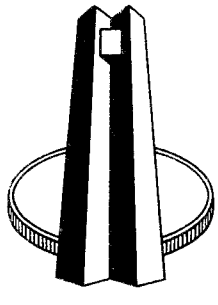
Is South Africa in a debt trap?

By E.J. van der Merwe

Occasional paper No. 6

May 1993



South African Reserve Bank
Suid-Afrikaanse Reserwebank

Is South Africa in a debt trap?

By E.J. van der Merwe

Contents

Enquiries relating to this paper should be addressed to:

The Head
Economics Department
S.A. Reserve Bank
P.O. Box 427
PRETORIA
0001

ISBN 0-9583797-1-8

Is South Africa in a debt trap?[1]

1. Introduction

As discussed in some detail in the recently released "Normative Economic Model"[2], the general government's claim on South Africa's resources has risen inordinately since the beginning of the 1980s. The government has been intervening to an increasing extent in the domestic economy by participating directly in the market mechanism or by expanding the already extensive regulatory structure. This rising claim of government on the resources of the nation has had important consequences for government finance. Among other things, it has led to:

- A substantial rise in government expenditure. The ratio of government expenditure to gross domestic product rose from 24,4 per cent in fiscal 1979/80 to a provisionally estimated 31,4 per cent in fiscal 1992/93.
- A higher tax burden. The ratio of government taxation to gross domestic product increased from 15,8 per cent in fiscal 1979/80 to an estimated 21,9 per cent in fiscal 1992/93.
- A shortfall between the current expenditure and current revenue of general government. The government became a dissaver in 1984 and the level of dissaving reached some 4,8 per cent of gross domestic product in 1992.
- A sharply increasing trend in government debt. After having improved substantially at the beginning of the 1980s as a result of an increase in receipts from gold-mining taxation arising from the rise in the gold price, the ratio of government debt to gross domestic product increased from a lower turning-point of 42,8 per cent in fiscal 1980/81 to an estimated 53,3 per cent in fiscal 1992/93.

More recently, the deficit before borrowing and debt repayment of the Exchequer started to increase very sharply to a provisionally estimated high level of 8,6 per cent of gross domestic product in fiscal 1992/93 and to a budgeted level of 6,8 per cent of gross domestic product in fiscal 1993/94. Various factors contributed to this *serious deterioration* in government finance. Firstly, the process of socio-political reform during the past few years aggravated the imbalance between government revenue and expenditure in that it hampered increases in revenue and led to increased pressure for additional expenditure. Secondly, the economy has been in a recession for more than four years, resulting in low rates of increase in revenue which limited the ability of the authorities to introduce extensive fiscal policy changes. Thirdly, the severity of the drought, the increasing extent of poverty in the country, and the objective of obtaining greater parity in the provision of benefits to the various population groups, also narrowed the manoeuvrability of measures that the government could take.

Although part of the substantial increase in government debt was due to short-term factors which may change under more favourable circumstances, a large part of the increase in the fiscal deficit was the result of more structural developments in the South African economy. The question therefore arises whether the country is moving into a "debt trap" where it becomes very difficult if not impossible to contain the growth in government debt. The objective of this study is to determine whether South Africa has in fact moved into such a debt trap. In the first two sections of the study the terms "debt trap" and "government debt" are defined. This is followed in section 3 by a discussion of the advantages and disadvantages of the various indicators of the state of public debt and in section 4 by an analysis of South Africa's government debt. In section 5 a brief summary of the main findings of the study is provided.

2. What is a debt trap?

A persistently large fiscal deficit and consequently a rapidly rising public debt could normally give rise to four major problems in any economy, namely:

- The excessive monetisation of public debt and eventual loss of control over the money supply. With a large deficit before borrowing and debt repayment it could become increasingly difficult to finance this shortfall by selling government paper to the domestic non-monetary private sector, and governments may be forced to finance it "by printing money", i.e. by borrowing from the banking system. As soon as it becomes obvious that the authorities find it difficult to finance the government deficit through new issues of stock to the non-monetary private sector, people start to expect inflationary conditions to develop, and these expectations generally cause interest rates to move to higher levels.
- The crowding-out of private-sector borrowing. A substantial increase in public-sector demand, giving rise to excess aggregate domestic monetary demand, could cause longer-term interest rates to rise, thereby affecting other borrowers in the domestic capital market adversely.

1 Valuable assistance in the preparation of this paper was provided by Dr J.H. Meijer, Mr B.L. de Jager, Dr S.J. van der Walt, Dr J.P. van den Heever, Mr M. Kleu and Mr L.P. Venter.

2 Central Economic Advisory Service: The Restructuring of the South African Economy : A Normative Model Approach, Pretoria, March 1993.

This could depress private sector fixed investment and the growth potential of the economy.

– A balance of payments constraint. A substantial increase in government expenditure in excess of government revenue could result in a substantial deficit on the current account of the balance of payments and a decrease in the foreign reserves of the country, depending on the level of domestic savings and foreign capital flows. If the government deficit cannot be financed by means of private sector savings or a net inflow of capital, this may restrict economic growth because it would probably result in a decrease in private-sector investment and/or an increase in the deficit on the current account of the balance of payments. On the other hand, excessive reliance on foreign debt to finance large public-sector borrowing requirements could lead to international liquidity or solvency problems.

– The debt trap. If nominal or real interest rates are "high" – more particularly when they are higher than the rate of growth in nominal or real gross domestic product – interest payments may increasingly have to be financed by an increase in the public debt or at the cost of other essential government services, or by higher taxes; the possibilities for cutting non-interest expenditures or raising taxes are, however, limited. This may mean a self-perpetuating and possibly accelerating rise in government debt, which could again lead to the monetisation of the debt, the crowding out of private-sector investments and a balance of payments constraint.

Under the present conditions in South Africa, the government is still able to finance its deficits in a non-inflationary manner without crowding out the private sector or having a constraining effect on the balance of payments. Conceivably, if government deficits had been smaller, interest rates could have been lower and private investments could have been somewhat higher, in combination with an even larger surplus on the current account of the balance of payments. Nevertheless, in view of the idle resources in the economy, it can be concluded fairly definitely that the first three problems distinguished above are probably not of much importance under current conditions.

As a result of the substantial rise in public debt over recent years (combined with the rapid increase in interest payments), it is, however, less certain whether South Africa has not already moved into or at least towards a debt trap. In order to determine whether this is the case, it is important to define more precisely what is meant by the term "debt trap". Unfortunately, the economic literature provides only somewhat vague descriptions of a debt trap. A debt trap is namely generally described as an unsustainable level of and rate of increase in the government debt, where a continued rise in the ratio of government debt to the gross domestic product cannot be prevented. The trap has also been defined as an "explosion" in government debt and interest payments, in conditions in which even the maximum attainable (politically practicable) reductions in the non-interest budget deficit would be inadequate to prevent such an explosion.

For purposes of this study the so-called debt trap is regarded to arise from an unsustainable government financial position. However, "unsustainability" of the government's finances as such does not necessarily mean that a country has also already fallen into a debt *trap*: it may clearly still be possible to improve the government's finances to such an extent as to make them "sustainable" again. The government's financial position is considered to be sustainable as long as the ratio of government debt to the gross domestic product is decreasing or, at least, is not increasing, over time; conversely, the government's financial position is considered to be unsustainable if the ratio of government debt to gross domestic product is increasing over time. A debt trap is defined as an unsustainable government financial position in which an "explosion" in the government debt ratio can no longer be prevented by an increase in the ratio of government taxation to gross domestic product or by a decrease in discretionary government expenditure (total expenditure less interest payments) relative to the gross domestic product. An escape from a debt trap in this sense would require a structural reform of the economy which would most probably have to include a more or less major redefinition of the government's functions and duties, powers, rights and obligations.

An important consequence of a debt trap (defined in this way) is that the authorities will be unable to prevent a financing of their budgetary deficits by means of an increase in the money supply and in the monetary "base" of the economy. If the repayment of government debt and interest payments on the debt are financed by selling more government securities, and if the interest rate on government securities is higher than the growth rate of the economy, the real stock of government securities will grow more rapidly than the size of the economy. Under such circumstances, government debt will increasingly have to be monetised. Such a process of monetisation cannot, of course, be allowed to carry on indefinitely, because it reduces, and eventually destroys, the ability of the monetary authorities to control inflation.

3. Definition of public debt

In determining whether South Africa is in a debt trap, it is also important to describe the meaning of the term "public debt". The public sector is normally defined to include "all levels of government as well as all agencies offering public services and public responsibilities, with the exception of privately directed entities that perform welfare and charitable roles."[3] In accordance with this definition, all debts of the central government, local authorities, the non-financial public-sector entities, and

sundry enterprises and institutions which fulfil the roles of public-sector financial intermediaries or which are principally the financial beneficiaries of the central government, should be included in public debt. However, because only the central government is concerned with macro-economic policies, reference to the public debt of a country is usually restricted to the debt of the central government.

For the purposes of this study "government debt" in its South African context is therefore defined to include only the debt of the central government under the control of the Exchequer. It does not include the debt of the TBVC countries, the self-governing states, extra-budgetary institutions and social security funds. The borrowed funding of the central government normally consists of Treasury bill issues, marketable and non-marketable stock issues, foreign loans and credits, and loan levies. However, in this study the balance on the Gold and Foreign Exchange Contingency Reserve Account and loans guaranteed by the government (including loans guaranteed for TBVC-countries) are also considered a part of government debt.[4] The balance on the Gold and Foreign Exchange Contingency Reserve Account is included in government debt because it is a definite commitment of the government. Although the financial guarantees issued by the government are contingent liabilities, they are also regarded as part of government debt, because there is a strong possibility that the government will in any case become liable for a considerable part of these guarantees. By including these financial guarantees, a "worst-case" scenario is presented, because this may overstate the government debt; in a "best-case" scenario the government debt would be about 16 per cent smaller than is indicated by the figures that are used in this analysis.

4. Indicators of the state of public finance

No single definite indicator or equation has yet been developed in the economic literature to determine whether or at what stage an economy moves into a debt trap. In a recent study undertaken by the staff of the International Monetary Fund [5] an equation was developed which could be used as a first test in determining whether a country is moving towards at least sharply rising government debt. In this study it was shown that the government debt ratio will rise if the ratio of the government's so-called "primary" surplus (i.e. income minus expenditure, *excluding* interest payments on the government debt) to gross domestic product is smaller than the ratio of government debt to gross domestic product, multiplied by the real interest rate less the real growth rate of the economy. This relationship is based on the principle that the size of the fiscal deficit cannot be sustained indefinitely if the government debt is increasing at a rate that is higher than the growth rate of the real economy where real interest rates are higher than the growth rate of the economy. The IMF equation therefore provides a criterion of sustainability rather than a measure that can be used to determine whether the country has moved into a debt trap, because it provides no information on the present size of government debt or whether a further rise in government debt can be prevented by an increase in government revenue or by a decrease in government expenditure.

None of the other measures introduced internationally to analyse the state of public finance and more particularly the size and extent of government debt, allows a definite conclusion to be drawn as to the question whether a country has moved into a debt trap or not. Normally, various indicators are used in the analysis of this problem, but in the end the conclusion still has to be arrived at judgementally. The main indicators normally used in the analysis of this problem are:

- the ratio of the deficit before borrowing and debt repayment to gross domestic product;
- the ratio of government debt to gross domestic product;
- the ratio of interest payments to government expenditure;
- the level of real interest rates relative to the real growth in gross domestic product; and
- the net asset value or net worth of the government.

In order to determine whether a country is in a debt trap, such an analysis should concentrate on the long-run behaviour of the various aggregates to see if the current trends in the aggregates can be maintained without threatening the macro-economic stability of the economy. For instance, if the relative deficits before borrowing and debt repayment have to be maintained at levels considerably in excess of the long-run growth capacity of the economy, inflationary financing becomes unavoidable and it becomes impossible to prevent the ratio of government debt to gross domestic product from rising "explosively". On the other hand, if a sizeable deficit is a one-off effect and the government shows that it is determined and able to correct it, there is little cause for concern.

4.1 The deficit before borrowing

The traditional measure of determining the state of public finance has been the balance on the revenue and

3 Meijer, J.H., Falkena, H.B. and Van der Merwe, E.J. (eds): Financial Policy in South Africa, The Institute of Financial Markets, Southern Book Publishers, 1991, p.77.

4 It can also be argued that the cumulative actuarial deficit of state pension funds should be included in government debt. For the purposes of this study, however, this shortfall was not regarded as a liability of the government, because it does not necessarily represent a definite commitment.

5 See Horn, I: Indicators of fiscal sustainability, IMF Working Paper, WP/91/5, Washington, International Monetary Fund, 1991.

expenditure accounts of the government before borrowing and debt repayment. In accordance with the doctrines of the classical economists, a balanced-budget approach was followed by most governments before World War II. Borrowing was regarded as a means of raising revenue that allows the borrower to put off or postpone taxes. From this principle it followed that governments should only resort to debt financing for non-recurrent or extraordinary demands, or for public spending needs, that are expected to be temporary. Traditionally such demands were associated with wars or the financing of genuinely productive capital projects.

After the general adoption of the Keynesian way of thinking, viz. that deficit financing could be applied to keep the economy at full employment, many governments started to borrow money to finance ordinary current expenditure and transfers. In this period of deficit financing the "rule of thumb" was also developed that the ratio of the government's deficit before borrowing to gross domestic product should not exceed the potential growth rate of the economy, because this would inevitably lead to a rise in the public debt relative to production, with ultimate negative effects on the rest of the economy. In the meantime, economic theory has moved through a full circle, and at present a balanced-budget approach is again in vogue.

The main advantage of using the budget deficit as a yardstick of the state of government finance is that it enables the authorities to monitor and control developments on an ongoing basis. It indicates to what extent government expenditure exceeds government revenue and therefore leads to an increase in government debt.[6] Expressed as a ratio of gross domestic product and compared with economic growth, it may also show government debt to be increasing at a more rapid rate than the rise in domestic production, which would result in an increase in the public debt/gross domestic product ratio.

It is nevertheless important to keep in mind that this indicator could be influenced by cosmetic changes showing more favourable circumstances than those actually prevailing. A particularly good example is the sale of State assets, which reduces the borrowing needs of the government and which brings about a smaller deficit before borrowing if the proceeds of such sales are included in government revenue and not in the financing of the deficit. The deficit before borrowing is also influenced by cyclical conditions in the economy, which makes it difficult to determine the underlying state of government finance. Although methods have been developed to adjust this indicator for cyclical influences, such an adjustment brings an artificial element into the evaluation of government finance. A further disadvantage of monitoring only this indicator is that it does not reflect changes in off-balance-sheet items.

The so-called primary deficit (i.e. the total deficit before borrowing and debt repayment *less* interest payments) has also become a popular yardstick in the analysis of the public finance of a country. Although this is a useful measure in determining the macro-economic effects of government actions, it seems to provide little additional information regarding developments in government debt. The primary deficit merely shows the influence of expenditure other than interest payments in arriving at the total deficit. In this study the primary deficit is therefore not shown separately in the analysis of South Africa's government debt, but the level of non-interest government expenditure is taken into consideration.

4.2 The ratio of government debt to gross domestic product

The ratio of government debt to gross domestic product is a particularly useful indicator for economic planning because it indicates whether debt is declining, increasing or remaining constant in relation to production. As already indicated, the rule of thumb normally used in medium- and longer-term planning is that the growth in government debt can only be sustainable if the ratio of government debt to gross domestic product remains unchanged or decreases.

The main advantage of the debt ratio as an indicator of the state of public debt is that it is normally relatively free of cosmetic effects. Unfortunately, certain statistical ambiguities also exist in the determination of the debt ratio. For instance, borrowing by government enterprises or other levels of government could be the reason for a low debt ratio of the central government. Even more important than these statistical problems, is the fact that the rule of a constant debt ratio could produce bizarre results. Simple arithmetic shows that in applying this rule, the higher a country's existing debt and the higher a country's inflation rate, the more a government can borrow. For example, based on this rule, Country A, with a debt ratio of 40 per cent and a growth of 3 per cent in nominal gross domestic product, could have a government deficit of only 1,2 per cent of gross domestic product before the debt ratio increases; Country B, however, with a debt ratio of 100 per cent and a growth of 12 per cent in nominal gross domestic product, could have a deficit of as much as 12,0 per cent of gross domestic product before its debt ratio increases. There is also no obvious and straightforward reason why any country's existing debt ratio should be regarded as being at an "appropriate" or "inappropriate" level; countries with "high" debt ratios should rather attempt to reduce them, and even countries with "low" ratios may be well advised to at least resist an increase in them.

6 The deficit before borrowing and debt repayment is, of course, not necessarily equal to the increase in government debt, because government debt can also be affected by factors such as the discount on government stock, off-balance-sheet transactions and valuation adjustments arising, for instance, from exchange rate changes.

4.3 The ratio of interest payments to government expenditure

The ratio of interest payments to government expenditure is also used as an indicator in determining whether the level of government debt is sustainable. A rising trend in this ratio means that contractual interest payments are made at the expense of increases in other government expenditure or are precluding a lowering of taxes. However, this ratio also has certain disadvantages. In the government accounts of most countries the discount on government debt is not included in interest payments, but is rather reported as part of the financing of the government deficit. The distribution of these discounts over the maturity of government loans is a difficult and cumbersome process, but if these discounts are ignored (which is normally the case in the analysis of the government finances of most countries) the interest payments ratio understates the actual burden associated with the government debt and its influence on other government expenditure.

It is also difficult to determine an "ideal" norm for the interest payments ratio in analysing developments in government finance. Moreover, the erosion of interest and capital values as a result of inflation may disguise the true dimensions of the debt problem. For instance, if nominal interest rates are lower than the rate of inflation, interest payments may well be increasing at a lower rate than most other forms of government expenditure. The ratio of interest payments to total government expenditure could therefore remain relatively low despite a substantial increase in government debt.

4.4 The level of real interest rates relative to economic growth

In order to overcome this last-mentioned disadvantage of the interest payments ratio, the level of real interest rates relative to the growth rate in real gross domestic product is also used to determine the sustainability of government debt. If the level of real interest rates exceeds the real growth rate in the economy for a relatively long period of time, this indicates that interest payments will increasingly have to be financed by an increase in public debt or at the cost of other essential government services. This could imply that the economy is moving into a debt trap. The familiar effect of compounded interest is to increase the debt by ever-increasing amounts. It would require a real interest rate of only about 7 per cent per annum to have the real value of debt double in a decade if the debt is increased by the amount of interest payable. A considerably lower rate of increase in real output could therefore quickly lead to an unsustainable debt position.

The problem with this indicator is that a reduction in real interest rate levels, brought about by, say, interest rate controls or in any other artificial way, could give a completely wrong impression of the state of government finance. On its own this indicator provides no information on the level of the public debt. The higher the public debt ratio, the more it will matter if real interest rate levels exceed the growth rate in real gross domestic product because an explosion in debt servicing charges then becomes more uncontrollable. On its own this indicator also provides no information on the average level of interest payments, but only indicates the interest payable on new loans or floating-rate loans.

4.5 Net asset value

In view of the disadvantages of these more conventional measures used in the analysis of government finance, a new yardstick was developed in the mid-1980s, i.e. the net asset value or net worth of the government. This indicator was based on the classical economic principle that government borrowing should only be undertaken to finance capital expenditure. Just as it would be short-sighted for a private-sector organisation to look only at its liabilities and ignore the other side of its balance sheet, a government must take into consideration how it is applying its borrowed funds. A government should therefore determine regularly whether its net asset value is increasing or decreasing. Deficit financing may, therefore, actually be more prudent than a balanced budget, *provided* that the increase in the value of government investment exceeds the rise in the value of outstanding debt.

In order to calculate the net asset value or net worth of a government, a complete balance sheet of all the liabilities and assets of the government must be drawn up. Only a few governments have as yet tried to prepare proper financial accounts. It is also interesting to note that although the United States has already published such balance sheets for a number of years, these statements have received scant attention.

To compile the balance sheet for a government is a difficult exercise. A number of problems have to be solved, namely: How should certain assets that yield no financial returns, be valued? Should non-tangible assets be included in the balance sheet? Should expenditure on education and training, or at least a proportion of it, be regarded as investment expenditure (in human beings, giving rise to "human wealth")? Should non-tangible liabilities, such as the capitalised value of future state pension commitments and the depletion of natural resources, be included?

Because of these difficulties, many countries apply a narrow definition of the net worth of a government: the government's capital stock less its financial liabilities. Such estimates must, of course, be handled with care. Capital stocks in the national accounts are valued at current replacement value, even though some of these assets are unlikely to be replaced if they are destroyed by an earthquake for instance. Such approximate indicators of the net worth of governments should be applied in an analysis of changes in the net worth of any particular government over time, rather than for comparing the net asset values of different governments.

In the analysis of public-sector balance sheets it is

important that policy-makers not only evaluate the current net worth of the government, but also take note of the expected value of future income, expenditure, assets and liabilities. Such a forward-looking balance sheet of the public sector gives a measure of the solvency of the public sector as well as of the fiscal adjustment required to fully service the outstanding public debt. This should form an essential part of any adjustment programme of public finance, because it shows whether a country is experiencing or may in future encounter debt problems.

5. South Africa's government debt

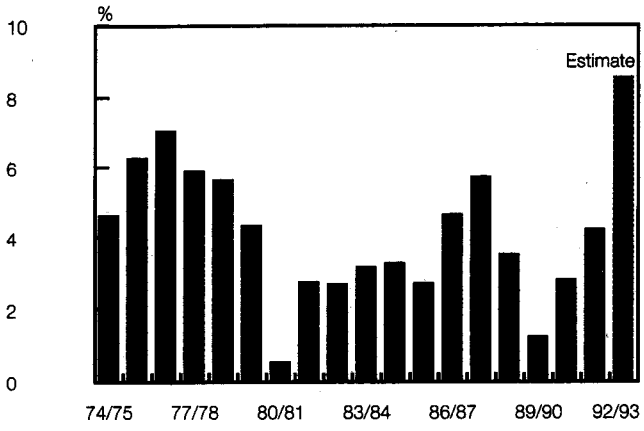
From the above discussion it should be apparent that it is not very meaningful to look for one critical measure to evaluate the sustainability of the government debt of a country. A number of indicators should rather be used in such an analysis. It is also not meaningful to look for a critical value of any of these indicators beyond which government finance becomes an uncontrollable problem. Such a critical value simply does not exist, varies from one country to another, and may, in any case, change over time.

In order to determine whether South Africa has moved or is moving into a debt trap, all the above indicators were taken into account. In addition to these measures, it is also important to evaluate the level of the tax burden and the government expenditure of a country. If a government's debt is rising too rapidly in relation to the growth in its domestic production, this trend can easily be reversed, in principle at least, by increasing government revenue; this assumes, however, that the government is still able to raise the additional revenue from its residents. Similarly, if the level of government expenditure, particularly non-interest government expenditure, is already relatively low, it may be very difficult to reduce government expenditure further in order to prevent a rise in government debt. It is, therefore, of the utmost importance in any analysis of government debt also to take the level of the tax burden and the level of government expenditure into consideration.

5.1 The deficit before borrowing

The deficit before borrowing and debt repayment of South Africa (excluding the proceeds of sales of strategic stocks from government revenue) amounted to 8,6 per cent of gross domestic product in the fiscal year 1992/93 and is projected to amount to 6,8 per cent of gross domestic product in fiscal 1993/94. As illustrated in Graph 1, these deficits are exceptionally large; only in the last half of the 1970s were deficits of a broadly similar relative size recorded in South Africa. From fiscal 1980/81 these deficits moved again to more manageable levels, with the rise of the gold price in international markets and the concomitant substantial increase in

Graph 1: Deficit before borrowing and debt repayment as percentage of gross domestic product



income taxes received from the gold mines. In the period from fiscal 1986/87 to fiscal 1988/89 the deficits increased again to fairly high levels ranging from 3 to 6 per cent of gross domestic product, before declining to 1,3 per cent in fiscal 1989/90, owing largely to increases in indirect taxation.

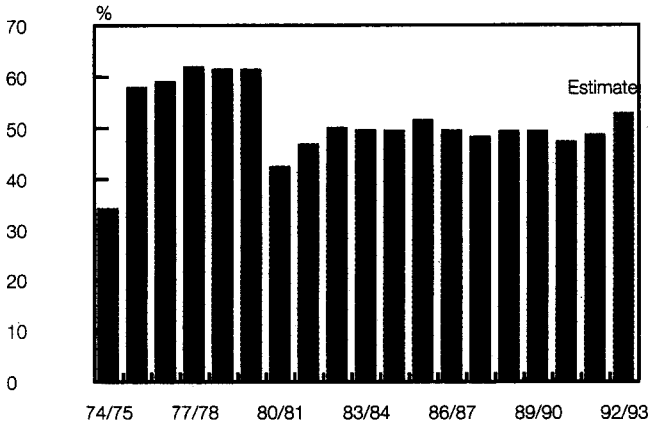
Although the current large deficits before borrowing and debt repayment are partly the result of cyclical influences and exogenous factors (such as the severe drought) the high level of the deficit is more disconcerting than the large deficits in the last half of the 1970s - for two reasons. Firstly, the potential growth rate of the South African economy was considerably higher in the 1970s than it is in the early 1990s. In that earlier period the potential growth rate of the economy probably averaged about 4½ per cent per year, against its current level of between 1 and 2 per cent. The actual deficits in the early 1990s were therefore considerably larger than the so-called "ideal" deficit level compared with the situation in the last half of the 1970s.

Secondly, when these large deficits before borrowing were recorded in the late 1970s, the general government was still a net saver – i.e. the current income of the government exceeded its current expenditure. From 1984 the government has become a net dissaver and the dissaving of the government has increased sharply from R1,2 billion in 1984 to no less than R15,5 billion in 1992, or from 1,1 per cent to 4,8 per cent of gross domestic product.

5.2 The ratio of government debt to gross domestic product

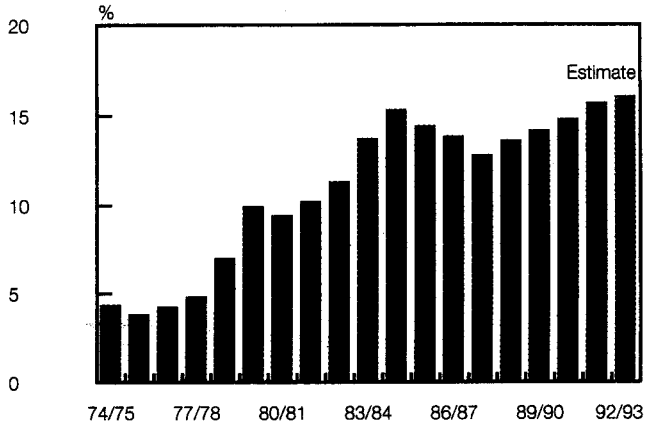
In Graph 2 it is illustrated that the ratio of government debt to gross domestic product in fiscal 1992/93 at a level of 53,3 per cent was not excessively high. Indeed, in the late 1970s this ratio started to move above 60 per

Graph 2: The ratio of government debt* to gross domestic product



* Including Gold and Foreign Exchange Contingency Reserve Account and financial guarantees by the government

Graph 3: Interest payments as percentage of total government expenditure



cent and only with the increase in the revenue from the gold mines did it return to lower levels. The current debt ratio is also relatively favourable if account is taken of the fact that South Africa's government debt consists largely of domestic debt. At the end of fiscal 1992/93 foreign debt comprised only about 1½ per cent of total government debt, compared with 2½ per cent at the end of fiscal 1979/80.

However, the ratio of South Africa's government debt to gross domestic product has recently increased sharply from 47,8 per cent in fiscal 1990/91 to 53,3 per cent in fiscal 1992/93, and will most likely increase even further in fiscal 1993/94. This substantial rise in the debt ratio is perhaps again to some extent a cyclical development, but it is important for four reasons that the sharply rising trend in this ratio should not be allowed to carry on in the medium to longer term, namely:

- At some point in time the increase in the ratio will in any case have to stop growing, because of the effect of rising interest payments on the tax burden of the country.
- Domestic savings are very low and even with only a modest recovery in the economy the government may find it exceedingly difficult to raise funds in the domestic capital market without having a negative impact on private-sector investment.
- Postponing tax increases or cuts in expenditure by borrowing funds is a decision from which current taxpayers benefit at the expense of future taxpayers.
- Government securities could make up an increasing proportion of the portfolio of the private sector and at some critical stage investors may start feeling uncomfortable with such a bias in their asset structures.

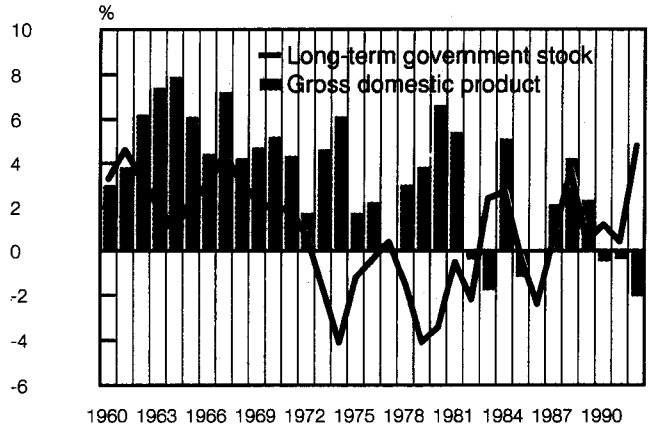
5.3 The ratio of interest payments to government expenditure

Interest payments as a percentage of total government expenditure increased sharply from a low of 3,9 per cent in fiscal 1975/76 to a high of 15,4 per cent in fiscal 1984/85. Despite the fact that government debt continued to rise at an average annual rate of about 16 per cent in the ensuing period, the interest payments ratio then decreased to 12,9 per cent in fiscal 1987/88. This decrease in the interest payments ratio was partly due to a sharp decline in the level of interest rates over this period, but more importantly, it was the result of a considerable acceleration in the rate of increase in other government expenditure. The ratio of interest payments to total government expenditure subsequently rose again to 16,2 per cent in fiscal 1992/93 and is projected to increase even further to 17,4 per cent in fiscal 1993/94. This substantial rise in the interest payments ratio was the combined result of a lower rate of increase in total government expenditure, a substantial rise in the average interest rate level, and a sharp increase in government debt. What makes this increase in the interest burden of the government even more troublesome is the fact that it does not include the discount incurred on issuing government marketable securities. The value of these discounts has risen sharply in recent years and amounted to an estimated R4,3 billion in fiscal 1991/92.

5.4 The level of real interest rates relative to economic growth

In Graph 4 the real yield on long-term government stock is compared with the growth rate in real gross domestic product from 1960 to 1992. From this graph it is apparent that the real yield on government stock was almost persistently lower than the growth rate of gross domestic product, except for the early 1960s, 1977, 1983 and the early 1990s. Only in the early 1960s and now in the early 1990s have real yields on government stock exceeded the rate of growth in the gross domestic product for more than one year in succession. In contrast to the early 1960s and in 1977, when the gap

Graph 4: Real interest and growth rates



between real long-term yields on government debt and the economic growth rate was relatively small, the gap became quite large in 1983 and in the early 1990s. Moreover, this gap widened considerably from 1,7 percentage points in 1990 to as much as 6,9 percentage points in 1992. This could indicate that current debt ratios may be difficult to sustain in the future, particularly taking into account the high level of the deficit before borrowing, the level of government debt, the low growth in the domestic economy, and the high ratio of interest payments to total government expenditure.

5.5 Net asset value

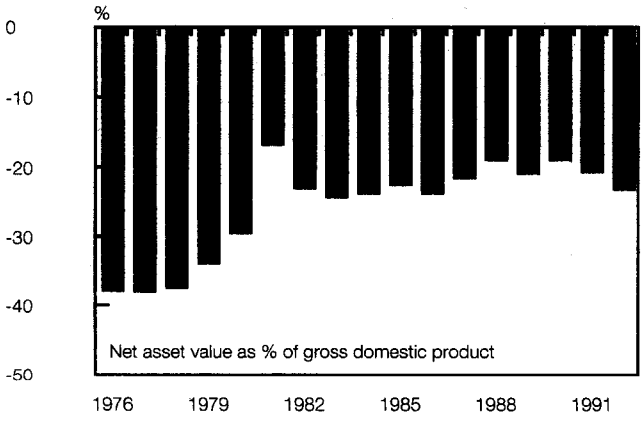
In Graph 5 a narrow definition of the net asset value or net worth of the South African central government as a percentage of gross domestic product is compared over time, the net asset value being calculated as the difference between the government's capital stock as estimated for national accounts purposes less the value of government debt as defined for purposes of this study. As already discussed, this narrow definition of the net worth of the South African government obviously has serious defects. However, it does indicate that large parts of government borrowing in South Africa were not undertaken for the traditionally sound and sustainable economic reasons. Throughout the period for which information is available, government debt has consistently exceeded the government's capital stock by a considerable margin. In the last half of the 1970s the net worth of the government as a ratio of gross domestic product was close to a negative 40 per cent. With the increase in the gold price, this ratio narrowed considerably and fluctuated around minus 20 per cent in the subsequent period. In recent years it deteriorated sharply again from minus 19,1 per cent in 1990 to minus 23,3 per cent in 1992 (the latest information available).

5.6 The tax burden

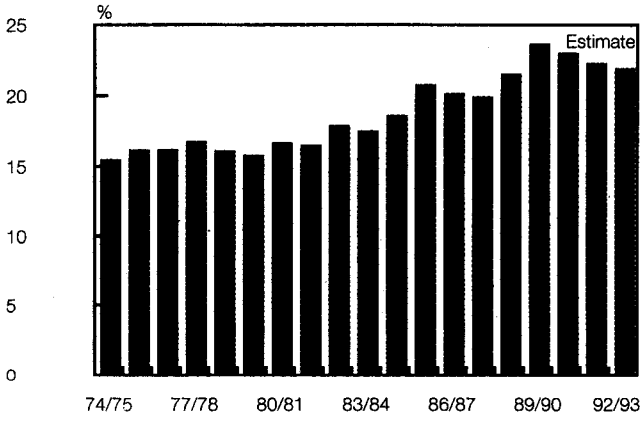
Government expenditure can be financed mainly by means of current government revenue or by borrowing the funds needed in the domestic or international capital markets. As already indicated, it is important in the evaluation of the level of government debt to take into consideration the relative size of government revenue. The easier it is to raise further government revenue, the less worrisome the level of government debt ought to be. Unfortunately, it is also not possible to provide an unambiguous and generally valid yardstick of the "correct" size of government revenue. In Graph 6 the ratio of total taxation to gross domestic product is provided as an indicator of the extent of the tax burden in South Africa.

As shown in this graph, there has been a steadily

Graph 5: Net asset value of the Central Government



Graph 6: The ratio of taxation to gross domestic product



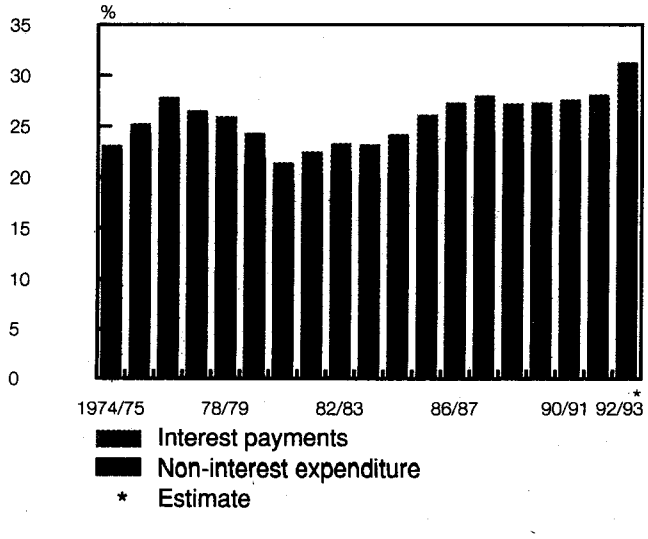
increasing trend in the tax burden in South Africa since the early 1970s. The ratio of taxation to gross domestic product rose gradually from 14,7 per cent in fiscal 1971/72 to 21,9 per cent in fiscal 1992/93 and is projected to increase even further to 23,3 per cent in fiscal 1993/94. It is also interesting to note that this ratio declined in years of relatively high growth, such as fiscal 1979/80 and fiscal 1983/84. In the past three years, however, the ratio of taxation to gross domestic product declined consistently from 23,6 per cent in fiscal 1989/90 to 21,9 per cent in fiscal 1992/93, i.e. during a period in which the economic performance was exceptionally poor. This is probably partly an indication of the effect of the severe downturn in economic activity since March 1989. This decline in the tax burden during a cyclical downswing did not, however, follow the pattern experienced during previous downturns in economic activity. In all three the preceding downturns in economic activity the ratio of taxation to gross domestic product showed an increasing trend. The recent downward movement in this ratio may therefore not only be due to the exceptionally long and severe decline in economic activity, but may also reflect structural weaknesses in the tax system and in the efficiency of tax collection, as well as the relatively low rate at which value-added tax was introduced in 1991.

5.7 The level of government expenditure

In Graph 7 the level of government expenditure as a ratio of gross domestic product is compared over time. From this information it is apparent that after having declined to a lower turning-point of 21,5 per cent in fiscal 1980/81, the ratio of government expenditure to gross domestic product increased sharply to an estimated 31,4 per cent in fiscal 1992/93. As also illustrated in this graph, the sharply rising trend in the government expenditure ratio was to a large extent brought about by an increase in interest payments because of a rise in government debt and higher levels of nominal interest rates in South Africa. The ratio of non-interest government expenditure to gross domestic product rose more slowly than the total government expenditure ratio from a low of 19,5 per cent in fiscal 1980/81 to only 20,5 per cent in fiscal 1984/85; it then rose to 23,6 per cent in fiscal 1986/87 and fluctuated around this level in the next five years before increasing sharply again to 26,3 per cent in fiscal 1992/93.

The level of government expenditure in South Africa is nevertheless generally regarded as exceptionally high owing mainly to various forms of interference by the government in the functioning of the market mechanism and to the duplication of certain government services in the civil service at different government levels. For instance, social expenditure by the South African government substantially exceeds international norms for both developing and developed countries. Despite the pressures that exist on the government for the social upliftment of major segments of the population and the alleviation of poverty in South Africa, scope probably exists for a lowering of government expenditure, provided that government intervenes less in the behaviour of the market mechanism and carries on with a programme of deregulation. Although this may be difficult to achieve over a short period of time, a comprehensive restructuring of government functions could lead to relatively low growth in government expenditure and to lower rates of growth in public debt.

Graph 7: The ratio of government expenditure to gross domestic product



5.8 International comparison

From the above analysis of the relevant indicators over time it is difficult to determine conclusively whether they have reached "critical" levels and are indicating that government debt is moving into a debt trap. For instance, is the tax burden at nearly 22 per cent of gross domestic product in fiscal 1992/93 exceptionally high? In order to obtain a better perspective on the levels of these indicators, many economists resort to international comparisons. Such an international comparison is provided in Table 1, where some of the indicators of the state of public finance in South Africa are compared with those in certain selected other countries, depending on the availability of the relevant statistical information.

From this information it should be apparent that it is extremely difficult to draw any definite conclusions from an international comparison. For example, South Africa's deficit before borrowing and debt repayment as a ratio of gross domestic product is the highest in this table, but the ratios of Egypt, Brazil and Belgium are also high and, although these countries may have other serious economic problems, they are not experiencing problems of explosive debt growth. The ratio of government debt in South Africa to gross domestic product still appears quite manageable compared with the same ratios in

Table 1 An international comparison of indicators of the state of public finance
Per cent

	Year	Surplus/ deficit to GDP	Debt to GDP	Interest payments to government expenditure	Taxation to GDP
Industrial countries					
Australia	1990	2,2	13,1	7,9	24,5
Belgium	1990	–5,2	106,1	20,3	41,4
Canada	1990	–2,8	44,8	21,7	17,6
Germany	1991	–2,6	26,2	5,2	29,1
New Zealand	1991	4,0	61,5	14,8	36,4
United Kingdom	1990	0,8	39,8[2]	8,2	33,8
Developing countries					
Higher income					
Brazil	1990	–5,7	44,4[2]	77,5[1]	18,7
Israel	1991	–4,3	151,5	17,9	32,7
Singapore	1991	11,1	84,4	14,4	15,8
South Africa	1993	–8,9	53,3	16,2	21,9
Middle income					
Argentina	1989	–0,5	27,3	7,4	11,2
Indonesia	1991	0,4	43,8	13,0	18,3
Thailand	1990	5,0	20,3	13,1	18,8
Lower income					
Egypt	1989	–6,3	...	12,6	20,9

Source: International Monetary Fund: Government Finance Statistics Yearbook, 1992
Notes: 1. Including a monetary correction amounting to Cruzeiros R7 164,1 billion.
2. Ratios refer to 1988.

Belgium, Israel and Singapore, but it is again high compared with the ratios of Argentina, Thailand, Australia and Germany. Interest payments as a percentage of government expenditure in South Africa are relatively moderate compared with Brazil (which has an extremely high inflation rate and high nominal interest rate levels), but fairly high again when compared with Germany (with low inflation rates, and lower nominal interest rates than South Africa). Similarly, the ratio of taxation to gross domestic product in South Africa is low compared with most of the industrial countries, but the tax burden in South Africa compares fairly well or may even be regarded as on the high side compared with other developing countries.

From such international comparisons nearly any conclusion can be drawn about the "acceptability" or otherwise of the debt level of a country. By choosing certain countries in such a comparison, it could easily be concluded that South Africa is reaching a critical debt level. However, by choosing some other countries it would be just as easy to "prove" that the public debt level in South Africa can be increased without stirring up trouble. International comparisons are at best a precarious exercise that should be handled with extreme care. For instance, international tax systems can vary enormously depending on individual and family circumstances. Tax allowances for married couples and children, combined with intricate social-security systems in some countries, complicate the comparison of the tax burden between different countries. Other complications may arise because some countries may have significant local or state income taxes on top of those levied by the central government. Similar problems also exist in the international comparison of the other indicators.

5.9 A forward-looking approach

A forward-looking approach can also be used to investigate the sustainability of government finance. Using a small model[7], in which the key inputs are the ratios of government income to gross domestic product and non-interest expenditure to gross domestic product, time-paths for the ratio of government debt to gross domestic product were derived.

7 This model was developed by Dr J.P. van den Heever, Senior Economist, Economics Department, S.A. Reserve Bank.

This economic model was based on the following definitions:

$BD = BX - BR$: The budget deficit equals government expenditure less government revenue;

$BX = BXI + BXNI$: Government expenditure is the sum of its interest and non-interest components;

$D_t = D_{t-1} + BD$: Government debt at the end of each fiscal year equals the debt at the end of the previous year plus the deficit in respect of the current year;

$BXI = D_{t-1} . i$: Interest payments by government equal the stock of government debt multiplied by a representative nominal interest rate;

$i = infl + rri$: The nominal interest rate equals the rate of inflation plus the real rate of interest;

$BXNI = c . GDP$: Non-interest expenditure is a given fraction of gross domestic product;

$BR = r . GDP$: Government revenue is a given fraction of nominal gross domestic product; and

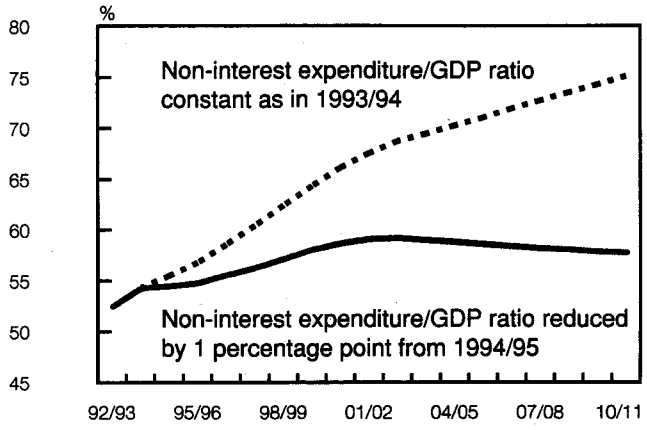
$GDP_t = GDP_{t-1} . (1 + infl) . (1 + rg)$: Nominal gross domestic product is equal to its value in the previous period adjusted by the rate of inflation and by the real growth rate.

The exogenous variables in this model are the rate of inflation (infl), the real rate of interest (rri), the ratio of the government's non-interest expenditure to gross domestic product (c), the ratio of government revenue to gross domestic product (r), and the real growth rate (rg).

The following main assumptions were made in arriving at two scenarios:

- Growth in real gross domestic product increases from 1 per cent in fiscal 1993/94 to 3 per cent in fiscal 1994/95 and stabilises at 4 per cent in the rest of the period to fiscal 2010/11.
- The increase in the gross domestic product deflator declines to 9½ per cent in fiscal 1993/94 and then gradually further to 2 per cent per annum from fiscal 1999/2000.
- Positive real interest rates are maintained, varying between 3 and 6 per cent.
- The revenue in the Budget of the central government as a percentage of gross domestic product remains at a level of 24,1 per cent (i.e. at the level budgeted for fiscal 1993/94) throughout the period until fiscal 2010/11.

Graph 8: Government debt/GDP ratio scenarios



As shown in Graph 8, in a first scenario where the ratio of non-interest government expenditure to gross domestic product remains at its level of 25 per cent as budgeted for fiscal 1993/94, the ratio of government debt to gross domestic product increases in an unsustainable manner, as could be expected on account of the large Budget deficit before borrowing and debt repayment for fiscal 1993/94.

In an alternative scenario it was assumed that the ratio of non-interest expenditure to gross domestic product is reduced by 1 percentage point from fiscal 1994/95 onwards, in approximate agreement with the reduction envisaged in current expenditure in the recently published Normative Economic Model. This results in a dramatic change in the projected path of the ratio of government debt to gross domestic product which at first rises to just below 60 per cent and then recedes somewhat.

6. Conclusion

From the above analysis it is apparent that it is difficult to arrive at any definite conclusion regarding the question whether South Africa is in a debt trap. Although the ratio of government debt to gross domestic product has increased relatively sharply, there is still no "explosion" in the growth of government debt. It also appears unlikely that government revenue and government expenditure have reached "critical" values where it may not be possible to increase taxation any further or where the government may be unable to reduce its expenditure. However, the results in the study do show that South Africa is in dire need of a restructuring of government finance to ensure that the country does not fall into a debt trap in the future.

The analysis made in the study also indicates that the current rate of growth in South Africa's government debt is unsustainable because the gap between real interest rates on government stock and the growth in real gross domestic product has widened to nearly 7 percentage points, because the ratio of the deficit before borrowing and debt repayment to the gross domestic product is substantially higher than the potential growth rate of the economy, and because interest payments as a percentage of government expenditure have increased to levels where these payments impede expenditure on essential social and other services. The recent, somewhat abnormal, declining trend in the ratio of taxation to total gross domestic product is also disconcerting and is probably not only related to the length and severity of the economic downturn. This trend may be indicative of structural problems in the tax system which could preclude further sharp increases in government expenditure, including interest payments, or again underline the importance of increasing the tax base of the country.

The ratio of government debt to gross domestic product may not be high by international standards, but it is important that the rising trend in this ratio be stopped because it increases the danger of the monetisation of public debt, the crowding-out of private-sector borrowing and a balance of payments constraint when the growth rate of the economy accelerates somewhat. Moreover, the large negative net asset value of the government (using the narrow definition of government's capital stock less its financial liabilities) indicates that the borrowing of funds by the government did not lead to a corresponding increase in its capital stock. For sound economic management it is important that the government reverts to the classical doctrine of a balanced-budget approach, where deficits on the government's accounts are only allowed to arise in order to finance capital or extraordinary expenditure. In essence, the findings in this study confirm the importance and urgency of the restructuring of government finance, and of improvements in other domestic structural weaknesses, as proposed in the recently released Normative Economic Model.

Previous Occasional Papers

Occasional Paper No **1**, December 1990; The optimal allocation of savings in the South African economy and the role of monetary policy *by* J.A. Lombard and J.P. van den Heever.

Occasional Paper No **2**, December 1990; Notes on oil, gold and inflation.

Occasional Paper No **3**, January 1991; South Africa's balance of payments: Sources, methods and reliability *by* E.J. van der Merwe and M.C. Bester.

Occasional Paper No **4**, July 1991; South Africa's public-sector accounts 1973 to 1990.

Geleentheidspublikasie no **5**, September 1991; Suid-Afrika se nasionale rekeninge, 1946 tot 1990.