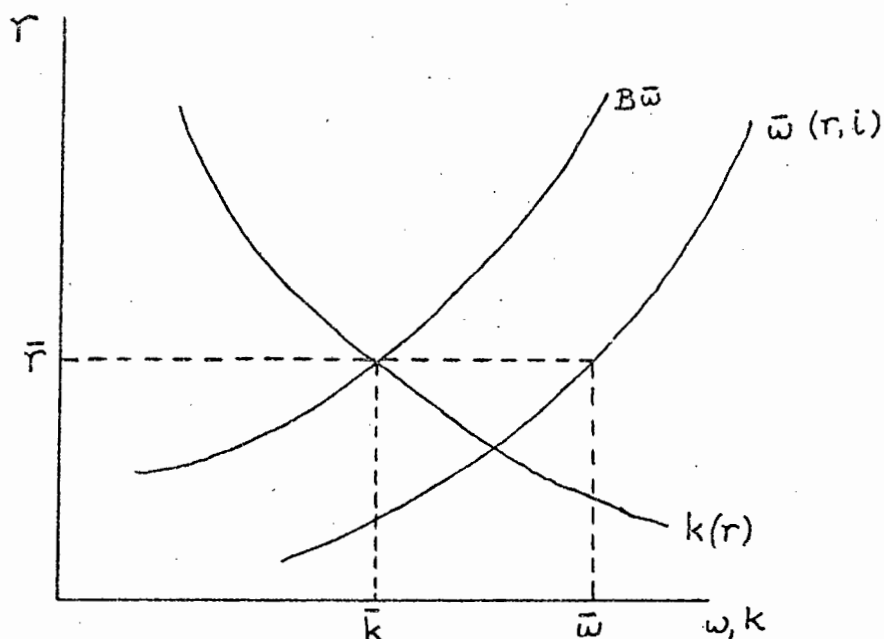
The trade balance surplus equals the current account surplus less interest earnings on the excess of private debt holdings over domestic debt issue, ie. $(S-I) - i(b-B)$. Claims to income from physical capital (equity) and also physical capital are assumed to be non-tradeable. Short run equilibrium is achieved according to Figure 5.1.

FIGURE 5.1



Given the initial level of real balances and real debt, V , the equilibrium yield on capital is $\bar{r}$. Here wealth and the desired composition of assets are such that the existing stock of capital is willingly held. At the level of flows, the yield on capital and the value of real wealth determine the rate of saving $\bar{S}$ while the yield on capital together with the current stock of physical capital determine the rate of net investment $\bar{I}$. Short run equilibrium implies accumulation of physical capital since net investment is positive, and also an accumulation of financial assets, money and debt, since saving exceeds investment and therefore the current account is in surplus.

These additions to the stock of capital and assets will over time affect the equilibrium position of the economy and this is determined by the equilibrium rates of physical capital formation, investment and saving. Thus an increase in financial assets corresponds to a movement along KK and an upward shift of the savings schedule. The equilibrium rate of interest falls and the equilibrium rate of saving decreases since actual wealth increases while desired wealth declines. Thus the equilibrium rate of capital accumulation increases both in physical and value terms. In the long run the private sector is in balance of payments equilibrium and net additions to the stock of capital money and debt holdings are zero. The current account surplus will be zero so that the trade balance deficit is financed by the net interest earnings on the excess of private sector holdings of debt over public debt issue. Figure 5.2 shows the long run steady equilibrium.

FIGURE 5.2

$\bar{k}(r)$ shows steady state value of capital stock. $\bar{w}(r, i)$ shows desired wealth such that saving is zero and $B\bar{w}$ shows the part of assets the public wishes to hold in the form of equities. Long run equilibrium obtains at $\bar{r}$ where saving is zero and demand for equities equals the steady state supply. The figure also shows the composition of wealth between equities and other assets. In this situation, wealth exceeds the value of capital stock so net holdings of the remaining assets are positive. The distribution of $\bar{v}$ between money and debt is thus determined by the equilibrium yield on capital.

The implications for policy purposes are the same as in Dornbusch (1977), i.e. for short run monetary policy to be effective, the authorities must intervene in the market for domestic equities. Monetary policy will only be effective to the extent that these equities and international debt are perfect substitutes.

The synthesis of the portfolio approach and the monetary approach has also proved to be valuable in the analysis of devaluation, the most notable analyses being those of Frenkel and Rodriguez (1975) and Boyer (1975). Frenkel and Rodriguez's model shows that the initial or impact effect of a devaluation induces a surplus in the capital account, (as securities are exchanged for money to build up real balances) an improvement in the trade account, a deterioration in the debt service account (because of the sale of securities) and an increase in net reserves. (Net reserves and the capital account reflect the stock adjustment to restore portfolio balance and in the short run most of the adjustment is effected through these assets accounts). After the stock adjustment, a movement is made to restore the size of portfolios, the accumulation of assets results in a deficit in the capital account and a surplus in the overall balance of payments. Both will decline through time as the adjustment process comes to an end. During this phase the trade account is maintained, the ratio of the surplus in the overall balance of payments to deficit in the capital account will approximate the desired composition ratio. Again these conclusions are entirely consistent with the monetary approach but the portfolio formulation allows for an identification of the channels of adjustment.

Boyer (1975) has a slightly different formulation in that he brings non-traded goods and non-traded bonds into the analysis. He also disaggregates the current account into the trade account and the current account. By doing so, he is able to

show that the conclusion that a devaluation will cause a surplus in the current account does not necessarily hold. If the devaluing economy is a net creditor a devaluation will unambiguously improve the current account. However, if the economy is a net debtor, a devaluation will improve the trade account but the services account will deteriorate as the domestic currency value of the country's debt servicing obligations will have increased. This deterioration of the debt servicing account will dampen the improvement in the trade account or depending on the extent of debt obligations, it could result in an overall current account deficit.

5.3 CONCLUSION

The monetary theory of the balance of payments has been considerably enhanced by the synthesis of this approach and the portfolio approach. The addition of a portfolio analysis has added more realism to the monetary approach as it gets away from a one asset world. The effects of policy measures can be observed by their impact effect on the different markets and the path of adjustment. This is of crucial importance to policy makers. In the following chapter, a model in this framework will be applied to the South African capital account.

CONCLUSION - SOUTH AFRICA'S CAPITAL ACCOUNT,THE MONETARY APPROACH AND THE PORTFOLIOAPPROACH: AN EMPIRICAL TEST6.1 INTRODUCTION

In Chapter 1 the interdependence of South Africa's balance of payments and monetary policies was discussed. It was argued that, given the authorities' preference for fixed exchange rates, it is impossible for the authorities to pursue monetary policies free of the balance of payments constraint, except perhaps in the short run. Such short run independence implies that the authorities have to accept the consequent reserve fluctuations.

This chapter provides a test of the monetary theory of the balance of payments within the portfolio framework as outlined in Chapter 5. Previous tests applied to South Africa within the monetary framework have been carried out by Hurwitz (1977) and Hurwitz and Kantor (1976). These studies concentrate on the sources and effects of changes in the money supply using a simultaneous equation model. Hurwitz's model does not specify an equation for the capital account as a whole and emphasis is placed upon net changes in foreign exchange reserves as a source of change in the money base. The model used in this chapter derives a reduced form equation for total capital flows rather than for changes in reserves as a whole. In this way it becomes clear how capital flows (or the capital account) have acted to offset current account imbalances and monetary policy actions.

Despite the tight import and capital controls imposed by the authorities in South Africa, it will be seen that a large proportion of capital flows can be explained by disequilibrium in the money market which affects the demands for credit. Capital inflows can be regarded as excess demands for credit. The model applied here is basically the portfolio model developed at the IMF by Kouri and Porter (1974). In the Kouri and Porter study, capital flow equations for Germany, Australia, Italy and the Netherlands were estimated.¹ The results obtained below are comparable to those obtained for the abovementioned countries.

6.2 "REDUCED FORM" versus "STRUCTURAL" APPROACH

The use of a reduced-form equation has certain advantages, not least that it is most convenient for econometric estimation. The derivation of the reduced-form equation from a complete model solves out an endogenous variable (in this case the domestic interest rate) and in so doing removes one source of simultaneous equation bias.²

However, there are certain drawbacks in using such an approach, particularly in that the level of aggregation does not adequately capture many important structural characteristics. As Kouri notes, "... the reduced form equation answers most

1. Kouri (1975) has extended the model for Germany. Ujiie (1978) has derived a similar equation for Japan and has also included the monetary authority's reaction function.

2. See Appendix to Kouri and Porter (1974).

of the interesting questions. There are many other interesting questions - such as the effect of capital controls, taxes on foreign investment, different effects of central bank operations in the short term and long term equity markets - which require structural models to be satisfactorily analysed." (Kouri, 1975, p.28). The model is therefore kept down to manageable proportions at the expense of incorporating a more complicated structure of the banking system.

An advantage of the equation according to Kouri and Porter, is that because it contains a monetary policy instrument as one of the regressors, the model is most useful for policy purposes. However, their equations require separate predictions of foreign variables, of domestic activity and of the current account of the balance of payments. It would appear that from a practical point of view, i.e. from a policy perspective, the difference between the two approaches (reduced form and structural) depends on whether or not one is in a better position to predict the current account than domestic return variables.

6.3 THE MODEL

As was explained in Chapter 1, trade fluctuations will tend to be financed if no capital restrictions are enforced. Thus any observed fluctuations in reserves reflect either restrictions on capital movements or interest rate controls, as is the case in South Africa. Such fluctuations could also be due to an undervalued or overvalued exchange rate. It

follows that under perfect capital market integration the need for official reserves approaches zero. As Mahar and Porter (1977) note, "contrary to the old view in which the choice was between a flexible exchange rate regime without reserves or a fixed rate with reserves, the new view insists that as long as capital markets are allowed to do their work, then the truly random component in reserves will have a low mean and variance, and the resulting need for official reserves may be very modest under either fixed or floating exchange regimes" (Mahar and Porter, 1977, p.209). The model that is applied below is a test of the above propositions.

The Kouri and Porter model is set out in Table 6.1. The complete derivation of the reduced form equation for total capital flows is reproduced in Appendix D. The important points will be summarised here.

In equilibrium, the demand for money equals the supply of money which in turn is equal to the sum of the central bank's net foreign assets (NFA) and net domestic assets (NDA)³

$$\text{i.e. } M_D = L(Y, r) = M_S = \text{NFA} + \text{NDA} \quad \dots\dots\dots (6.1)$$

where Y = income and r = the domestic rate of interest.

Given an exogenous foreign interest rate and assuming the limiting case of perfect capital mobility, then the local interest rate will be equal to the world interest rate plus a risk vector (VE).

3. A simplifying assumption of a money multiplier equal to one is made.

TABLE 6.1 : The Basic Model.

1. Demand for base money	$M_{OD} = L(Y, W, R, R_f, VE)$	$L_Y, L_W > 0; L_R, L_{R_f} < 0$
2. Net demand for domestic bonds	$B_D = H(Y, w, R, R_f, VE)$	$H_W, H_R > 0; H_{R_f} < 0; H_Y \geq 0$
3. Domestic demand for foreign bonds	$B_F = J(Y, w, R, R_f, VE)$	$J_W, J_{R_f} > 0; J_R < 0; J_Y \geq 0$
4. Net foreign demand for domestic bonds	$B_D^f = F(Y_f, W_f, R, R_f, VE)$	$F_R > 0; F_{R_f} < 0; F_{Y_f}, F_{W_f} \geq 0$
5. Total money supply	$M_{OS} = NFA + NDA$	
6. Domestic component of money supply	$\Delta NDA = -\Delta B_G$	
7. Foreign component of money supply	$\Delta NFA = TC + CAB$	
8. Total net capital inflow	$TC = \Delta B_D^f - \Delta B_F$	
9. Domestic wealth constraint	$L(\) + H(\) + J(\) = W$	
10. Money equilibrium	$M_{OD} = M_{OS}$	
11. Domestic bond equilibrium	$B_D + B_D^f = B_G$	

ENDOGENOUS VARIABLES: M_{OD} = demand for money, M_{OS} = money supply, R = domestic interest rate, B_D = net domestic demand for domestic bonds, B_F = domestic demand for foreign bonds, B_D^f = foreign demand for domestic bonds. NDA = net foreign assets of central bank, TC = total net capital inflow.

EXOGENOUS VARIABLES: Y, Y_f = nominal income (domes. & foreign), W, W_f = nominal wealth (domest. & foreign) VE = Vector of risk factors, B_G = stock of govt. bonds held by private sector, NDA = net domestic assets of central bank, CAB = current account balance.

$$\text{i.e. } R = R_f + VE \quad \dots\dots\dots (6.2)$$

The model assumes that NFA changes due to central bank intervention to support the exchange rate. Thus

$$\Delta NFA = TC + CAB \quad \dots\dots\dots (6.3)$$

where TC = net inflow of capital and CAB = current account balance. It is assumed that in the short run income (Y) and CAB are given and independent of monetary policy, whilst ΔNFA is determined by monetary policy, i.e. open market operations.

Given that Y, CAB and NFA are exogenous in the short run, total capital flows equilibrate the financial markets. Thus

$$TC = L_Y \Delta Y + L_R \Delta R_f + L_R \Delta VE - \Delta NFA - CAB \quad \dots (6.4)$$

i.e. TC is equal to the excess flow demand for bank credit, with all the components in the right hand side being stock adjustments components except for CAB which is the flow component.⁴

The reduced form equation, which solves for the domestic interest rate is in the same form except for some additional variables. The equation (see Appendix D for the derivation of the equation) is given as

4. CAB is equal to the excess of saving over investment. Under the assumption of perfect capital mobility the excess of new supply of securities over the domestic acquisition of new securities is absorbed by world capital markets at a fixed rate of interest.

$$\begin{aligned}
 TC = & a_0 + a_1 \Delta w + a_2 \Delta Y + a_3 \Delta Rf + a_4 \Delta VE + a_5 \Delta NDA \\
 & + a_6 \Delta wf + a_7 \Delta Yf + a_8 CAB + u \quad \dots\dots\dots (6.5)
 \end{aligned}$$

where ΔW is the change in the domestic stock of wealth and ΔWf is the change in the foreign stock of wealth, and ΔYf the change in foreign income. Foreign and domestic wealth are included as they affect the demand for securities. The coefficients on ΔNDA and CAB show the extent to which monetary policy is offset by capital flows and should therefore be equal to each other. Under perfect capital mobility i.e. with completely offsetting capital flows, the coefficients should equal -1.

One of the immediate problems in applying this equation was the impossibility of finding adequate data for wealth (both domestic and foreign) and foreign income. These three variables are therefore dropped. Kouri and Porter justify the omission of these variables as follows: "Since ΔW , ΔYf and ΔWf affect capital flows in opposite directions, and since we include the constant term, it seems reasonable to assume that the elimination of these variables will not greatly affect the results" (Kouri and Porter, 1974, p.453). Thus the equation to be estimated is given as:

$$TC = b_0 + b_1 \Delta Y + b_2 \Delta Rf + b_3 \Delta NDA + b_4 CAB \quad \dots\dots (6.6)$$

According to the model the coefficients will have the following signs:

$$b_1 > 0; \quad b_2 < 0; \quad -1 \leq b_3 \leq 0; \quad -1 \leq b_4 \leq 0$$

$$\text{and } b_3 = b_4.$$

6.4 DATA

- (i) Income (Y) was taken as Gross Domestic Product at market prices. Data was obtained from South African Reserve Bank Quarterly Bulletins.
- (ii) Foreign interest rate (R_f) was taken as the three month Eurodollar rate.
- (iii) Net Domestic Assets (NDA) was calculated as a residual of the Money Base (MB) and total gold and foreign reserves of the Reserve Bank (NFA), i.e. $NDA = MB - NFA$. MB was obtained by considering the Reserve Bank balance sheet liabilities and excluding all Government and Provincial Administration deposits, capital and reserves, and "other" liabilities and "Foreign Loans" (as they will be reflected in Reserves (NFA)).
- (iv) CAB is the current account balance taken from the official Reserve Bank balance of payments statistics. In the Kouri-Porter model all autonomous flows (e.g. official flows) are added to the current account where possible. However, because in the official statistics Central Government and Reserve Bank flows are grouped with those of the private banking sector, such flows have been included in the total capital flows (TC).

6.5 RESULTS AND INTERPRETATION OF REGRESSIONS

Various regressions were run, the results of which are shown in Table 6.2. The behaviour of the actual and fitted values is illustrated in Figures 6.1 to 6.3. The explanatory power

TABLE 6.2 : Estimates of the Capital Flow Equation for South Africa, 1961(i) - 1976(iv).

Equation Number	D.V.	a	ΔY	ΔR_f	ΔNDA	CAB	DUM	R^2	D.W
6.7	(TC ₁)	29,12 (2,34)	0,21 (0,26)	15,0 (-1,48)	-0,49 (-4,675)	-0,60 (-9,835)	0	0,70	1,93
6.8	(TC ₂)	31,50 (2,61)	0,03 (0,34)	-7,35 (-0,71)	-0,46 (-4,58)	-0,57 (-9,11)	1	0,73	2,15
6.9	(TC ₃)	3,32 (0,25)	0,31 (3,68)	-3,65 (-0,35)	-0,49 (-4,60)	-0,59 (-9,48)	0	0,70	2,23
6.10	(TC ₄)	14,70 (1,96)	0,04 (0,514)	-11,07 (-1,473)	-0,71 (-6,40)	-0,83 (-11,18)	0	0,79	1,85

Note: D.V. = dependent variable

TC₁ = total long term and short term capital 1961-1976 (iv)

TC₂ = total long term and short term capital 1961-1976 (iv) with dummy variable

TC₃ = total long term capital flows 1961-1976 (iv)

TC₄ = total long term and short term capital 1961-1972 (i)

Figures in parentheses = t statistics. R^2 is adjusted for degrees of freedom.

D-W = Durbin Watson statistic.

DUM = speculative dummy variable. It is equal to 1 from 1974(iii) - 1975(ii) and zero elsewhere.

All data measured in Rm.

FIGURE 6.1

TC1 EQ.6.7

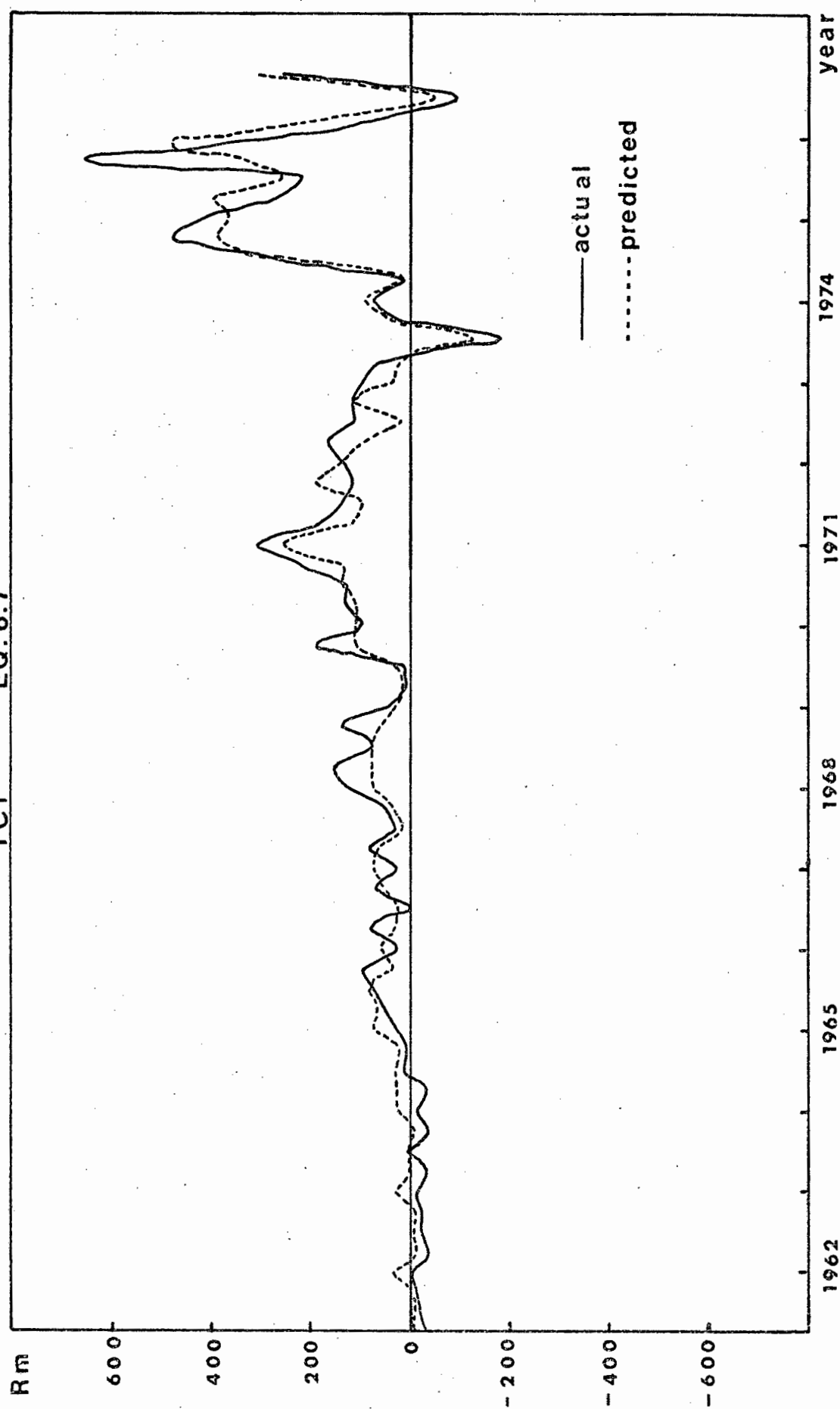


FIGURE 6.2

TC 3

EQ. 6.9

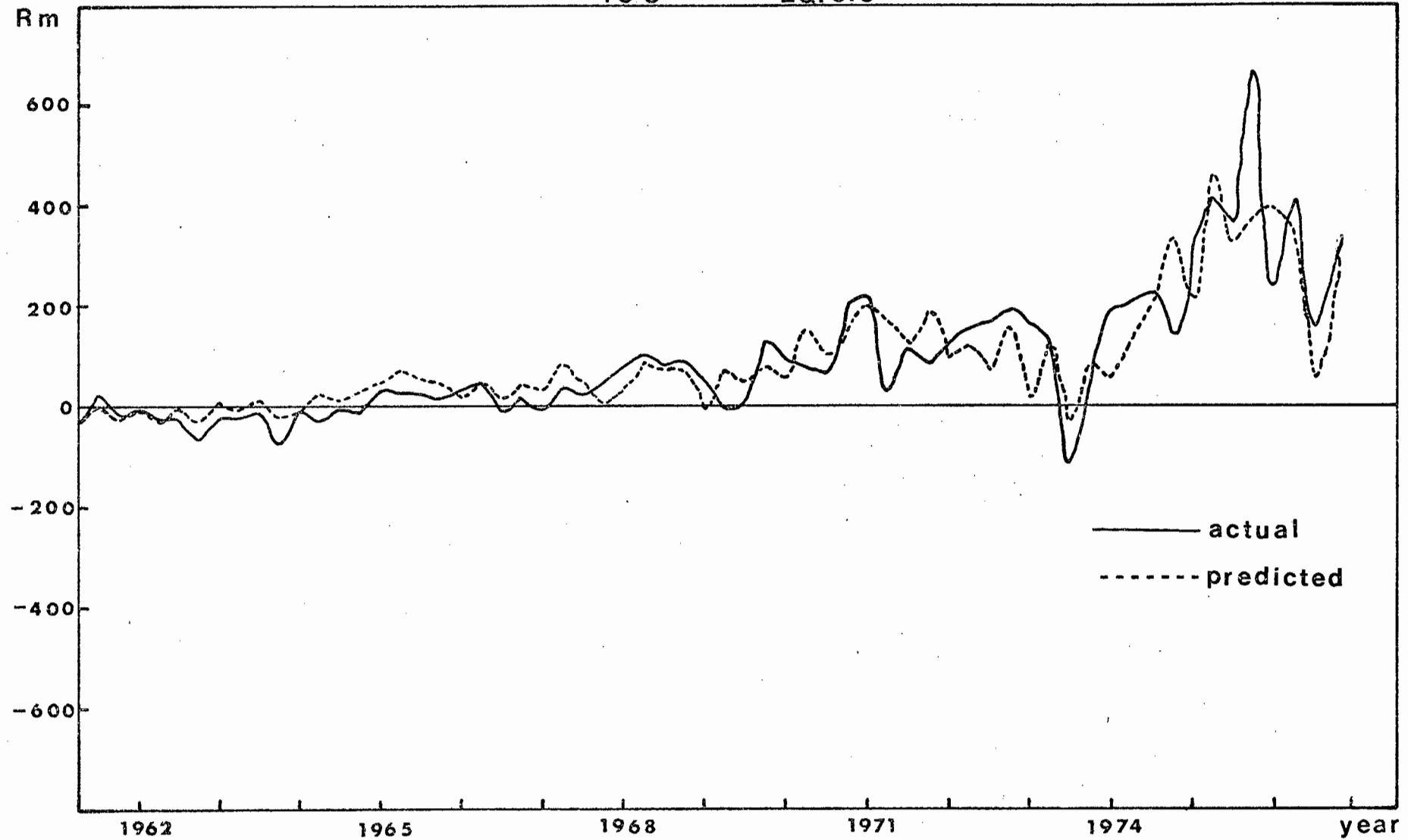
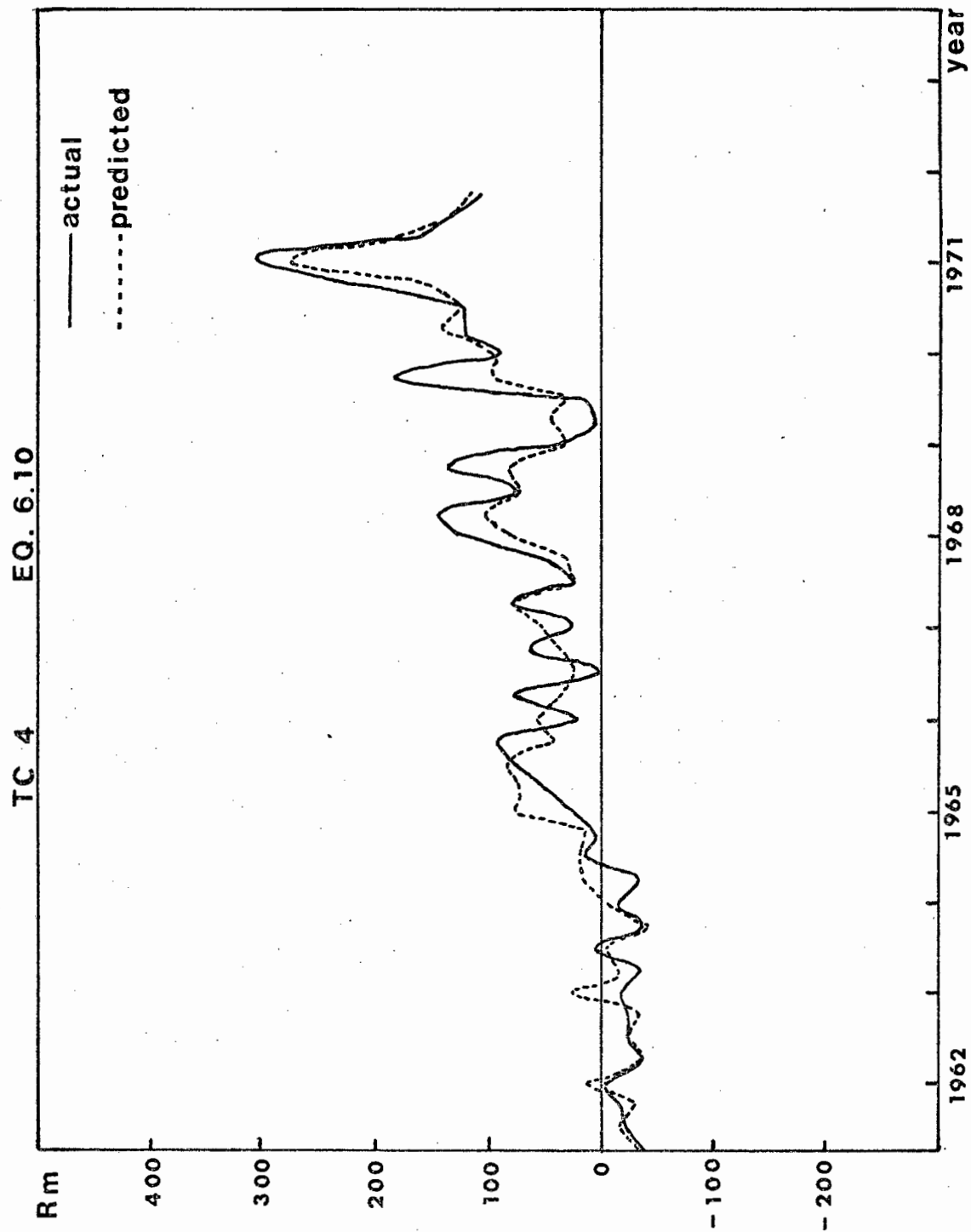


FIGURE 6.3



of the equations are satisfactory with the R^2 ranging from 0,70 to 0,79 which means that the variables in the equation explain most of the variations in capital flows. In all cases the Durbin-Watson statistic indicates that there is no autocorrelation.

In all the equations, the current account balance and changes in net domestic assets are highly significant in explaining capital flows, with the t-statistic ranging from 4,6 to 6,4 in the case of NDA and from 9,1 to 11,2 in the case of CAB. In all the cases the coefficients on Δ NDA and CAB have the correct sign and are significantly different from minus one which indicates that because capital mobility is imperfect, monetary policy is not completely offset by capital movements. This implies that in the short run the authorities do have a certain degree of independence in their monetary policy provided they are prepared to accept the accompanying reserve fluctuations. (Such reserve fluctuations are, of course, a feature of South African monetary developments) In all cases the coefficient on the two variables is not significantly different. This is in accordance with what the model predicted as explained above.

The change in income variable, although always having the correct sign, is only statistically significant in explaining variations in long term capital flows (Equation 6.9). It would appear, therefore, that long term capital is the main vehicle whereby excess demands for money are satisfied. South Africa's business cycles generally lag behind those of her major trading partners. Therefore the fact that changes

in income do affect the flow of capital confirms the view that the behaviour of capital flows reflects divergent growth rates and cyclical phases between countries, with capital flows accommodating the resultant fluctuations in the demand for money.

As in the case of the Kouri-Porter study, the interest rate variable is not significant although the sign is correct. The failure of the interest rate variable to explain capital flows in this case could be that either the Eurodollar rate is not the relevant rate or more likely the fact that expectations of interest rate changes have not been incorporated.

There is also the question of expectations of exchange rate changes. The model assumes a fixed and believable exchange rate. From the period 1961-1971 the Rand's exchange rate remained basically unchanged. Equation 6.10 shows estimates of the equation over this period. It can be seen that the R^2 is higher than for the equations that cover the period till 1976. During the period 1972 - 1976 the exchange rate of the Rand was changed several times, and speculative activity was particularly evident during the period June 1974 - June 1975 when a managed float was adopted. Dummy variables were used to capture this effect and they proved to be significant (equation 6.8).

It should be noted that no attempts were made to include the effects of exchange control regulations. This can be justified because over the period under consideration there were

no major changes in these regulations. Exchange control regulations have therefore already been discounted in investment decisions. As Bryant (1974) argues, "(the) gaps in what we know about exchange control would not be troublesome if the use of controls were more the exception than the rule, or even if the controls were seldom varied in intensity". (Bryant, 1974, p.IV-7).

6.6 CONCLUSION

It is clear from the above results that capital flows in South Africa vary in response to changes in the demand for credit. Because the offset coefficient is less than -1 it implies that trade fluctuations are only partially offset and that changes in NDA are also only partially offset by capital flows. This is consistent with the findings of Hurwitz and Kantor (1976), where they found that the two sources of change in the money base do not completely offset each other because extra demands for credit may also affect the money base. And as Brunner (1974) notes, "capital flows induced by changes in the domestic source component of the base simultaneously affect the base and the public's net asset supply to bank; both sides of the credit market are affected. In particular, every change in the public's net foreign position (a source component of the base) also changes the public's net asset supply" (Brunner, 1974, p.199).

The partial offsetting implies that monetary policy does have scope for some independence in the short run. However,

with an expansionary (contractionary) monetary policy, every R1m increase (decrease) of the money supply will result in an outflow (inflow) of capital of approximately R $\frac{1}{2}$ m.

Mahar and Porter (1977) note that where the authorities allow freedom of capital movements and where investors view securities as being perfect substitutes, "then the offset is perfect ... and reserves are unnecessary to finance trade fluctuations. But on the other hand monetary policy is no longer available as a tool of domestic stabilisation. Of course within currency areas such as nations, it is self-evident that fixed exchange rates make reserves unnecessary and monetary policy infeasible, but this lesson appears far from understood in countries which are increasingly approximating the conditions of full financial integration but for government interference. Thus under a fixed exchange rate regime we continue to live with the "knife edge" problem of destabilising speculation and reserve instability, where domestic interest rates are prevented ... from reflecting the effect of reserve changes on the money supply" (Mahar and Porter, 1977, p.210).

In South Africa, official controls have prevented the economy from becoming more fully integrated into the international financial system. This has resulted in the authorities being able to use foreign exchange reserves as a way of achieving short term monetary policy independence. This short term independence would appear to be a poor substitute for the

complete independence (i.e. free of the balance of payments constraint) that can be achieved only under a system of flexible exchange rates.

The behaviour of the capital account of South Africa's balance of payments is consistent with the predictions of the monetary approach to the balance of payments, i.e. capital flows result from changes in the variables that affect the demand for credit. The results obtained confirm the view that the overall balance of payments behaves in a pro-cyclical fashion. This is due to the cyclical behaviour in the demand for credit. It also explains why an increase in the rate of growth of income will ceteris paribus lead to an improvement in the balance of payments. And finally, capital flows "finance to a large extent fluctuations in the current account ... This implies that the need to intervene in the foreign exchange market - and hence the need for official reserve accumulation - does not arise so much from the need to finance trade imbalances as from the pursuit of independent monetary policy or from the need to offset disturbances on the capital account" (Kouri, 1975, p.36).

APPENDIX AA NOTE ON OFFICIAL DATA SOURCES

The South African Reserve Bank Quarterly Bulletins provide quarterly balance of payments statistics with the capital account being divided into long term and short term flows. Short term is defined as being capital flows or credits of maturity of less than one year. These flows are divided into three sectors - the central government and banking sector; public corporations and local authorities; and the private sector. Details of capital flows are obtained from sample surveys and therefore do not completely reflect the full extent of capital flows. However, unrecorded flows will be captured in the "errors and unrecorded transactions" item. Furthermore there is a breakdown of all these sectors on an annual basis which shows the type of capital flows that make up the total flows for the three different sectors.

On the stock side, the Quarterly Bulletin provides annual data on South Africa's foreign assets and foreign liabilities position. The changes in these totals do not correspond exactly with the balance of payments figures. According to the Reserve Bank report on the second census of foreign transactions, liabilities and assets of December 1973, the reason for this is that different valuation adjustments are used, and that retained profits are included in the foreign liabilities but not in the balance of payments figures. The series on foreign assets and liabilities go back to 1956

when the first census was taken (see supplement to SARB Quarterly Bulletin, June, 1958). All annual and quarterly data of balance of payments statistics and the international investment position were based on the results of sample surveys and compared to the established benchmark year.

In 1973 a new census was taken to establish a new benchmark (see supplement to SARB Quarterly Bulletin, March 1976).

For this reason the series 1956 - 1972 is not strictly comparable with the series from 1973 onwards. It is also clear that the pre-1973 data underestimated the extent of South Africa's foreign liabilities as is evidenced by the large increase in foreign liabilities from 1972-3. Between these two years, the figures show that there was a 34% increase in foreign liabilities as opposed to an annual average increase of 9% since 1961.

SOUTH AFRICAN BORROWING IN THE MEDIUM TERMEUROCURRENCY MARKETS

The SARB Quarterly Bulletins do not distinguish Medium Term Eurocurrency loans. The figures provided in Table 3.2, page 64 were adapted from the following sources:

Morgan Guaranty: World Financial Markets. Various issues (especially July 1974)

Low (1973)

IBRD: Borrowing in International Capital Markets (EC-181 series).

OECD: International Financial Statistics

Financial Mail (Johannesburg) - 3.10.75; 2.7.76 and 10.1.76.

Euromoney: Various issues.

The above sources have provided totals for annual Eurocurrency loans. However, these totals are only those that have been publicised by the banks and should therefore be regarded as a minimum. In some cases individual loans have been reported. Those loans that have been published are given below. The totals of published loans before 1974 do not correspond to the totals given in Table 3.2. This is because that not all the loans that make up the totals in Table 3.2 have been identified or reported. Thus for example, although a total of \$149m has been given for 1972, only \$127m of this total has been identified by individual borrower. Where sources give different totals, the higher total is taken.

Identified South African Medium to Long-term Borrowing From
the Eurocurrency Markets

Date	Borrower	Amount (\$m)	Maturity	Spread
1970	Reported total (no loans identified by borrower)	60		
<u>1971</u>				
Oct	Buffelsfontein Gold Mining Co. (Guarantor Gen. Min. Fin. Corp.)	7	5	n.a.
Nov	SA Breweries	10	5	n.a.
Dec	ISCOR	200	5	n.a.
	Total identified by borrower	217		
	Reported grand total	226		
<u>1972</u>				
May	Union Steel Corp. of SA	15	6	n.a.
Jul	SABC	25	6	n.a.
Aug	ESCOM	50	5	3/4
U/N	General Mining Finance Corp	12	7	n.a.
	Impala Platinum (Union Corp)	12	8	1,25
	Dept. Posts & Telegraphs	13	3	n.a.
	Total identified by borrower	127		
	Reported grand total	149		
<u>1973</u>				
Mar	SAR & H	35	5,5	3/4
Apr	SAR & H (DM 100)	35,2	7	n.a.
Sep	ISCOR	100	11,5	7/8-1
Sep	ISCOR	42	10	n.a.

Date	Borrower	Amount	Maturity	Spread
Sep	ISCOR	21	10	n.a.
Dec	ISCOR	100	10	3/4
Total identified by borrower		333,2		
Reported Grand Total		498,2		
<u>1974</u>				
Mar	ISCOR	100	10	3/4
Mar	ISCOR	50	10	3/4
Apr	Central Government	110	5	5/8
Apr	Central Government	35	10	5/8-3/4
Apr	ISCOR	21	10	n.a.
May	SABC	20	10	3/4
May	Central Government	100	10	5/8-3/4
Jul	SAR & H (DM 140)	54,1	7	3/4
Aug	Rustenburg Platinum	28	4,5	1
Sep	SA Breweries	22	7,5	n.a.
Sep	SA Breweries	24	2	n.a.
Oct	ISCOR	13	8	n.a.
Oct	ISCOR	65	5	1 1/4
Oct	ESCOM	25	5	1 1/4
Dec	Gen. Mining & Finance Corp	85	5	1 3/4
U/N	AE & CI	14	n.a.	n.a.
U/N	Metal Box	3,4	n.a.	n.a.
U/N	Gallo	2	n.a.	n.a.
U/N	Safmarine	2	n.a.	n.a.
Total		791,3		

Date	Borrower	Amount	Maturity	Spread
<u>1975</u>				
Jan	JHB Consolidated Invest.	37	5	1 1/2
Feb	ISCOR	21	3	1 1/2
Mar	ISCOR	25	5	1 3/4
Mar	SAR & H	30	5	1 3/3
Mar	Triomf Fertiliser Co.	30	5	2
Apr	ISCOR	25	5	1 1/2
Jun	IDC	10	n.a.	n.a.
Jun	IDC	45	5	n.a.
Jun	Tiger Oats	15	5	2 1/4
Jul	ISCOR	100	5	1 3/4
Sep	AE & CI	60	5	1 3/4
Oct	Central Government	100	3	1 1/2
Nov	SAR & H	50	10	1 3/4
Dec	Anglo-Alpha Cement Co.	10	n.a.	n.a.
Dec	Associated Building Ltd.	4,5	5	1 3/4
Total		562,5		
<u>1976</u>				
Jan	SAR & H	75	5	1 1/2
Feb	ESCOM	200	5	1 3/4
May	ISCOR	80	5	1 3/4
Aug	SA Breweries	30	3	1 7/8
Sep	Escom	80	5	1 3/4
Sep	Anglo American Corp	100	n.a.	1 1/2
Oct	Macdem	7	5	n.a.
Oct	Rand Mines	15	6	n.a.
Nov	Central Government	110	5	1 7/8

Date	Borrower	Amount	Maturity	Spread
Nov	Central Government	130	5	n.a.
Dec	Strategic Oil Fund (DM 71)	29,4	3,5	9,25 fixed rate
U/N	Richards Bay Iron & Titanium	138	2	2-2,125
U/N	IDC	25	5	n.a.
U/N	Foskor	30	-	-
U/N	XDC	12	3	1,5
U/N	SABC	20	5	1,75
U/N	City of Johannesburg	7	5	1,5
Total		1088,4		
<u>U/Y</u>				
	Sentrachem	10	n.a.	2 1/4
	Consolidated Gold Fields	22	n.a.	n.a.
	Metal Box	15	n.a.	n.a.
Total		47		

Sources: As above.

Key: n.a. = not available
 U/N = unallocated by month
 U/Y = unallocated by year.

APPENDIX CFINANCIAL INSTITUTIONS WITH MAJOR EUROCREDIT
COMMITMENTS TO SOUTH AFRICAN BORROWERS

Below is a list of some of the financial institutions that have been the lead managers in syndicated loans to South Africa.

America

Bank of America

Citibank

Chase Manhattan Bank

Kidder Peabody

Manufacturers Hanover

Morgan Guaranty Trust Co.

Germany

Berliner Handels - und Frankfurter Bank (B-H-F)

Commerzbank AG

Deutsche Bank

Dresdner Bank AG

Westdeutsche Landesbank Girozentrale.

England

Barclays Bank International Ltd

Deltec Trading Co. Ltd.

Hill Samuel

Strauss Turnbull & Co.

White Weld Securities

France

Credit Commercial de France

Credit Lyonnais

Paribas

Societe Generale

Italy

Banca Commercial Italiana

Banco de Roma

Belgium

Kredietbank NV

Bondtrade

Holland

Algemene Bank Nederland NV

Luxemborg

Kreditbank Luxembourggeoisie SA

Switzerland

Union Bank of Switzerland.

Source: IBRD: Borrowing in International Capital Markets.

DERIVATION OF THE REDUCED FORM EQUATIONIN CHAPTER 6

According to Kouri and Porter's model (1974), the demand for base money, net domestic demand for domestic bonds and domestic demand for foreign bonds are related via the wealth constraint. Assuming that equilibrium is obtained within the period, the model can be solved for net capital flows and the change on domestic interest rate as a function of the exogenous variables. By invoking the wealth constraint, net domestic demand for foreign bonds, the domestic component of the money supply and the domestic bond equilibrium equations are omitted. The system is therefore reduced to the following two equations:

$$L(Y, W, R, R_f, VE) = \Delta NDA + CAB + TC \quad \dots\dots\dots (A.1)$$

$$TC = \Delta F(Y_f, W_f, R, R_f, VE) - \Delta J(Y, W, R, R_f, VE) \quad \dots\dots (A.2)$$

Invoking the wealth constraint i.e.

$$L_w + H_w + J_w = 1 \quad \dots\dots\dots (A.3)$$

and

$$L_i + H_i + J_i = 0 \quad i = Y, R, R_f$$

and solving, the reduced-form equations for TC and ΔR are obtained.

$$\Delta R = \frac{-1}{H_R + F_R} \left[(H_{Rf} + F_{Rf}) \Delta R_f + H_Y \Delta Y + H_W \Delta W \right. \\ \left. + CAB + \Delta NDA + F_{Yf} \Delta Y_f + F_{Wf} \Delta W_f \right] \dots\dots (A.4)$$

$$TC = \frac{-1}{H_R + F_R} \left\{ \left[(J_R - F_R) L_{Rf} + L_R (F_{Rf} - J_{Rf}) \right] \Delta R_f \right. \\ \left. + \left[(J_R - F_R) L_Y - L_R J_Y \right] \Delta Y + (F_R - J_R) \Delta NDA \right. \\ \left. + (F_R - J_R) CAB + \left[(J_R - F_R) L_W - J_W L_R \right] \Delta W \right. \\ \left. + L_R F_{Yf} \Delta Y_f + L_R F_{Wf} \Delta W_f \right\} \dots\dots\dots (A.5)$$

In the limiting case of perfect capital market integration, they assume that H_R and J_{Rf} approach plus infinity while H_{Rf} and J_R approach minus infinity, i.e. a small change in domestic or foreign interest rates generates infinite substitution of domestic and foreign bonds. In this case equations A4 and A5 are simplified. Taking the limiting values of the coefficients yields the following results under conditions of perfect capital market integration.

$$\Delta R = \Delta R_f \frac{H_{Rf} + F_{Rf}}{-(H_R + F_R)} \dots\dots\dots (A.6)$$

$$\text{and } TC = -\Delta NDA - CAB + (L_{Rf} - \frac{J_{Rf} L_R}{J_R}) \Delta R_f \\ + L_Y \Delta Y + L_W \Delta W \dots\dots\dots (A.7)$$

They note further that the results are further simplified if it is assumed that (J_{Rf}/J_R) and (H_{Rf}/H_R) approach minus one. (I.e. securities offer equivalent risk in the limiting case. In this case, A.6 becomes $\Delta R = \Delta Rf$ and the coefficient ΔRf in A.4 is $L_{Rf} + L_R$

Adapted from Kouri and Porter,
(1974), pp.449-451.

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